THE AGRICULTURE OF THE ATLANTIC PROVINCES

CANADA

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OF REGIONAL
ECONOMIC
EXPANSION

THE AGRICULTURE OF THE ATLANTIC PROVINCES

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PREFACE

This report presents the results of a study dealing with the agriculture of Newfoundland, Prince Edward Island, Nova Scotia and New Brunswick - the Atlantic Provinces of Canada. The project was sponsored by the Atlantic Development Board and the Economics Branch, Canada Department of Agriculture. It was conducted jointly by personnel representing the two agencies.

While the study was concerned with the agriculture of the whole Atlantic Region, all provinces were not necessarily or equally represented in every aspect of it. Newfoundland, for instance, is not referred to in every section because of lack of information. Census data for the province are limited and the annual statistics on agricultural production, income investment and labour force published by the Dominion Bureau of Statistics are not yet available. Moreover, economic research and survey information pertaining to Newfoundland's agriculture is also relatively limited. For these reasons the treatment of some matters in the study is limited to the Maritime Provinces - Prince Edward Island, Nova Scotia, and New Brunswick.

However, a special report dealing with the agriculture of Newfoundland on a less comprehensive basis was prepared as part of an undertaking by the Atlantic Development Board to assist the Royal Commission on Economic Prospects of Newfoundland and Labrador. The Economics Branch, Canada Department of Agriculture also participated in this phase of the project.

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SUMMARY

The Background

There were 77,518 farms in the Maritime Provinces in 1871 and 113,248 in 1891. The numbers then declined to 31,639 in 1961. As a result Nova Scotia in 1961 had just over a fifth as many farms as in 1891. New Brunswick had fewer than a third and Prince Edward Island about half as many as in 1891. The number of farms in Newfoundland declined from 3,626 in 1951 to 2,387 in 1956 and 1,752 in 1961.

In Canada as a whole the number of farms declined by one-third. All provinces experienced the decline but the reduction was greater in the Atlantic area than elsewhere.

Land Resources

A capability classification of soils is not available for Newfoundland but from soil survey data and other sources, it is estimated that there is a potential of an additional 100,000 acres of agricultural land and about 2,000,000 acres of peat suitable for reclamation and development.

In the three Maritime Provinces there are roughly 8.7 million acres of land in soil capability classes 2,3, and 4 that are suitable for agricultural purposes but not now in such use. The breakdown by provinces is 570,000 acres in Prince Edward Island, 3.34 million acres in Nova Scotia and 4.78 million acres in New Brunswick.

The Labour Force

The number of persons occupied in Canada agriculture in 1961 was 649,000, compared with 1.1 million in 1931. Furniss forecasts a decline to 400,000 in 1970[1]. This study suggests about 400,000 persons will be employed on farms in Canada in 1980, and 18,000 or less in the Atlantic Region. The farm labour force represented 10 per cent of the total Canadian labour force in 1965. In the Atlantic Region the farm labour force of 36,000 persons was 6 per cent of the total labour force. Workers in agriculture represented 2 per cent of the labour force in Newfoundland, 26 per cent in Prince Edward Island, 5 per cent in Nova Scotia and 7 per cent in New Brunswick. In terms of employment, agriculture in the Atlantic Region contributes relatively less to the economy of the area than does agriculture in all of Canada.

In the Atlantic Region in 1961, 13 per cent of the farm operators were under 35 years and 29 per cent over 60 years of age compared with 17 and 20 per cent respectively for Canada. This suggests a more rapid decline in the Atlantic farm labour force than at the national level.

Relatively low farm wage rates contribute to the decline in the farm

[1]See Productivity Section, this report.

labour force. Only the commercial farm seems likely to be able to compete for labour with urban industry in the years ahead. The labour situation for small farmers is expected to become more difficult in the future, especially with respect to seasonal labour.

Capital Values

The capital value of the agricultural plant in the Atlantic Provinces in 1961 was $411.2 million. Land and buildings represented $250.9 million; machinery and equipment $91.8 million and livestock and poultry $68.6 million. By provinces Nova Scotia reported $145.6 million; New Brunswick $145.4 million; Prince Edward Island $96.3 million and Newfoundland $23.9 million.

Between 1931 and 1961 total capital value increased about 40 per cent in each of Nova Scotia and New Brunswick and 65 per cent in Prince Edward Island. Land and buildings were up generally from 10 to 20 per cent, and values of livestock and poultry in 1961 reflecting the need for increased inputs in recent years were about double those of 1931. Under the same pressures, values of machinery and equipment were up two to threefold.

The value of a farm in the Atlantic area increased from $3,102 in 1931 to $12,314 in 1961. In the latter year they were $16,965 per farm in Quebec, $30,837 in Ontario and $27,388 for all Canada.

Farm Credit

The capital value of all Canadian farms in 1961 was $13,171 million. Against this there was an estimated indebtedness in 1961 of $1,803 million. On the same proportional basis the debt on the $411 million farm capital in the Atlantic area would be about $55 million. The actual amount was probably less.

Credit outstanding on Canadian farms in 1964 amounted to $2,640 million of which $1,222 million was on long term loan, $729 million on intermediate term and $689 million on short term credit.

The Federal Farm Credit Corporation in fiscal 1961-62 made 5,885 loans totaling $68.6 million. In 1965-66 this was expanded to 11,238 loans and $209 million. In the Atlantic Provinces, FCC loans numbered 266 totaling $2.3 million in 1961-62; and 241 amounting to $3.5 million in 1965-66.

Since 1942 the Veterans Land Administration has made 10,570 loans and a total expenditure of $53.7 million in the Atlantic Provinces.

All four Atlantic Provinces also provide credit for farmers. The amount extended in 1964 was $2.6 million; the amount outstanding was $12.8 million. In 1966 New Brunswick began paying interest of 2½ to 3 per cent on FCC loans to New Brunswick farmers.

Productivity

The gross value of agricultural production per farm worker averaged $3,459 for the Maritime Provinces in the years 1961-65, compared with $5,512 for Canada. The extent of change since 1946-50 favoured the Maritimes - an increase of 160 per cent as against 157 for all Canada. However, the net value of the Canadian increase was 128 per cent compared with 106 for the Maritime Provinces.

In 1961-65 total capital investment (in constant dollars) per farm worker was $6,755 in the Maritime Provinces and $13,950 for all Canada.

The output per acre in the Maritime Provinces from pre-war to 1961-65 compared favourably with all Canada.

Agricultural labour productivity in the Maritimes indicated a rate of growth of about 3.6 per cent annually from 1946 to 1965 compared with a national rate of 4.6 per cent.

Farm Income

At the national level the average net farm income in the period 1961-65 was 59 per cent above that of the years 1941-45. In the Maritime Provinces there was a decline of 5 per cent. Since 1941 net farm income in the Maritimes has varied from an annual average of $64.7 million in the period 1951-55 to $43 million in 1961-65.

Income from off-farm sources is particularly important in the Maritime area. The Dominion Bureau of Statistics 1958 farm survey indicated that such income constituted about one-third of the income received by Maritime farmers. The average family income from off-farm sources in that area in 1958 was $1,481, compared with $1,262 for all Canada and $1,697 for Ontario.

Agricultural Output

Cash receipts from the sale of farm products increased from an average of $91.5 million annually, in the period 1946-50, to $149.9 million in 1965. Greatest gains were made in the production and sale of poultry and eggs, potatoes and apples.

In terms of physical volume, production output was up 3 per cent in New Brunswick, 16 per cent in Prince Edward Island and 20 per cent in Nova Scotia over the 20 years 1946-65. Comparable figures for Ontario and Canada were 49 and 45 per cent respectively.

Contribution to Regional Activity

Agriculture in 1962 contributed 3.4 per cent to Maritime economic activity or gross regional product. At the national level, excluding Newfoundland, agriculture contributed 6.1 per cent of the gross national product.

At the national level the net value of agricultural production went up 29.7 per cent between 1950 and 1962. In the Maritime Provinces there was a decline of 25.6 per cent.

The role played by agriculture in the economy of the Atlantic Provinces is less important than in Canada generally. Moreover it is declining faster than in the nation as a whole.

Agricultural Research and Technology

Increases in agricultural efficiency and output are related to the use made of the products of research and technology. One indication of the extent of such use by farmers is provided by the record of their expenditures for machinery, power equipment, fertilizers, lime, pesticides, herbicides, better feeds, improved seed and other such inputs. In the period 1946-65 such expenditure increases on the whole were less in the Maritime Provinces than elsewhere. The increase in Quebec was 139 per cent, Ontario 124 and for all Canada, 129 per cent. Maritime area increases were: Prince Edward Island 98 per cent, Nova Scotia 75 and New Brunswick 59 per cent. Production increases were of a similar order, from 2.5 to 3.3 per cent annually in all areas from Quebec to British Columbia, compared with 0.8 per cent for the Maritime Provinces.

The Disposition of Agricultural Output

From available data for the period 1961-64, there was considerable variation in agricultural food and feed supplies among the Atlantic Provinces. They suggest that Newfoundland produces a surplus above provincial requirements in only one product - blueberries. At the other extreme Prince Edward Island has a surplus in 10 out of 17 farm products grown on the Island. Nova Scotia was deficient in 13 out of 16 products and New Brunswick in 13 out of 17 products.

Data for 1964 indicate that the Maritime Provinces as an area were in a deficit position for all categories of livestock and livestock products. The production of milk was short of requirements by 447 million pounds, chicken and fowl by 14 million pounds, and other meats to the equivalent of 118,000 head of beef, 51,900 head of mutton and lamb and 277,600 pigs.

Seventy-nine per cent of the Atlantic output remained in the Atlantic Provinces; 16 per cent went to other provinces and 4.7 per cent to export trade. There was little interprovincial movement within the Atlantic Region.

Obviously the area as a whole presents a substantial market for a wide range of agricultural products.

Land Use and Crop Production

In 1961 there were a total of 33,391 farms in the Atlantic Region. The average farm consisted of 163 acres of which 55 was in improved land and 36 acres in crop.

Trends in land use indicate a substantial decline in farm land, an even sharper decline in number of farms, but an increase in size of farm. During the 1931-61 period there was an annual movement of 1,823 farms and 141,820 acres of land per year out of agriculture in the three Maritime Provinces. Comparable data available for Newfoundland since 1951 indicate an annual movement of 187 farms and 3,048 acres of land out of agriculture.

Data on crop production indicate a downward trend in acreage of hay, grain and tree fruits, and an upward trend in the acreage and value of potatoes, vegetables and small fruits. Declines in crop production reflect weaknesses in the resource base and particularly in the soils of the region which tend to be acid and of low fertility. Increases are generally associated with crops which are well adapted to the cool moist climate of the area.

Feed Crops: Feed crops consisting mainly of grain and hay account for about 85 per cent of the crop acreage in the region. The 1961 acreage of these crops was only 56 per cent of that in 1931 and the decline in feed production, which is the main input in livestock operations, appears to be a major weakness of agriculture in the region.

The chief feed deficiency is in grain. Contributing factors are transportation and wartime assistance policies plus ability in the past to import grain or by-products at relatively low cost. Sharply rising feed costs have stimulated interest in grain growing and this, combined with improved technology, should result in increased production.

Increased output of better quality forage appears to offer the greatest opportunity for improving the feed situation in the region. The cool moist climate favours the growth of grass but is a problem in making hay. Greater efforts should be made to capitalize on the natural advantages of the area in terms of pasture and to reduce the problems of handling by more emphasis on silage and haylage.

Potatoes: Potatoes are the major cash crop of the region and account for 42 per cent of production in Canada. Since 1951 production has increased and in the 1961-65 period the farm value of the crop averaged about $34 million annually. Efficiency in production is offset by inadequate marketing programs, while expansion is inhibited by failure to realize that this is one of the best managed enterprises in the region and one in which it has special advantages.

Apples: Apples, which rank second to potatoes as a cash crop, are grown mainly in Nova Scotia. Following the loss of overseas markets, trees declined to about one-third pre World War II numbers. With a more optimistic outlook in the industry numbers have moved upward since 1964. About two-thirds of the crop is marketed in processed form and increased planting of processing varieties is needed to maintain the industry.

Acreage of tree fruit other than apples is relatively small and the numbers of pear, peach, plum and cherry trees have declined since 1951. Declines are mainly attributed to climatic factors less favourable than those in competing areas.

Blueberries: In the 1960-65 period the Atlantic Region accounted for 61 per cent of commercial blueberry production in Canada. Output has increased since 1951 and the current value of the crop is about $2.0 million. Low-bush

blueberries are native to the region and have good potential for expansion. Due to its comparatively recent development the enterprise is somewhat lacking in terms of research and extension and particularly in market organization.

Strawberries: Strawberry production in the Atlantic Region increased from 3.4 to 5.2 million quarts in the 1956-61 period. The crop is well adapted to the area and the cool late spring provides additional advantages by delaying harvesting until labour is available from schools, and reducing competition on export as well as local markets. An added factor in the potential development of the enterprise is an excellent program of research and promotion.

A number of other small fruits are grown in the region but production is relatively small. Raspberries and cranberries are probably the crops with the greatest potential for development.

Vegetables: There has been an upward trend in commercial vegetable production in the region and the 1961 crop of 13,644 acres was about eight times that in 1931. The area has advantages in land and labour costs and in supplies of water for irrigation. As in the past, future trends will probably emphasize production of crops suited to the cool moist climate of the region and particularly those well adapted to processing.

Greenhouse Products: Following a decline before 1941, sales of greenhouse and nursery crops have moved steadily upward and the 1961 crop, valued at $1.8 million, was more than 10 times that in 1941. From the point of view of available markets and production potential the enterprise appears to have good prospects for expansion. A contributing factor in past expansion has been the organization developed by the industry, which extends to both the production and marketing fields.

Tobacco, Flax: In recent years a number of new crops have been introduced into the region. Probably the most important of these is tobacco, which has passed the feasibility stage and in 1965 produced a commercial crop valued at $512,799. Another crop currently in commercial production but requiring further evaluation is flax.

Forest Products: Farm sales of forest products reached a high of $11.6 million about 1951 and subsequently declined to $4.1 million in 1965. Contributing factors were falling prices for pulp and reduced sales of firewood. Long-term prices for pulp are said to be good, with the further prospect that companies will purchase an increasing percentage of their supplies from farmers. The potential of the enterprise is further indicated by the fact that the average farm in the region has 87 acres in woods.

Livestock and Livestock Products

In the Atlantic Provinces, agriculture tends to emphasize livestock production. Since 1931 annual income from sale of livestock and livestock products has varied from one-half to three-quarters of farm cash income.

Livestock numbers in the past 35 years have shown a downward trend in cattle, sheep and horses and an upward trend in pigs and poultry. The region is currently deficient in all classes of livestock and livestock products, a fact which does not support the traditional complaint of lost markets.

While the region emphasizes livestock, and agricultural policies are generally oriented toward these enterprises, the most significant developments in farming in recent years have not been in livestock but rather in cash crop production. One exception to this is in Newfoundland, where the major developments have been in livestock.

Trends in livestock in the region are closely related to changes which have occurred in the production or availability of feed, which is a major input in livestock operations. Declines in cattle and sheep are associated with reductions in forage production, while increases in pigs and poultry are largely based on supplies of grain made available via the Feed Freight Assistance Program.

While declines are generally attributed to inadequacies in the organization or management of livestock, the basic problem appears to be one of deficiencies in crop production. These are reflected in high costs of producing feed and as a result declining returns from livestock. The old adage that Maritime livestock are better bred than fed appears to have increasing application and, if they are to be successful, programs to increase livestock production must focus more attention on increased output of higher quality and lower cost feed.

Due to high costs of feed production, the region has made extensive use of the Federal Feed Freight Assistance Policy. Current interest in increased grain growing has generated some criticism of the policy, including its suggested removal. While some increase in grain growing is in prospect it would appear that maintenance of livestock production in the region will probably involve a high degree of dependance on this policy for some time to come. A preferable alternative to removal of feed freight assistance would seem to be (as in Ontario) the expansion of feed production to the point where the policy tends to be a minor consideration in meeting feed requirements.

Dairy: Dairy-farming is the major enterprise in the Atlantic Region and currently accounts for about 20 per cent of farm cash income. In the past 35 years there has been a decline of 44 per cent in dairy cows but with increased output per cow total milk production has remained relatively constant.

Milk for processing, which utilizes 48 per cent of total production, has declined since 1961. Sale of fluid milk, which accounts for 41 per cent of production, has increased and is the major market outlet in all provinces but Prince Edward Island.

Demand for fluid milk is closely related to changes in population; the prospect is for a gradual expansion in sales with a decline in number of shippers and an increase in the amount of milk shipped per farm.

On the basis of such factors as age of operator and size of herd, it appears that the output of manufacturing milk may decline despite recent increases in support payments. In Nova Scotia and New Brunswick the production of manufacturing milk will probably become, to an increasing degree, a by-product of fluid milk operations. While prospects for processing milk production are more favourable in Prince Edward Island, increased emphasis on cash crop production may tend to restrict output.

Beef: While some beef cattle are kept, much of the beef produced in the Atlantic Region is a by-product of the dairy industry. Production falls far short of market requirements and the current deficit represents the equivalent of some 82,600 head of beef cattle and 66,500 calves annually.

Beef is an extensive type of operation with a relatively low profit margin per animal. Small farms, lack of extensive grazing areas, and high costs of stabling and winter feed tend to restrict production of beef.

Despite these problems it is suggested that beef can make a significant contribution to income on many farms in the region and particularly if combined with more intensive operations. Beef appears to be a secondary enterprise in the region, which can increase farm income by making more effective use of resources such as labour, pasture, housing and by-products which are currently not being fully utilized. Only in exceptional circumstances can it be recommended as a specialized or major farm operation.

The closest counterpart or alternative to beef on most farms in the region is milk for processing. The trend toward a meatier type of animal has led to some confusion in breeding programs as well as in the question of beef versus dairy in the farm program. On many of the small farms in the region, where intensity is a primary consideration, beef is generally secondary to milk production.

Sheep: The numbers of sheep have declined in the region since 1871. The annual loss in the past 35 years has averaged over 9,500 sheep per year. This decline, if continued, will wipe out the enterprise in less than ten years.

Low capital and labour requirements for sheep, their general hardiness and grazing ability, plus the fact that gains are made largely on grass rather than grain, favour expansion of the enterprise in the region. However, expansion is limited by inadequate management and lack of extensive grazing areas due to competition from forestry.

The fact that the best managed flocks are located in the better farming areas suggests the possibility of combining sheep with more intensive operations. Opportunity for larger operations exists in some shore line areas and sections of Newfoundland where there are no municipal taxes or fence requirements, and where extensive barrens provide sparse but low-cost feed.

Hogs: Hog production in the Atlantic Region is highly deficient and falls some 400,000 head short of meeting current market requirements. Producation has been increasing since 1961, and on the basis of improvements in scale of operation and efficiency there is reason to further expect an expansion. A major consideration is maintenance of assistance on feed comparable to that currently provided under the Feed Freight Assistance Policy, on which the enterprise is currently highly dependent.

Hogs are in many respects similar to poultry and it is anticipated that future trends are likely to follow a similar pattern to those which have occurred in poultry. One point in which hogs differ somewhat from poultry is in the influence of scale of operation on unit costs and returns. As a result hogs may have special significance for the region in replacing poultry, which have moved off many farms into a few large biological factory type operations.

Poultry: Of the various livestock enterprises in the region, poultry is probably operated most efficiently and comes closest to meeting market requirements. Current deficits are confined mainly to poultry meat, and future developments will probably emphasize this aspect of production.

As with hogs, dependance on feed imported under the Feed Freight Assistance Program is a major consideration of the enterprise, and of even greater significance due to the scale at which poultry operations are conducted.

Due to its high capital and management requirements, and problems in increasing market outlets, poultry probably offers fewer opportunities for expansion than many other enterprises in the region. Future developments are likely to be closely related to changes in population and the ability of operators to maintain competitive levels of efficiency and output.

Fur Farming: Fur farming was once an important enterprise on many farms in the region.

Following a lengthy period of decline the industry now appears to be on the upswing. It is felt that the region has special advantages in terms of climate and feed supplies and that current expansion will be continued.

An Appraisal

The information presented in the various sections of this study and summarized in the preceding pages indicates that the gross value of production per farm worker on Maritime farms, 1961-65, averaged $3,459 compared with $5,512 for Canada as a whole. Agricultural labour productivity, 1946 to 1965, in the Maritime area indicated a growth rate of 3.6 per cent annually compared with a national rate of 4.6 per cent. Net farm income declined 5 per cent in the period 1941-65 while at the all Canada level it was up 59 per cent. Agriculture in 1962 contributed 3.4 per cent to Maritime economic activity or gross regional product; at the national level, exclusive of Newfoundland, agriculture's contribution was 6.1 per cent of gross national product.

The significance of these results in relation to future agricultural development in the Atlantic Provinces suggests that agricultural policy objectives be considered. To that end two alternatives are put forward in the report. One is the maintenance of an industry that is large in respect of numbers of farms and farm people; the other is the maintenance of an industry that is large in terms of output and efficiency of operation. The results of this study suggest that the second of these alternatives is the one that should be accepted.

In seeking the basis for the larger output and greater efficiency of farms in other parts of Canada than prevails in the Atlantic Provinces one is confronted with differences in scale of operations. Farm businesses are larger in other provinces, where the capital investment per farm is double that of the average Atlantic farm. Acreages are greater and herds are larger. The working force on these larger Canadian farms has greater productive capacity; it is aided to a larger extent by other inputs such as large scale machinery, power equipment, fertilizers, pesticides and higher producing livestock, than Atlantic farms are now providing. This greater capacity (size of business) is the basis for larger output and efficiency. It is suggested

that this should be the objective of Atlantic agriculture. It should be noted, however, that output and efficiency are related to such factors as the contribution of people, land resources, educational and research facilities, and credit.

Attainment of Objectives

The conclusion reached is that the objectives suggested for the Atlantic Region can be attained. The resources necessary to that end are at hand. The people required for the job are available. Many may need assistance to acquire the newer knowledge and skills required, and educational facilities, including extension services, may need to be further expanded for that purpose. Land resources in all four provinces are more than adequate. A deficiency in food and feed requirements ensures a ready local market for most of the region's products.

Research facilities compare favourably with those of other parts of Canada. A variety of agricultural services, provincial and federal, is available to help farmers make necessary adjustments.

In drawing attention to the possibilities of agricultural improvements in the Atlantic Region, one should not overlook the fact that in several branches of the industry, notably the production of potatoes, apples, poultry and eggs, scale and efficiency compare favourably with the best in Canada. Moreover there are upwards of 4,000 commercial farms in the Atlantic Provinces that each sold products to the value of $5,000 or more in 1961. These operators have demonstrated that farming on a commercial basis is possible in the Atlantic Provinces.

The process of adjustment to attain the greater capacity sought may involve expenditures beyond the immediate means of many farmers. Although larger amounts of credit have been made available at both the provincial and federal levels in recent years, it is probable that still more will be needed to do the job. This is likely to be a matter of concern to provincial governments. The payment of a portion of the interest charge on Farm Credit Corporation loans on a basis similar to that now in effect in New Brunswick might be considered as a means of expanding credit.

The Agricultural Rehabilitation and Development Administration (ARDA) is in a position to assist in various ways the process of attaining viable farms through enlargement by consolidation, regrouping and improvement of existing sub-marginal units. Provinces that are not now taking advantage of the available joint arrangements with ARDA should consider doing so.

Conclusion

In concluding its appraisal of the possibility of attaining the sort of objectives considered desirable for the Atlantic Provinces the report notes that progress has already been made in that direction; and that legislative measures and programs to that end have already been introduced. More will be required, however, including programs to assist the movement of many people out of agriculture and for their successful establishment elsewhere. The report urges that there be developed an even greater appreciation of the need

for improvement and a keen desire by farmers and others to bring it about. The task is challenging but it is not beyond the capabilities of farmers and the institutions serving them.

THE AGRICULTURE OF THE ATLANTIC PROVINCES

The Background

Canadian agriculture traces its beginnings to the Atlantic Region where European methods of farming were introduced by the French under M. de Mont in 1605 at Port Royal, now Annapolis, Nova Scotia. There, they raised corn, pumpkins and beans on cultivated patches[1] - to which M. de Poutrincourt about 1607 added wheat, rye, barley, oats, and a variety of garden vegetables[2].

In 1610 John Guy and 41 emigrants from England under the auspices of the Newfoundland Colonization Company founded a settlement in the vicinity of Conception Bay on land granted the Company by James the First. Their purpose included the purchase of fish, export of timber and raising of sheep. Although a farm was established and the community lasted for about 18 years, it failed, together with several similar efforts made prior to 1637. From then until the early part of the nineteenth century settlement in Newfoundland was officially discouraged - even forbidden[3].

In 1693 some Acadians with a few cattle migrated to what became New Brunswick and there established a farming settlement along the St. John River[4].

With the establishment of a naval and military base at Louisburg in 1713, the French there encouraged the development of agriculture in Cape Breton and Prince Edward Island[5].

By the mid 1700's the settlement of Nova Scotia was being actively promoted by Britain. The influx of United Empire Loyalists - 30,000 to Nova Scotia by 1783 - led to rapid settlement there and in New Brunswick and Prince Edward Island[6].

An agricultural society formed at Halifax in 1789[7] was the forerunner of a crusade for agricultural improvement throughout the Maritime Provinces in the early 1800's and led to agricultural boards and government support in varying degrees prior to confederation[8].

Maritime agriculture, particularly that of Nova Scotia and New Brunswick, in this period struggled against the effects of nature and competing

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[1]Grisdale, J.H. Development of Agriculture in Canada. Canada Yearbook 1924 p. 186.
[2]Innis, H.A. Editor Select Documents in Canadian Economic History 1497-1783 University of Toronto Press 1929 p. 61.
[3]Report of the Newfoundland Royal Commission on Agriculture 1955 p. 17.
[4]Grisdale, J.H. op cit pp. 186-188.
[5]Fowke, V.C. Canadian Agricultural Policy. University of Toronto Press 1946 pp. 4-5.
[6]Innis, H.A. op cit pp. 167-218.
[7]Canada Yearbook 1924 p. 51.
[8]Fowke, V.C. op cit pp. 33-66.

industries. On the one hand were the limitations of soil and climate; on the other the fisheries, which dominated the life of Nova Scotia, and lumbering that held the same status in New Brunswick.

However, in spite of handicaps, agriculture did develop in both provinces as well as in Prince Edward Island, where conditions were somewhat more favourable for farming. In Nova Scotia land under cultivation increased from 799,310 acres in 1851 to 1,627,091 acres in 1871; in New Brunswick it rose from 643,954 to 1,171,157 in the same period; while in Prince Edward Island the increase was from 368,127 acres in 1861 to 445,000 acres in 1871[9].

As an occupation, agriculture ranked high. The censuses of 1871 and 1881 both indicated that in each of the three provinces more people were engaged in agriculture than in any other occupational grouping[10].

Production and export trade had reached significant proportions by the time of confederation and the decade following. The output of potatoes was 5,560,975 bushels in Nova Scotia and 6,562,355 bushels in New Brunswick in 1871 and to 6,042,191 bushels in Prince Edward Island in 1881. Nova Scotia had 300,000 cattle and 400,000 sheep in 1881 and sold 63,000 cattle and 151,000 sheep. There were 13 cheese factories in Nova Scotia and 4 in New Brunswick in 1881. Butter production in the same year in Nova Scotia was estimated at 7,500,000 pounds. The Prince Edward Island Railway handled substantial traffic in oats, potatoes, flour and livestock in 1877.

In 1876 shipments of potatoes in bulk to the United States from ports in Prince Edward Island and Nova Scotia amounted to a "considerable trade". In the period under review cattle were being exported via Quebec and Halifax to Britain. The beginnings of an export trade with Britain in apples from the Annapolis Valley were in evidence. Carleton County exported sheep, sheep-skins, cattle, horses, hay and cereals to the value of $100,000 in 1880. Nova Scotia in 1881 produced 1,000,000 bushels of turnips and 600,000 tons of hay with large quantities of the latter being shipped to the West Indies[11].

In Newfoundland a census of 1869 revealed 41,715 acres of land under cultivation. Production, expressed in terms of boxes or barrels, included: wheat 747, oats 11,150, turnips 17,100, potatoes 308,357, other roots 9,847; also 20,458 tons of hay and 162,508 pounds of butter. Livestock included 3,764 horses, 7,275 oxen, 6,446 cows, 23,044 sheep, 6,417 goats and 19,081 swine[12].

A Changing Pattern

The agriculture of the Maritime Provinces continued to expand in terms of numbers of farms, area occupied, and acreage of improved land, until the 1890's. There were 77,518 farms in the three provinces in 1871 and 113,278 in

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[9]Creighton, D.G. British North America at Confederation. A study prepared for the Royal Commission on Dominion-Provincial Relations. King's Printer, Ottawa, 1939 pp. 25-26.

[10]Innis, H.A. and Lower A.R.M. Editors. Select Documents on Canadian Economic History 1783-1885 p. 689.

[11]Ibid. pp. 691-697.

[12]Census of Newfoundland 1869. Published in the Census of Canada 1871 Vol. IV.

1891. The numbers then declined to 31,639 in 1961, (table 1) or to 44,620 if the 1956 definition of a farm is used. Individually too, the three provinces appear to have reached maximum or near maximum farm numbers and acreages at about the same time, and each experienced a decline thereafter (tables 3 - 5). The decline in numbers of farms was greatest in Nova Scotia and least in Prince Edward Island. As a result Nova Scotia in 1961 had just over a fifth as many farms as in 1891. New Brunswick had fewer than a third and Prince Edward Island about a half as many as in 1891.

Considering Canada as whole the numbers of farms increased until 1941, due largely to the development in the Western Provinces, when the number of farms was twice that of 1871 (table 1). Since then the number has declined by one third. All provinces experienced the decline but the reduction has been greater in the Atlantic area, particularly in Nova Scotia and New Brunswick, than elsewhere, as is evident from table 2.

TABLE 1

Number of Farms, Area in Farms and Improved Acreage, Canada and the Maritime Provinces, 1871-1966 a

Year	Number of Occupied Farms		Area in Farms		Area of Improved Land	
	Canada	Maritime Provinces	Canada	Maritime Provinces	Canada	Maritime Provinces
			- thousands of acres			
1871	367,862	77,518	36,046	8,859	17,336	2,798
1881	464,025	106,339	45,358	10,333	21,899	3,731
1891	542,181b	113,278	60,288	11,766	28,537	4,222
1901	511,073b	105,232	63,422	10,719	30,166	3,394
1911	682,329b	104,359	108,001	11,001	48,734	3,471
1921	711,090	97,788	140,888	10,210	70,770	3,128
1931	728,623	86,334	163,114	9,645	85,772	2,940
1941	732,832	77,096	173,563	8,950	91,636	2,785
1951	623,091	63,709	174,047	7,824	96,853	2,343
1956	575,015	55,010	173,924	6,894	100,327	2,251
1961	480,903	31,639	172,551	5,445	103,403	1,832
1966	430,522	26,393	174,125	4,640	108,154	1,715

a Data for 1961 are from 1961 Census of Canada Agriculture; those for 1871-1956 are from Historical Statistics of Canada; Urquhart, M.C. and Buckley, K.A.H., Editors, MacMillan Company of Canada Ltd., 1965.

b For comparison with later censuses deductions have been made of plots under one acre which were included in the Censuses of 1891 to 1911.

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TABLE 2

Number of Farms, Canada and the Provinces, 1941-1966 a

	1941	1951	1956	1961	1966
Newfoundland		3,626	2,387	1,752	1,709
Prince Edward Island	12,230	10,137	9,432	7,335	6,357
Nova Scotia	32,977	23,515	21,075	12,518	9,621
New Brunswick	31,889	26,431	22,116	11,786	8,706
Quebec	154,669	134,336	122,617	95,777	80,294
Ontario	178,204	149,920	140,602	121,333	109,887
Manitoba	58,024	52,383	49,201	43,306	39,747
Saskatchewan	138,713	112,018	103,391	93,924	85,686
Alberta	99,732	84,315	79,424	73,212	69,411
British Columbia	26,394	26,406	24,748	19,934	19,085
Canada	732,832	673,087	514,993	480,877	430,503

a 1961 Census of Canada, Agriculture.

The decline in area and in improved acreage in the Maritimes followed much the same trend as that of farm numbers, but the magnitude of change was less and more varied (tables 3 - 5). Thus, while Nova Scotia by 1961 has lost four-fifths of the number of farms reported in 1891, the decline in area was to just over a third; and Prince Edward Island, which had a 50 per cent decline in farm numbers, had lost only about 20 per cent in area and slightly less of improved acreage.

Since acreage has not declined as fast as the numbers of farms it follows that farms have been getting larger. Actually, the change in acreage was not great in either Prince Edward Island or New Brunswick until about 1941, (tables 3 - 5). There has, however, been substantial loss since then, both in total area and acreage of improved land.

The trend toward larger farms is indicated in table 6. In 1961 the average size of farm in each of the three provinces was substantially larger than in either 1871 or 1931. In relation to the former the increase was in the range of 50 to 65 per cent with Nova Scotia making the best showing. In terms of improved acreage, however, Prince Edward Island has made the most significant development. There the area of improved land per farm has doubled since confederation, while in Nova Scotia the increase has been about 12 per cent and in New Brunswick 63 per cent.

The changes in size of farm and in area of improved land per farm, reflecting as they do both numbers of farms and acreage, suggest that the agriculture of Prince Edward Island has also experienced somewhat less variability than that of either Nova Scotia or New Brunswick.

TABLE 3

Number of Farms, Area in Farms and Improved Acreage, Prince Edward Island 1871-1966 a

Year	Number of Farms	Area in Farm	Area of Improved Land
		- thousands of acres	
1871	11,512	1,028	445
1881	13,629	1,126	597
1891	14,579b	1,214	718
1901	13,748b	1,195	726
1911	14,113b	1,202	769
1921	13,701	1,216	767
1931	12,865	1,191	766
1941	12,230	1,169	737
1951	10,137	1,095	646
1956	9,432	1,065	645
1961	7,335c	960c	580
1966	6,357	927	570

a Data for 1871 are from the Provincial Census of that year and reported in Vol. IV Census of Canada 1870-71; those for 1881 and 1891 are from the respective Censuses of Canada. For other years data are from the 1961 Census of Canada; Agriculture, Prince Edward Island.

b For comparison with later censuses deductions have been made for plots under 1 acre as follows: 1891 - 558 plots; 1901 - 266 plots; 1911 - 256 plots. See Historical Statistics of Canada, Urquhart, M.C. and Buckley, K.A.H., Editors, MacMillan Company of Canada Ltd., 1965, p. 342.

c 690 holdings and 44,662 acres were excluded in 1961 by change in farm definition between 1956 and 1961.

TABLE 4

Number of Farms, Area in Farms and Improved Acreage, Nova Scotia, 1871-1966 a

Year	Number of Farms	Area in Farm	Area of Improved Land
		- thousands of acres	
1871	46,316	5,031	1,627
1881	55,873	5,396	1,881
1891	60,122b	6,081	1,994
1901	54,478b	5,081	1,257
1911	52,491b	5,260	1,257
1921	47,432	4,724	992
1931	39,444	4,302	845
1941	32,977	3,817	812
1951	23,515	3,174	662
1956	21,075	2,776	630
1961	12,518c	2,230c	498
1966	9,621	1,852	486

a Data for 1871-91 are from the Censuses of Canada for those years. For other years data are from the 1961 Census of Canada; Agriculture, Nova Scotia.

b For comparison with later censuses deductions have been made for plots under 1 acre as follows - 1891 - 4,521 plots; 1901 - 1,555 plots; 1911 - 1,143 plots. Urquhart, M.C. and Buckley, K.A.H., Editors, Historical Statistics of Canada; MacMillan Company of Canada Ltd. 1965, p. 342.

c 5,746 holdings and 427,715 acres were excluded in 1961 by the change in farm definition between 1956 and 1961.

TABLE 5

Number of Farms, Area in Farms and Improved Acreage, New Brunswick, 1871-1966 a

Year	Number of Farms	Area in Farm	Area of Improved Land
		- thousands of acres	
1871	31,202	3,828	1,171
1881	36,837	3,810	1,253
1891	38,577b	4,471	1,510
1901	37,006b	4,443	1,410
1911	37,755b	4,538	1,445
1921	36,655	4,270	1,368
1931	34,025	4,152	1,330
1941	31,889	3,964	1,235
1951	26,431	3,470	1,006
1956	22,116	2,981	951
1961	11,786c	2,200c	734
1966	8,706	1,812	639

a Data for 1871-1891 are from the Censuses of Canada for those years. For other years data are from the 1961 Census of Canada Agriculture, New Brunswick.

b For comparison with later censuses deductions have been made for plots under 1 acre as follows; 1891 - 2,259 plots; 1901 - 577 plots; 1911 - 455 plots; Urquhart, M.C. and Buckley, K.A.H. Editors; Historical Statistics of Canada. The MacMillan Company of Canada Ltd., Toronto 1965, p. 342.

c 6,545 holdings and 489,438 acres were excluded in 1961 by change in farm definition between 1956 and 1961.

TABLE 6

Size of Farms and Acreage of Cultivated Land, Selected Years, Maritime Provinces, a

	Prince Edward Island	New Brunswick	Nova Scotia
1871			
Average size of farm acres	89	123	109
Improved Land per farm acres	39	38	35
1931			
Average size of farm acres	92	122	109
Improved land per farm acres	60	39	21
1961			
Average size of farm acres	131	187	178
Improved land per farm acres	79	62	39

a Data for Prince Edward Island for 1871 are from the Provincial Census of that year and reported in Vol. IV Census of Canada 1870-71. Nova Scotia and New Brunswick data for 1871 are from the Census of Canada 1871. Data for 1931 and 1961 for all provinces are from the 1961 Census of Canada: Agriculture.

TABLE 7

Number of Farms, Area in Farms and Improved Acreage, Newfoundland, 1951-1966 a

Year	Number of Farms	Area in Farms Acres	Area of Improved Land - Acres
1951	3,626	85,040	28,981
1956	2,387	71,814	24,234
1961	1,752b	54,561b	20,455
1966	1,709	49,513	20,566

a 1961 Census of Canada, Agriculture.

b 1606 holdings and 19,763 acres were excluded in 1961 by change in farm definition between 1956 and 1961.

Newfoundland

The pattern of agricultural change in Newfoundland in the period for which comparable statistics are available, 1951 to 1961, suggests a trend similar to that experienced in Nova Scotia and New Brunswick. Thus, the number of farms in each case declined by roughly 50 per cent, and the area declined by one-third, in the ten year period (table 7).

Present Status and Possible Trends

In the preceding pages a very brief review of the agricultural background in the Atlantic Provinces has been presented. It has indicated that during several centuries of development the industry spread throughout these provinces and from there to other parts of Canada; but it also indicated that in recent decades very significant changes have been taking place. In succeeding pages these changes and the present status of agriculture in the Atlantic Region will be examined in some detail. The treatment will include an appraisal of agricultural resources, a review of the present scale of operations, productivity, efficiency and related matters. Comparisons with farming in other parts of Canada and some reference to possible future developments will be made.

The Resource Base

The type of farming in any given area is determined by the merging of many forces including environment, production resources and economic conditions. The kind of farming practiced in an area depends upon the ingenuity of farmers in adjusting to physical and economic conditions.

Physical Characteristics of the Atlantic Region[1]

Any one of the physical factors of temperature, precipitation, topography and soil can be the limiting factor in the type of farming that develops in a particular area.

Climate: The climate of the Atlantic Provinces is generally humid, with an average annual rainfall varying from 40 to 50 inches and often exceeding 50 inches along the southern coast of Nova Scotia. The region experiences heavy

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[1]The following published material was used in the preparation of this section:
Cann, D.B. and J.F.G. Millette, Soils of the Appalachian Region, in Institute Review, March-April 1960.
Richards, N.R. Production Possibilities and Technology, Fertility and Soil Management - Eastern Canada.
Canada Yearbook, 1963-64.
Farmers Bulletin 157.

annual snowfall, with a total of over 100 inches considered quite normal in Newfoundland and Northern New Brunswick. It is also subjected to the cold Labrador current and interior winds from northern Quebec which cause relatively severe winters and late springs. The frost-free period ranges from 180 days along the coastal areas to 100 days in the interior and northern areas, but in Prince Edward Island the bottom of the range may average 150 days. In spite of limitations the climate of the Atlantic Provinces is warm enough, and experiences sufficient rainfall, to make it suitable for the production of a wide range of agricultural products.

Topography: The physical structure of the land surface limits the extent to which arable land can be utilized. The Atlantic Provinces lie within the Appalachian Region which has been exposed to glaciation leaving the characteristic glacial deposits from which the present soils were developed.

The surface of Newfoundland is rugged with very old, worn down mountains. Much of the land is barren, rocky and with many swamps appearing over the province. Large areas of bogland are a source of potential agricultural land.

There is no pronounced upland in Prince Edward Island but the elevation rises to 450 feet above sea level. Virtually the whole province is considered suitable for agriculture.

Nova Scotia is divided into two main parts: the northeastern part, known as Cape Breton, and the mainland. Cape Breton Island is almost bisected by the Bras d'Or Lakes stretching from northeast to southwest. Most of the Island is rough wooded upland with little chance of future agricultural development. The mainland of Nova Scotia is mostly of low relief. Ridges up to 1,000 feet in altitude run through the centre of the province. An upland area of mountains runs east to west on the south side of the Bay of Fundy. This area is about 900 feet high, from 8 to 12 miles wide and 85 miles long. The Atlantic side of the province is mostly rocky, deeply indented with bays and unsuitable for agriculture. The northeastern part of the province and the slopes of the Bay of Fundy are the main agricultural areas.

The terrain of New Brunswick is rugged, deeply bisected by many rivers, and heavily ridged with areas of upland and lowland. The northwestern plateau is an upland with ridges to 1,500 feet above sea level and deeply bisected by valleys tributory to the St. John River. The central highlands consists of a broken plateau about 2,000 feet above sea level. The southern part of the province is an upland and consists of low ridges. The main lowland area is in the valley of the St. John River. The northwestern and the St. John River Valley areas are the main agricultural areas.

Soils: Soil is one of the major factors affecting the type of farming. The texture, chemical content, availability of plant nutrients, and many other factors related to the soil, have a direct bearing on the kind of crop grown. The soils of the Atlantic Provinces belong to the podzol group and are considerably leached, acid and of low natural fertility. These soils consist of a light grey layer under the forest mat with a reddish brown subsoil.

About one-third of the land surface of Newfoundland consists of rock underlay and rock outcrops which make it unsuitable for agricultural land. Rock, barrens and bogland together make up about 80 per cent of the total area.

The remaining 20 per cent consists of mineral podzol soils. Drainage, stoniness and low soil fertility appear to be the main problems in land use: conditions common to the Atlantic Region.

The soils of Prince Edward Island were mostly developed from glacial till. They range from sandy loam to clay loam with the Island's characteristic red color. The light soils require good farm practices to check soil erosion and to maintain soil fertility. About half of the land in the province is cleared. It has been estimated by various surveys that about 85 per cent of the soils are suitable for agricultural use.

In Nova Scotia the soils range from sandy loam to loam. The color of the soil varies from dark brown to yellowish brown, and reddish brown. Almost all of the upland is unsuitable for agriculture but will produce good forest. The lowland soils provide most of the agricultural land in use. About 55 per cent of the soils have good drainage.

Most of the productive soils in New Brunswick are in the Western Upland. The texture of the soil ranges from loam to silt loam and clay loam. The soil in the area varies from grey brown to reddish brown. These soils are well drained and have a high water-holding capacity. It is estimated that another half million acres of good agricultural land is yet untouched in this area. Other areas with varying degrees of agriculture and potential agricultural use are along the Northumberland Strait, the Fredericton and Gagetown areas, and the St. John River Valley. The remainder of the province is too rugged and stony for agriculture and can best be utilized by leaving it in forest.

Land Classification

In Newfoundland there is a potential of probably 100,000 acres of additional agricultural land. There are also about 2,000,000 acres of peat land available for reclamation and development (Appendix A). Experience with peat land has indicated that it is both practical and economical to reclaim certain types of Newfoundland bogs for agricultural use. Soil Capability classes are not available for Newfoundland.

The land capability classes for Prince Edward Island, Nova Scotia and the southern one-third of New Brunswick are shown in Appendix A, tables 3,4 and 5. There are no class 1 soils in the Maritimes but isolated small areas may come close to that rating. Class 1 soils are almost ideal for agriculture and with good management practices can be safely used in almost any manner. The low natural fertility of the area is the main reason that Class 1 standards are not achieved. It may be assumed from data provided in Appendix A that a high percentage of class 2 soils in the Maritimes is in agriculture.

In Prince Edward Island about 69 per cent of the total land area is in agriculture. Over 80 per cent of the total area can be used for agricultural crops. Class 2 soils in the province represent around 52 per cent of the total land in agriculture. Classes 3 and 4 soils comprise about 32 per cent of the total land and are evenly distributed over the Island. It is in these classes, especially class 3, that the agricultural potential lies.

In Nova Scotia about 17 per cent of the total land area is in agriculture. It may be assumed from data in this report that about 30 per cent of the region can be considered as potential agricultural land. About 83 per cent of class 2 soils are located in five counties: Colchester, Cumberland, Hants, Kings and Pictou. It is estimated that over 70 per cent of the soils in this class are in agriculture. These counties have about 64 per cent of the total improved land area in the province. Less than 50 per cent of class 3 soils and less than 30 per cent of class 4 soils are in agriculture. The percentage of classes 2 to 4 soils in agriculture would be much lower for the remaining counties. Future expansion in agriculture in the province is most likely to occur in the five counties named.

In New Brunswick about 13 per cent of the total land is in agriculture. The data in this report indicate that something over one-third of the total land can be used for agricultural purposes. The best soils in the province are found mainly in the northern and western part facing Quebec and the United States, and includes Carleton, Madawaska, Victoria and York counties.

The northern and eastern part of the province on the coastal side is not so agriculturally endowed. The soils are generally shallow and farming is mainly a part-time occupation.

The central interior of the province consists of a vast area of productive forest and is likely to remain in forest.

The southern part of the province is the only region where soil capability classes have been determined. This area covers about 4.4 million acres. On the basis of the ratings established, about 36 per cent of the total acreage is suitable for agriculture.

Soil Capability Summary

In summarizing the references in this section to the soils of the Maritime Provinces, it may be said that there are roughly 10.5 million acres of land in classes 2,3 and 4 that are suitable for agricultural use (Appendix A). These include 1.8 million acres that were reported in the 1961 Census of Agriculture as improved land in farms. The difference between these two figures, namely 8.7 million acres, represents land suitable for agricultural purposes but not now in such use.

The breakdown by provinces shows 570,000 acres in Prince Edward Island, 3.34 million acres in Nova Scotia and 4.78 million in New Brunswick.

In addition to these areas of potential farm land in the Maritimes, it is estimated that in Newfoundland, where about 60,000 acres are now devoted to agriculture, another 100,000 acres may be suitable for that purpose. It is also considered that about 2 million acres of peat are available for reclamation and agricultural use.

The Farm Labour Force

The farm labour force differs considerably from that of non-agricultural industries. A high proportion of the farm labour force is made up of self-employed farm workers and unpaid members of farm families. This is in contrast to the high percentage of paid workers in non-agricultural industries.

The number of persons engaged in agriculture in Canada during the twenty year period from 1921 to 1941 changed only slightly. Although there was was an increase of around 100,000 in numbers in the depression year of 1931, these dropped off again in 1941 (Appendix B, table 1). This would indicate little change in the long-term decline. This was not the case throughout the Atlantic region: the long-term decline in the farm labour force was already underway. During the 1921-1931 period, Nova Scotia and New Brunswick reported decreases in persons engaged in agriculture. During the same period there was an increase in the farm labour force for Canada as a whole.

The rate of decline in the agricultural labour force in Canada during the period from 1941 to 1961 was more rapid than that for any other basic industry. The rate of decline was even more pronounced in the Atlantic Region. During the same period the importance of agriculture in the Atlantic Region, in terms of share of the total labour force, had dropped from 26 per cent in 1941 to 6 per cent in 1961. For Canada as a whole the percentage of workers in agriculture dropped from 26 per cent to 10 per cent of all occupations. The contribution of agriculture to the general economy of the Atlantic Region appears to be more important in Prince Edward Island and least important in Newfoundland. The percentages of workers in agriculture, compared with all occupations for the Atlantic Provinces in 1961, were as follows: Newfoundland with 2 per cent, Prince Edward Island with 26 per cent, Nova Scotia with 5 per cent and New Brunswick with 7 per cent.

The yearly rate of change in the farm labour force from 1946 to 1965 in Canada showed a continuous decline except in 1954, when an increase of two per cent was observed (Appendix B, table 2). The economic recession of that year was no doubt the main contributing factor to the increase. The yearly rate of change during the same period in the Atlantic Region showed larger decreases and some increases. Increases occured in 1957, 1958, and 1959. The lack of job opportunities in the non-agricultural industries in the area was probably the main reason for the increases. Another increase took place in 1964 but was almost nullified in 1965.

It would appear that the farm labour force in Canada will continue to decline, probably at a slower pace, until such time as the agricultural industry as a whole can compete more successfully for labour with non-agricultural industries. The more rapid rate of decline in the farm labour force in the Atlantic Region can be expected to continue. Non-commercial and part-time farms are the main suppliers of farm labour rather than competitors.

Generally, commercial farms are quite successful in securing labour. Commercial farms not only compete for labour with other industries but there is a considerable amount of competition that exists among themselves. However, increasing difficulties mount in getting farm help when employment levels are high.

The distribution of the labour force relative to basic industries for Canada and the Atlantic Provinces is shown in Appendix B, table 3. Agriculture's share of the labour force dropped 21 per cent in Canada during the period from 1951 to 1961. In the Atlantic Region a drop of 46 per cent occurred. Services provided the greatest opportunity for labour during this period. The Atlantic Region showed a larger decrease in agriculture and larger increase in services than did Canada as a whole. Manufacturing and services in the Atlantic Region maintained a high level of employment in 1961 with 13.9 per cent and 63.9 respectively. It would appear that the general economy of the Atlantic Region is likely to depend even more on these industries in the years ahead.

Age of Farm Operators

The age distribution of this portion of the farm labour force covers about 70 per cent of the total labour force. Numbers and changes in age distribution are shown in Appendix B, table 4. The main observation to be made about this table is the large reduction in the number of operators in the under 35 year group for both Canada and the Atlantic Provinces from 1921 to 1961. The percentage reduction in this group for the same period in the Atlantic Provinces was much greater than that for Canada as a whole. It is quite obvious that farm operators have left the farm faster in the under 35 group for employment elsewhere. About one-third of the farm operators in Prince Edward Island, Nova Scotia and New Brunswick were 60 years of age and over in 1961, compared with about 20 per cent for all Canada. The marked decline in the number of operators in the under 35 years of age groups and the high percentage in the 60 years and over group further substantiates the projected decline in the total farm labour force shown for that region in the labour section of this report.

Table 8 provides useful data for determining the availability of labour, and in particular unskilled labour, of which agriculture requires a considerable amount during peak seasons. The agriculture sector, in Canada as a whole, has the largest number of labourers with 95,930, followed by construction with 69,398 and sawmills with 13,838. In the Atlantic Region, Newfoundland has the lowest percentage of labourers in agriculture with 72.8 per cent. Prince Edward Island has the highest with 87.8 per cent. The unskilled farm workers are adaptable as labourers in construction and sawmills, with the result that these two industries provide the greatest competition for the labour that is required in the agriculture sector.

Although the commercial farms require a large amount of skilled labour for most operations, they also require suitable unskilled labour during seasonal peaks. This is particularly apparent on fruit and vegetable farms. Labour requirements vary considerably among the different types of farms. Fruit and vegetable type farms have high labour requirements, especially during seasonal operations. This is in contrast to the substantially lower labour demands of the dairy and poultry type farms.

In table 9, weekly farm wages are compared with those of construction workers in Canada. It must be pointed out here that farm living conditions and the nature of work differ greatly between these industries which makes it difficult when comparing wages. However, the lower actual wages in agriculture are certainly a drawback in attracting labour. During the period from 1949 to 1963 farm wages in Canada increased by 59 per cent whereas construction wages increased by 118 per cent.

TABLE 8

Numbers and Proportions of all Wage Earners Classed as Labourers, Within Specified Industries Canada and Eastern Provinces, 1961 a

	Canada b	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.
	(Number of Wage Earners Classed as Labourers)						
Industry							
Agriculture	95,930	434	1,326	2,660	2,894	14,031	33,615
Slaughtering & Meat Packing	2,270	7	15	33	21	650	713
Dairy Products	2,713	18	24	123	67	722	1,041
Sawmills	13,838	144	43	680	911	3,097	2,005
Construction	69,398	2,071	362	2,929	1,985	19,777	25,066
	(Percentage Labourers of All Wage Earners in Industries)						
Agriculture	82.2	72.8	87.8	80.3	81.5	76.2	81.0
Slaughtering & Meat Packing	7.9	9.7	6.0	11.6	5.9	10.8	6.6
Dairy Products	7.3	8.3	9.2	8.3	7.7	7.7	6.5
Sawmills	25.5	29.6	39.1	30.5	27.5	31.7	30.6
Construction	19.4	23.3	19.4	22.1	21.1	18.1	20.3

a Unpublished Data, 1961 Census of Canada

b Canada total includes Yukon and North West Territories.

TABLE 9

Changes in Average Weekly Wages of Male Farm Help and Construction Workers in Canada, 1949-1963 a

Year	Weekly Wages		Percentage Change	
	Farm	Construction	Farm	Construction
	$	$		
1949	25.65	40.18		
1963	40.72	87.51		
Increase				
1949-63	15.07	47.33	+58.7	+117.7

a Farm Wages in Canada, Review of Employment and Payrolls, Dominion Bureau of Statistics, 1963.

b Farm Wages are those paid without board. Weekly farm wages were estimated by averaging monthly wages for January, May and August and dividing the monthly rate by 4.33.

TABLE 10

Farm Wage Rates a - Day Without Board b

	January 1957	January 1961	January 1964
	$	$	$
Prince Edward Island	3.76 - 5.25	3.76 - 6.25	4.76 - 7.25
Nova Scotia	4.26 - 7.25	4.76 - 6.75	4.76 - 7.25
New Brunswick	5.76 - 8.75	4.76 - 8.25	5.76 - 8.75
Quebec	3.76 - 10.25	4.76 - 9.25	4.76 - 12.25
Ontario	4.76 - 10.25	4.76 - 10.25	5.76 - 12.25
	August 1957 $	August 1961 $	August 1964 $
Prince Edward Island	4.26 - 5.75	3.76 - 6.75	4.76 - 7.25
Nova Scotia	4.76 - 6.75	4.76 - 7.25	4.76 - 8.25
New Brunswick	5.76 - 8.25	4.76 - 8.25	6.26 - 10.25
Quebec	4.76 - 10.25	4.76 - 10.25	4.76 - 10.25
Ontario	4.76 - 10.25	4.76 - 10.25	4.76 - 12.75

a Dominion Bureau of Statistics, Farm Wages in Canada.

b Selected frequencies which do not include a few extremely low or high wage rates.

TABLE 11

Distribution of Paid Year-Round Workers Per Farm, and Total Weeks of Paid and Unpaid Work Done During One Year, 1960-61 a

		All Farms	Farms Reporting Paid Year-Round Workers by number per Farm					Total No. of Paid Workers	Weeks of Labour for All Farms		
			Total Reporting	Workers 1	2	3	4+		Total	Paid	Unpaid
Canada	No.	480,903	31,431	25,398	3,892	937	1,204	47,501	11,149,382	4,804,726	6,344,656
	%	-	100.0	80.8	12.4	3.0	3.8	-	100.0	43.1	56.9
Nfld.	No.	1,752	122	64	34	12	12	268	38,887	18,922	19,965
	%	-	100.0	52.4	27.9	9.8	9.8	-	100.0	48.6	51.3
P.E.I.	No.	7,335	423	359	45	9	10	544	185,762	71,670	114,092
	%	-	100.0	84.9	10.6	2.1	2.4	-	100.0	38.6	61.4
N.S.	No.	12,518	922	714	117	38	53	1,564	277,537	137,666	139,871
	%	-	100.0	77.4	12.7	4.1	5.7	-	100.0	49.6	50.4
N.B.	No.	11,786	683	534	79	32	38	1,045	271,116	122,002	149,114
	%	-	100.0	78.2	11.5	4.7	5.5	-	100.0	45.0	55.0
Atlantic Region	No.	33,391	2,150	1,671	275	91	113	3,421	773,302	350,260	423,042
	%	-	100.0	77.7	12.8	4.2	5.3	-	100.0	45.3	54.7

a 1961 Census of Canada, table 22.

TABLE 12

Operator Part-time work by Economic Class of Farm, Canada and Atlantic Region, 1961 a

	Total Commercial Farms	Commercial Farms with Products Sold of: $25,000 and over	15,000 24,999	10,000 14,999	5,000 9,999	3,750 4,999	2,500 3,749	1,200 2,499
Canada								
No. of farm operators	353,293	9,507	14,411	25,923	90,419	49,754	69,023	94,256
Weeks non-farm work	2,085,040	28,725	43,009	75,654	311,721	235,051	450,658	940,222
Newfoundland								
No. of farm operators	456	37	27	29	76	31	81	175
Weeks non-farm work	4,670	141	380	144	726	310	871	2,098
Prince Edward Island								
No. of farm operators	4,530	52	79	184	895	701	975	1,644
Weeks non-farm work	26,228	478	412	695	3,584	2,699	5,278	13,082
Nova Scotia								
No. of farm operators	4,939	160	191	282	936	525	922	1,923
Weeks non-farm work	48,316	715	948	1,580	5,905	4,253	9,146	25,769
New Brunswick								
No. of farm operators	5,116	133	188	276	985	540	951	2,043
Weeks non-farm work	42,603	485	638	1,239	4,761	3,653	8,075	23,752

a Census of Agriculture, 1961, table 31.

The data in table 10 show the fairly consistently wide range of farm wages for the months of January and August, the trough and peak periods of employment, during the years 1957, 1961 and 1964. The minimum farm wage is a little better than half of the maximum wage. This may indicate some lack of stability in the farm wage structure and the lack of organization in agriculture compared with most other industries.

There were 31,431 farms in Canada in 1961 reporting paid year-round workers (table 11). Eighty-one per cent of this number hired one worker full-time; 12 per cent hired two workers full-time; three per cent hired three workers full-time; and four per cent hired four or more workers full-time. In the Atlantic Region, 2,150 farms reported paid year-round workers of which 78 per cent had one worker full-time; 13 per cent had two workers full-time; four per cent had three workers full-time; and five per cent had four or more workers full-time.

The total weeks of unpaid labour in Canada in 1960 represented approximately 57 per cent of the total weeks of paid and unpaid labour. In the Atlantic Region unpaid labour represented 55 per cent of the total. This is an important point because no other industry has such a high proportion of unpaid labour.

In table 12, data for farms classed as commercial are shown. Farm operator off-farm employment in Canada in 1961 was of particular importance for farms with sales of agricultural products under $10,000. The estimated total weeks of off-farm employment ranged from 940,222 weeks, for farms with farm sales of $1,200 - $2,499, to 311,721 weeks for farms with farm sales of $5,000 - $9,999. The operators with larger farm sales had off-farm employment ranging from 75,654 weeks, for the $10,000 - $14,999 group, to 28,725 weeks for the $25,000 and over farm sales. It would appear that the limited resources of the small farm makes it necessary for the operator to supplement the farm income with off-farm income. The same general pattern of farm operator off-farm work applies to the Atlantic Provinces.

Important developments have occurred over a number of years in the farm and rural labour markets, to the detriment of the farm sector. The importance of these developments for the farm sector has not been as striking during the years 1958-1964, because of the high unemployment. The Canada unemployment figure in the middle 1950's ranged from 3 to 4½ per cent[1]. In the Atlantic Provinces the unemployed figure ranged from 5½ to 6½ per cent. By 1958 the Canada figure of unemployed persons had risen to 7.0 per cent as compared with the Atlantic Province with 14.6 per cent of unemployed. The Canada unemployed figure decreased to 3.9 per cent in 1965 and the Atlantic Provinces figure stood at 7.0 per cent. Should the employment picture continue to improve, then it can be expected that the farm labour problem will worsen.

Some of the developments that have taken place in the farm and urban sectors that are creating the farm labour problems in Canada, at least in part, are outlined in an unpublished report by a special committee studying the farm problem[2] and are listed as follows:

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[1]The Labour Force, Dominion Bureau of Statistics, Ottawa, 1965.

[2]Report of an inter-departmental committee to Study the Adequacy or Otherwise of Existing Information about Wages and Working Conditions of Farm Labour, Especially Seasonal Farm Labour. Unpublished.

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1. The urban industrial economy tends involuntarily to isolate itself from the farm sector because urban areas train and develop the labour force for their needs and not for farm needs.
2. The robust technical and productivity increase in secondary industries has created an increasing demand for highly educated and skilled workers. These factors, combined with urban resources for educating, training and otherwise preparing new people for employment, strongly attract the rural workers. Thus, the farmer, who relies largely upon a pool of lower-skilled, lower-educated workers - especially unskilled workers for his seasonal needs - is at a growing disadvantage in the labour market.
3. The exodus of sub-marginal farmers with their sons and daughters to urban labour markets depletes a most important source of farm labour.
4. Some of the produce - especially fruits and vegetables - are now packaged on large commercial farms according to processing requirements.
5. There would seem to be a growing disparity of wages, working and living conditions between urban and rural areas; these differentials make it increasingly difficult for the farm sector to attract labour.
6. The persistent draining away of the reserve of farm help in the rural areas has forced farmers into making more and more use of an increasingly competitive industrial labour market. The construction industry is one of these increasingly strong competitors for unskilled and semi-skilled labour, in part because of an apparent growing disparity between farm and construction wages, and in part because of the strong expansion of the construction industry.
7. It is evident that the operators of medium and small farms are becoming less and less capable of offering competitive attractions. That is, so long as the farmer as an individual producing unit has to compete in the same labour market as an urban corporation, he is likely to get the short end of the stick, expecially under full employment.
8. Apart from the differentials in rural and urban wages, and the fringe benefits and other amenities in favour of the urban worker, job and income security are much more typical of urban than rural conditions of work, an important factor being the strong seasonal aspect of farm employment.
9. Conditions of ample labour supplies for the whole economy over several years may have also reduced the extent to which farm operators make use of technological, labour-saving devices.

Trends and Projections

The agricultural labour force in Canada reached a peak in the 1930's followed by a rapid decline in the 1940's. The downward trend continued throughout the 1950's and 1960's at a slower rate. The number of persons occupied in agriculture declined from 1,128,000 in 1931 to 649,000 in 1961 (Appendix B, table 1). If this rate of decline continues it would be expected that the agricultural labour force would decrease to about 300,000 by 1980. However, the rate of decline is expected to slow down and the projected estimate is that about 400,000 persons will be employed by 1980[3].

[3]See the projections to 1970 by I.F. Furniss, section on Productivity Trends in the Agriculture of the Maritime Provinces, this report.

In the Atlantic Region the decline in farm workers has been faster than that for all Canada. The number of persons in agriculture in the Atlantic Region was declining even during the period 1921, when the total number of Canadian farm workers was increasing[4]. During the period 1931-41, the farm labour force in the Atlantic Region decreased by 12 per cent while the Canada total decreased by four per cent. In 1941-51 period, there was a decrease of 29 per cent. The most rapid decline in the Atlantic Region occurred during the 1951-61 period, when a decrease of 46 per cent was recorded. By 1961 the Canadian farm labour force represented about 10 per cent of the total labour force, compared with six per cent in the Atlantic Region. The decline in the farm labour force in Canada is expected to continue, probably at a slower pace, but it would appear that in the Atlantic Region the rate of decrease in farm labour in the immediate years will be no slower. On the assumption of continued high employment it can be projected that the agricultural labour force in the Atlantic Region may shrink to 18,000 or even less by 1980.

In terms of employment, agriculture in the Atlantic Region contributes less to the economy of the area than does agriculture in all Canada.

Age distribution of the operators in relation to the declining labour force in agriculture is another important factor to consider. In 1961, 17 per cent of the farm operators in Canada were under the age of 35, compared with 13 per cent in the Atlantic Region. The Atlantic Region has a higher proportion of farm operators in the 60 years of age and over group with 29 per cent, compared with 20 per cent in all Canada. These figures would indicate the more rapid decline in the farm labour force in the Atlantic Region is likely to continue, partly because it has fewer young and more old operators.

Farm wages are yet another factor that contribute to the decline in the farm labour force. Only the commercial farm can compete for workers with any degree of success. It is reasonably certain that the farm labour situation will worsen in the future, especially with respect to seasonal labour.

Education

The level of education and the level of income earned appear to be closely related. Managerial ability, type of land, size of business and many other factors influence the income earned. However, one of the most important of all factors is education. In table 13, income received by farm families in the Maritime Provinces and in Ontario is compared with educational attainment.

The average level of education of farm operators in Ontario was 8.0 years of schooling, compared with 7.0 years in New Brunswick, 9.0 years in Nova Scotia and 8.2 years in Prince Edward Island. The average level of education for the four provinces for all groups was 8.1 years of schooling, which was the same as that of the middle group that had an income of $2,500 - $4,999. The group that earned under $2,500 had 7.6 years and the group that earned $5,000 and over had 8.7 years of schooling. It should be noted that the wife had an average of 1.3 years more schooling than the operator. Of significance too, is the indication that adult children on farms have more education than their parents.

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[4]1951 Census of Canada Vol. IV. table 2.

TABLE 13

Years of Schooling for Farm Families by Selected Provinces and Farm Income Group, 1963 Survey a

Province & Income Group	Farm Families		Average Years of Schooling		
	Number	Per Cent	Operator	Wife	Adult Child
Ontario					
Under $2,500	50	33.6	7.5	8.9	9.7
$2,500 - $4,999	56	37.6	7.9	9.2	10.5
$5,000 & over	43	28.8	8.7	9.3	10.3
All Groups	149	100.0	8.0	9.2	10.2
New Brunswick					
Under $2,500	27	31.8	6.5	8.4	8.6
$2,500 - $4,999	32	37.6	7.0	9.0	9.8
$5,000 & over	26	30.6	7.6	9.3	10.7
All Groups	85	100.0	7.0	8.9	9.6
Nova Scotia					
Under $2,500	39	44.3	8.6	9.8	10.2
$2,500 - $4,999	21	23.9	9.8	10.4	10.6
$5,000 & over	28	31.8	9.4	10.3	10.6
All Groups	88	100.0	9.0	10.1	10.4
Prince Edward Island					
Under $2,500	13	43.4	7.8	9.5	10.7
$2,500 - $4,999	9	30.0	7.8	9.2	11.3
$5,000 & over	8	26.6	9.0	10.0	10.5
All Groups	30	100.0	8.2	9.5	10.8
Four Provinces					
Under $2,500	129	38.3	7.6	9.2	9.8
$2,500 - $4,999	118	32.3	8.1	9.4	10.6
$5,000 & over	105	29.4	8.7	9.7	10.5
All Groups	352	100.0	8.1	9.4	10.3

a The Eastern Canada Farm Survey 1963. Hedlin, Menzies and Associates Limited, Winnipeg.

TABLE 14

Highest Educational Levels Reached By Farm Operators on Non-commercial, Semi-commercial and Commercial Farm Holdings, Canada and the Maritime Provinces, 1958[1]

Class of Farm Holdings	Educational Levels of Farm Operators a									
	0	1	2	3	4	5	6	7	8	Total
								- per cent -		
Maritimes										
Non-com.	4.5	47.6	23.4	20.2	2.2	-	1.3	-	0.8	100
Semi-com.	1.0	22.1	33.5	37.3	3.7	0.6	1.8	-	-	100
Commercial	2.0	12.8	31.7	38.4	8.4	3.3	3.2	0.1	0.1	100
Canada										
Non-com.	3.4	46.2	28.6	15.2	4.0	0.5	0.9	0.4	0.8	100
Semi-com.	1.5	38.3	34.0	19.2	3.7	1.1	1.4	0.4	0.4	100
Commercial	0.7	24.6	36.1	26.0	7.0	1.6	2.5	0.7	0.8	100

a 0 - Education Unclassified
1 - Elementary School Incomplete
2 - Elementary School Complete
3 - High School Incomplete
4 - High School Complete
5 - Agricultural School Incomplete
6 - Agricultural School Complete
7 - University Incomplete
8 - University Complete

Non-commercial Farms = Less than $2,000 from sales of Agricultural Products.
Semi-commercial Farms = From $2,000 to $5,000 from sales of Agricultural Products.
Commercial Farms = $5,000 and over.

[1]Fitzpatrick J.M., Farm and Farm Family Income, Farm Expenditure and Resources In Canadian Agriculture, Unpublished material. 1958.

Some unpublished material on the educational level achieved by farm operators for the Maritime Provinces and Canada for 1958 is shown in table 14. Farm operators in the Maritime Provinces who did not complete elementary school accounted for 47.6 per cent of the operators in the non-commercial group, compared with 22.1 per cent in the semi-commercial group and 12.8 per cent in the commercial group. In the non-commercial group 1.3 per cent completed agricultural school; in the semi-commercial group 1.8 per cent, and in the commercial group 3.2 per cent completed agricultural school. The level of education of farm operators in the Maritime Provinces is a little better than that for Canada as a whole.

Capital Values and the Credit Situation

The capital value of the agricultural plant in the Atlantic Provinces in 1961 was shown by the census to be $411.2 million (table 15)[1]. Land and buildings were valued at $250.9 million; machinery and equipment at $91.7 million; and livestock and poultry at $68.6 million. Distributed between provinces, Nova Scotia and New Brunswick had almost identical totals: $145.6 million and $145.4 million respectively; $96.3 million was reported for Prince Edward Island and $23.9 million for Newfoundland.

The trend and variations over the period 1931 to 1961 are shown in tables 16 to 19. Total capital values over the thirty years in New Brunswick and Nova Scotia increased about forty per cent, while in Prince Edward Island the increase was sixty-five per cent. Within the total the difference in the land and buildings category gave Nova Scotia an increase of eight per cent, New Brunswick seventeen per cent and Prince Edward Island twenty-two per cent. In the other categories the increases are more significant than the differences. Values for livestock and poultry in 1961 were from just under to just over twice the values of 1931 with Prince Edward Island showing the most gain.

In the machinery and equipment field the increase was from roughly two and a third to three fold with Prince Edward Island again in the lead. In all respects - total and by categories - the rate of increase or development has been somewhat better in Prince Edward Island than in Nova Scotia and New Brunswick.

Changes in the census definition of a farm between 1956 and 1961 would explain some of the reported decline in value between 1951 and 1961 in total capital and in the value of land and buildings in Nova Scotia and New Brunswick. In Prince Edward Island, where the farm definition has less effect, and in Newfoundland, values in the categories mentioned continued to increase in spite of a substantial reduction in farm numbers resulting from economic causes (tables 16 to 19).

As regards machinery and equipment, expenditures necessitated by technological advances, and the availability of new aids to output and efficiency,

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[1]The current value of farm capital in the three Maritime Provinces in 1961 was reported by the Dominion Bureau of Statistics at $462,284,000., that for 1963 at $457,628,000. Fletcher, R.K. - Post-War Agricultural Trends in the Atlantic Provinces, Research Center, Atlantic Provinces Economic Council, Fredericton, June 1966, p. 76.

resulted in increased capital value in this field in all provinces regardless of loss in farm numbers.

In the livestock and poultry segment, all provinces reported a substantial decline in values from 1951 to 1961. In this case annual and cyclical variations in livestock and poultry numbers tend to obscure the changes in value resulting from other causes.

Value per Farm

Capital values are perhaps most meaningful when expressed in terms of average value per farm. Over the period 1901 to 1961 there was a very substantial increase in this average for the Atlantic area. From an average of $1,468 per farm in 1901 the value increased to $3,102 by 1931 and to $12,314 in 1961 (table 20). The difference between provinces, varying within a range of $2,000 in 1961, was hardly enough to be significant (table 21). A comparison with values elsewhere does have significances however. The average value per farm of all farms in Canada in 1961 was $27,388; that for Ontario $30,837 and for Quebec $16,965.[2]

TABLE 15

Capital Value of Farms - Atlantic Provinces, 1961 a

	Total Capital Value	Land and Buildings	Machinery and Equipment	Livestock and Poultry
		- thousands of dollars -		
Newfoundland	23,937	19,006	2,945	1,987
Price Edward Island	96,279	52,501	26,856	16,939
Nova Scotia	145,589	89,263	30,252	26,074
New Brunswick	145,363	90,115	31,682	23,566
Total	411,168	250,885	91,735	68,566

a Census of Canada, Agriculture.

[2]1961 Census of Canada, Agriculture and the Respective Provinces, table 2.

TABLE 16

Capital Value of Land and Buildings; Machinery and Equipment; Livestock and Poultry; all Farms, Newfoundland, 1951 and 1961 a

Year	Total Capital Value	Land and Buildings	Machinery and Equipment	Livestock and Poultry
			- thousands of dollars -	
1951	19,657	14,658	1,417	3,582
1961	23,937	19,006	2,945	1,987

a 1961 Census of Canada, Agriculture, Newfoundland.

TABLE 17

Capital Value of Land and Buildings; Machinery and Equipment; Livestock and Poultry; all Farms, Prince Edward Island 1931-1966 a

	Total Capital Value	Land and Buildings	Machinery and Equipment	Livestock and Poultry
			- thousands of dollars -	
1931	58,332	42,920	8,116	7,296
1941	46,695	34,376	5,801	6,518
1951	87,153	47,844	16,261	23,048
1961	96,297	52,501	26,856	16,939

a 1961 Census of Canada, Agriculture, Prince Edward Island.

TABLE 18

Capital Value of Land and Buildings; Machinery and Equipment; Livestock and Poultry; all Farms, Nova Scotia, 1931-1961 a

	Total Capital Value	Land and Buildings	Machinery and Equipment	Livestock and Poultry
			- thousands of dollars -	
1931	105,877	82,515	10,554	12,809
1941	88,364	65,770	10,961	11,633
1951	152,465	94,486	25,224	32,755
1961	145,589	89,263	30,252	26,074

a 1961 Census of Canada, Agriculture, Nova Scotia.

TABLE 20

Total and Average Capital Value of Farms
Atlantic Provinces Selected Years a

Years	Number of Farms	Total Capital Value (000 omitted)	Average Value per Farm
		$	$
1901	105,232	154,530	1,468
1931	86,334	267,740	3,102
1961	33,291	411,168	12,314

a 1961 Census of Canada, Agriculture.
b Includes Newfoundland.

TABLE 21

Total Capital, Number of Farms and Total
Capital Value per Farm, Atlantic Provinces, 1961 a

Years	Number of Farms	Total Capital Value (000 omitted)	Average Value per Farm
		$	$
Newfoundland	1,752	23,936	13,663
Prince Edward Island	7,335	96,279	13,126
Nova Scotia	12,518	145,589	11,634
New Brunswick	11,786	145,363	12,334

a 1961 Census of Canada, Agriculture, by provinces.

Capital Value in Constant Dollars

The capital values already discussed here have permitted comparison between provinces and between segments of the capital structure. They do not, however, permit a true comparison of capital value and investment over a period of time because of changes in the value of the dollar.

In table 22, the current value of farm capital has been deflated to produce a constant dollar value and the result expressed as an index with 1949 considered the base. On this basis of comparison it is apparent that there has been a downward trend in the value of farm capital in the Maritime Provinces since 1941 compared with a modest upward movement in Ontario and in Canada as a whole. These trends are also indicated in table 23.

TABLE 22

Index Numbers of the Constant Value of Farm Capital, Selected Provinces, Canada, 1941-1963, 1949 = 100 a

	1941	1949	1951	1961	1963
Prince Edward Island	102.0	100.0	101.7	82.4	82.2
Nova Scotia	104.2	100.0	96.7	91.5	86.4
New Brunswick	93.2	100.0	97.6	87.3	79.3
Maritimes Provinces	99.3	100.0	98.1	87.9	82.7
Quebec	104.1	100.0	105.8	102.0	100.8
Ontario	95.8	100.0	110.2	115.2	116.0
Central Canada	98.8	100.0	108.6	110.4	110.5
Canada	87.8	100.0	105.1	102.9	106.8

a Fletcher, R.K. - Post-War Agricultural Trends in the Atlantic Provinces. Research Center, Atlantic Provinces Economic Council, Fredericton, June 1966, p. 77.

TABLE 23

Constant Value of Farm Capital per Farm a (1951 Definition of a Farm)

	1941	1951	1961
	$	$	$
Maritime Provinces			
Constant Value (000 omitted)	336,385	332,261	297,671
Number of Farms	69,100	60,083	44,620
Capital per Farm	4,868	5,530	6,671
Central Canada			
Constant Value	2,994,376	3,290,926	3,345,819
Number of Farms	312,100	284,256	236,357
Capital per Farm	9,594	11,577	14,153

a Fletcher, R.K. - Post-War Agricultural Trends in the Atlantic Provinces Research Center, Atlantic Provinces Economic Council, Fredericton, June 1966, p. 79.

Although there has been an absolute decline in the value of Maritime farm capital as a whole, there has been an increase in the capital per farm of just over one-third. In comparison, there has been an increase of almost 50 per cent in Central Canada (table 23).

Credit Requirements and Sources

While constant dollar values are necessary to determine trends and absolute changes, credit requirements are measured in current values and are related to changes in the size of the farm business. The cost of acquiring a farm and of providing buildings, machinery, livestock and operating capital at current prices determines the credit requirements at any given time.

On that basis, and using 1961 census data for the Atlantic area as an indication of the capital structure to be financed, it is apparent that the task is related to an investment in excess of $400 million and which in terms of per-farm capital requirements is likely to increase.

Most of this capital will be provided by farm operators and their families. The capital value of the Canadian agricultural plant in 1961 was reported by the census as being $13,171 million. In 1964 an estimated $2,640 million was owed by Canadian farmers on credit extended by various institutions and individuals[3]. This indicated an indebtedness amounting to about 20 per cent of total capital value. The amount of credit outstanding in 1961 was $1,803 million.

Put another way it could be said that farmers themselves in the aggregate provide eighty per cent of their own capital needs and have that percentage equity in the agricultural plant they operate.

It is probable that the amount owing in the Atlantic Provinces is less proportionately than in other area of Canada.

The breakdown of the total credit outstanding shows $1,222 million owing on long term credit (over ten years), $728.8 million of intermediate term (up to eighteen months), and $689.3 million short term credit. Of the estimated $2,640 million outstanding at the end of 1964, 27 per cent had been provided by banks, 21 per cent by federal farm credit agencies, 17 per cent by companies selling equipment and supplies, 15 per cent by private individuals and 10 per cent by provincial farm credit organizations.

Of the credit extended in 1964, approximately 43 per cent of the $1,700 million total came from banks, 29 per cent from farm supply companies, 9 per cent from federal credit agencies, and 6 per cent from Credit Unions.

The largest single supplier of long term credit in recent years has been the Federal Farm Credit Corporation. Its operations, representing 5,885 loans totaling $68.6 million made in 1961-62, were expanded to 11,238 loans and $209,984,900 in 1965-66 (table 10).

The Farm Credit Corporation, successor in 1959 to the Canadian Farm Loan Board established in 1929, is permitted under its Charter (Part II) to lend up to 75 per cent of the appraised value of the farm land and buildings taken as security, or $40,000 whichever is the lesser. Under Part III it may lend 75 per cent of the appraised value of land, buildings, livestock and

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[3]Rust, R.S. - Farm Credit Expansion: Canadian Farm Economics, Economics Branch, Canada Department of Agriculture, April 1966.

equipment taken as security, or $55,000 whichever is the lesser. Borrowers under Part III provisions of the Act must be under 45 years of age and have had 5 years of farm experience. Part III loans are secured by mandatory insurance on the life of a borrower, and his operations are subject to supervision until the loan is reduced to 75 per cent of the appraised value of the land and buildings.[4]

In the Atlantic Provinces in 1961-62, 266 loans totaling $2.3 million were made by the F.C.C.; in 1965-66, there were 241 loans amounting to $3.5 million. The total number of loans made in the Atlantic area from 1961-62 to 1965-66 by the Corporation was 1,384, totaling $14.6 million (table 24).

While the amount of credit extended in the Atlantic Provinces was greater in 1965-66 than five years earlier, it is significant that the number of loans for the area as a whole declined, whereas in other provinces and areas the number was substantially greater. The increase in the amount loaned was also significantly less than in other areas. These results may reflect the smaller farms in the Atlantic area, the lower income levels, and fewer farmers interested in, and able to acquire and service, the credit necessary to expand their holdings to economic proportions.

On the other hand it may be a reflection of active lending operations conducted under provincial legislation. In any event it is understood that substantially more loans have been made in the Atlantic Provinces by F.C.C. in 1966 than in previous years.

Farm Credit from Provincial Government Sources

All four Atlantic Provinces have legislation which authorizes credit for farmers. The amount extended by the several provinces for this purpose totalled $2.6 million in 1964, while the amount outstanding was $12.8 million (table 11). More than half the total in each category resulted from the lending operations of the Nova Scotia Land Settlement Board, which administers legislation permitting loans to a maximum of $30,000 for one person or $50,000 for two or more persons who as a partnership wish to purchase farm real estate. As a general policy the Board will lend 75 per cent of the appraised value of real estate and 50 per cent of the appraised value of stock and equipment; but to assist young experienced or well-trained men to start farming the loan may represent 90 per cent of the appraised value of real estate and 75 per cent of the appraised value of stock and equipment[5].

Until recently, New Brunswick has provided agricultural credit under the Farm Settlement Act which authorized real estate loans to a maximum of $7,500 to one person and $11,250 to a partnership; also loans for the purchase of livestock and equipment. Part II of this Act provided for loans to establish young farmers on farms to a maximum of $20,000 for any applicant[6].

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[4]Farm Credit Corporation Annual Report 1965-66.
[5]Rust, R.S. - Farm Credit Legislation in Canada. The Economic Annalist. Economics Branch, Canada Department of Agriculture, Oct.-Dec. 1964.
[6]Ibid.

Effective April 1, 1966, new legislation - The Farm Credit Corporation Assistance Act - authorizes payment by the province of 2½ to 3 per cent of the interest charged on Farm Credit Corporation loans[7].

In Prince Edward Island an Act (Assistance to Establish Young Farmers Act) provides for loans to individuals 21 to 50 years of age with two years farming experience. A loan cannot be for more than 85 per cent of the appraised value of the security, or $10,000. A loan may be for acquisition of farm land, improvements, drainage, purchase of livestock, seed, fertilizer, machinery and equipment or to consolidate liabilities. Administration is by the Farm Establishment Board which is financed by bank loans guaranteed by the Provincial Government[8].

Newfoundland has a Farm Development Act designed to assist qualified farmers to improve or enlarge their operations. The Farm Development Loan Board may lend up to $3,500 for the improvement of farm lands, up to $3,500 for the purchase of livestock, and up to $3,000 for the purchase of equipment. Loans are repayable over a period of 10 years at 3½ per cent interest and on an amortized basis. The Board is financed by funds from the Provincial Government to the Farm Development Loan Fund[9].

Intermediate Credit

The 728.8 million intermediate credit outstanding in Canada in 1964 already referred to came largely from companies that sell farm supplies to farmers - $250 million; banks operating under the provisions of the Farm Improvement Loans Act - $273.1 million; Credit Unions - $122.4 million; and private individuals - $82 million. Intermediate credit extended in 1964 amounted to $448.4 million.

Details of intermediate credit outstanding held by banks under the F.I.L.A. in 1964 indicate that $6.2 million represented loans made in the Atlantic Provinces. In the same year credit extended under the F.I.L.A. in that area totalled $3.5 million[10]. The amount of such loans extended in 1965 was $4.8 million.

Loans made by banks under the Farm Improvement Loans Act are guaranteed by the Canadian Government. A maximum of $15,000 may be lent to a farmer at one time. Such loans are made for a wide range of farm improvement purposes including the purchase of farm machinery and equipment[11].

Short Term Credit

Canadian banks held almost two-thirds - $433 million - of the $689.3 million of short term credit accounts at the end of 1964. Companies handling

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[7]Agricultural News Notes - New Brunswick Department of Agriculture, Fredericton, April 1966.
[8]Rust, R.S. op. cit.
[9]Rust, R.S. op. cit.
[10]Rust, R.S. op. cit.
[11]Press Release - Office of the Minister of Finance, June 16, 1966.

farm supplies held most of the other third outstanding - $200 million. On credit extended the banks advanced $577.5 million in 1964 and the supply companies $300 million. Finance companies, dealers, stores and others held $23 million of outstanding accounts and advanced $60 million of credit in 1964. Credit Unions carrying $23 million outstanding credit extended $34 million in 1964[12].

Veterans Land Act

Operations under the Veterans Land Act have played an important role in land settlement and thus in the field of credit since the second World War. Some $214.2 million of public funds have been expended in helping 29,952 veterans get established on farms. A total of $332.4 million has been spent in helping 53,153 veterans to acquire small holdings (part-time farmers)[13].

Recent amendments to the Act provide additional credit. The maximum loan for commercial farms was increased from $20,000 to $40,000 repayable over a period of 30 years at 5 per cent on the first $20,000, less the amount owing under Part I and the remainder at a rate periodically established for such loans by the Farm Credit Corporation.

Loan assistance to veterans on small family farms may now go up to $18,000 (previously $12,000) and to part-time farmers and commercial fishermen the increase is from $12,000 to $16,000[14].

Loans to the number of 10,570 and total expenditures of $53.7 million have been made in the Atlantic Provinces since 1942[15].

The Industrial Development Bank

The Industrial Development Bank is a subsidiary of the Bank of Canada and has been in operation since 1944. It may extend financial assistance to industrial enterprises, which by definition include industry, trade and other business. The Bank's 1965 report indicates that throughout Canada 205 agricultural loans were approved in that year for a total of $7.1 million. The amount of agricultural credit outstanding in 1964 totaled $12 million. I.D.B.'s function is to supplement the services of other lenders. Where there is a possibility that required financing can be obtained on reasonable terms and conditions from other sources the suggestion is made that such possibilities be investigated before an approach is made to I.D.B. Special consideration is given by I.D.B. to the needs of small businesses.

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[12]Rust, R.S. op. cit.

[13]Canada Yearbook 1965, Dominion Bureau of Statistics

[14]Rust, R.S. 1965 Legislative Changes, Federal; Economics Branch, Canada Department of Agriculture.

[15]Twenty-third report of the Veterans Land Act, Department of Veterans Affairs 1965.

TABLE 24

Farm Credit Corporation Statement of Farm Loans Approved by Fiscal Years Ending March 31, Provinces and Canada a

	1961-62		1965-66		1961-66	
	No.	Amount	No.	Amount	No.	Amount
		$.000		$.000		$.000
British Columbia	244	4,052	611	14,015	2,013	38,648
Alberta	1,518	18,448	2,940	58,346	10,825	169,298
Saskatchewan	1,936	19,812	3,197	56,570	12,373	160,425
Manitoba	429	5,024	899	14,880	3,123	41,931
Ontario	1,383	17,104	2,210	42,695	9,046	139,172
Quebec	109	1,786	1,140	18,987	4,628	67,245
New Brunswick	111	1,110	81	1,304	448	5,373
Nova Scotia	41	500	58	1,007	310	3,985
Prince Edward Island	113	733	100	1,135	614	5,035
Newfoundland	1	6	2	46	12	196
Canada	5,885	68,575	11,238	208,985	43,392	631,308

a Farm Credit Corporation - Annual Report and Financial Statements for the Fiscal Year 1965-66.

TABLE 25

Farm Credit from Provincial Government Sources, 1963 and 1964 a

Sources	Amount Extended 1963	Amount Outstanding 1963	Amount Extended 1964	Amount Outstanding 1964	Average Interest Rate	Average Loan 1964
	- millions of dollars -				%	$
British Columbia	0.56	1.40	0.44	1.48	4.0	1,322
Alberta F.P.C.A.	2.10	14.00	2.45	16.01	5.0	8.277
Alberta H.L.L.A.	0.10	0.62	0.15	0.57	5.0	900
Alberta F.H.I.A.	0.06	0.24	0.04	0.21	3.5	1,890
Saskatchewan	0.95	5.35	0.67	5.71	6.5	19,601
Manitoba	3.77	20.35	4.74	24.41	5.0	19,129
Ontario	4.20	19.71	12.90	29.54	4.2	16,518
Quebec	25.45	154.26	25.10	162.24	2.5	8,162
New Brunswick F.S.A. Part 1	0.28	1.65	0.40	1.75	5.0	5,418
New Brunswick F.S.A. Part II	0.03	0.12	0.11	0.20	4.5	1,731
Nova Scotia	2.08	6.60	1.57	7.54	5.0	7,498
Prince Edward Island	0.53	2.60	0.44	2.90	5.0	4,975
Newfoundland	0.06	0.43	0.07	0.45	3.5	1,556
TOTAL	40.17	227.33	49.08	253.01	-	-

a Rust, R.S. - Farm Credit Expansion in Canada, Canadian Farm Economics, Economics Branch, Canada Department of Agriculture, April 1966.

PRODUCTIVITY TRENDS IN THE AGRICULTURE OF THE MARITIME PROVINCES[1]

Value of Production per Worker

The *gross* value of agricultural production per farm worker[2] (GVP/M) averaged $3,459 for the Maritime Provinces in 1961-65 compared with $5,512 for Canada (table 26). GVP is here the here the sum of all farm production. Agricultural production per man in the Maritimes was, therefore, about 63 per cent of the national average. However, the gross value of production per man in this region has risen slightly more over the 20-year period than has the national ratio. In 1961-65, gross value of output per man was up to 160 per cent compared with an increase of 157 per cent for all Canada.

However, the *net* value of agricultural production per man (NVP/M) has shifted in favour of the Canadian average with the Maritime Provinces showing an increasing disadvantage, table 26. In 1961-65, the Maritime average was $1,806, or 50 per cent of the Canadian average. NVP is GVP less farm operating expenses and depreciation allowances. It represents the return to farmers and their families for their labour and capital expended in farming pursuits. Since 1946-50, the NVP/M for Canada has increased by 128 per cent, compared with a 106 per cent increase for the Maritimes. Part of the increase in both cases is due to price increases, rather than to increased physical output per man. These trends will be dealt with later.

The relationship of NVP/M to GVP/M is one measure of the *cost-price* squeeze in farming. On a national basis, the increase in NVP/M has been 12 per cent less than the increase in GVP/M from 1946-50 to 1961-65. In the Maritime Provinces, however, the NVP/M as a per cent of GVP/M has decreased by 21 per cent during the same years.

Agricultural Production per Dollar of Capital Investment

Canadian gross agricultural output (in physical terms) per dollar of real capital investment (constant 1949 dollars) increased 20 per cent from 1946-50 to 1961-65 (table 27). The trends in the Maritime Region have been somewhat different. Comparing the same quinquennia, the increase was 15 per cent for Prince Edward Island; 60 per cent for Nova Scotia and 41 per cent for New Brunswick. The reason for the sharp increases in the two latter provinces lies in the fact that the real capital investment in farms, principally in real estate, has been reduced by a quarter without any reduction in farm output. In Prince Edward Island, the total capital investment in farming was virtually unchanged over the period. Gross farm output rose 16 per cent in Prince Edward Island; 20 per cent in Nova Scotia; and 3 per cent in New Brunswick.

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[1]Contributed by I.F. Furnis, Economics Branch, Canada Department of Agriculture, Ottawa.

[2]Includes farm operators, family help and hired labour.

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TABLE 26

Net and Gross Values of Agricultural Production per Worker, Canada and The Maritime Provinces, Quinquennia, 1946-65

Quinquennia	Canada			Maritime Provinces		
	Gross Value of Agricultural Production per Worker	Net Value of Agricultural Production per Worker	NVP as % of GVP per Worker	Gross Value of Agricultural Production per Worker	Net Value of Agricultural Production per Worker	NVP as % of GVP per Worker
	$	$	%	$	$	%
1946-50	2,142	1,582	74	1,328	874	66
1951-55	3,433	2,479	72	2,364	1,441	61
1956-60	4,043	2,663	66	2,469	1,462	59
1961-65	5,512	3,604	65	3,459	1,806	52

Notes: 1 Aggregate estimates of *gross* and *net* values of production were provided by the Dominion Bureau of Statistics. The net value of production corresponds to that published in Survey of Production, Cat. No. 61-202.

2 The averages were obtained by dividing the estimated values of gross and net agricultural production by the total farm labour force, as published by DBS in The Labour Force, Cat. No. 71-001.

Capital Investment per Farm Worker

In 1961-65, total capital investment in constant 1949 dollars averaged $6,775 per farm worker in the Maritime Provinces compared with $13,950 for Canada as a whole (table 28). Since 1946, farm workers in the Maritimes have had proportionally less capital to work with. In 1946-50, the average investment per worker for the Maritimes was 60 per cent of the national average. In 1961-65, it was 49 per cent, unchanged from the 1956-60 relationship to the national average. Again, much of this shift is attributable to the absolute decline in real total farm capital in the Maritimes. This decline from 1946-50 to 1961-65 was about a fifth for the Maritimes Region while, for Canada as a whole, investment rose a fifth. Although the decrease in the number of farm workers was greater in the Maritimes (51 per cent) than for Canada (42 per cent) the decrease was not sufficient to offset the decline in real capital investment.

Capital Income Ratio

In 1961-65, $3.63 (in current dollars) of owned capital investment was required, in combination with labour and purchased inputs, to produce the dollar of Canadian *gross* farm income (table 29.) A total of $9.06 was required to produce a dollar of *net* income. Since prewar, the capital required per dollar of *net* income has dropped 38 per cent for Canada but has increased 28

TABLE 27

Agricultural Production Per Constant 1949 Dollar of Capital Investment
Canada and Maritime Provinces, Quinquennia, 1946-65

Quinquennia	Canada (excl. Nfld.)	Prince Edward Island	Nova Scotia	New Brunswick
			- 1949 = 100 -	
1946-50	105	85	100.5	91.5
1951-55	114	92	102	90
1956-60	116	100	131	113
1961-65	126	98	161	129

Notes: 1 Agricultural production refers to the DBS Index of Farm Production, Cat. No. 21-203. This is a measure of the physical volume of agricultural outputs of principal commodities, with adjustments for interprovincial movements of feed grains and livestock.

2 The capital investment figures used are aggregate estimates of farm capital as published by DBS in the Quarterly Bulletin of Agricultural Statistics, Cat. No. 21-003. The estimates were divided by appropriate price indexes to bring them to a constant dollar basis: farm land values (unpublished); farm machinery; and livestock prices at terminal markets.

TABLE 28

Farm Capital Investment (in 1949 Constant Dollars) per Worker,
Canada and the Maritime Provinces, Quinquennia, 1946-65

Quinquennia	Canada	Maritime Provinces	Maritimes as % of Canada
	1949 $	1949 $	%
1946-50	6,880	4,160	60
1951-55	9,375	6,280	67
1956-60	11,730	5,725	49
1961-65	13,950	6,775	49

Note: These averages were calculated by dividing the estimates of farm capital in constant dollars (see Note 2, table 27) by the number of persons in the farm labour force, as published by DBS in The Labour Force, Cat. No. 71-001

per cent for the Maritime Provinces. The greater provincial increase was for Nova Scotia agriculture, where the ratio rose by 88 per cent. On the other hand, the Prince Edward Island ratio dropped by one-quarter.

The reasons for the overall increase in the capital-net income ratio of Maritime agriculture since prewar is that while capital investment rose 68 per cent from 1935-39 to 1961-65, net income rose only 37 per cent. By contrast, the total capital investment in Canadian farming rose 208 per cent and farm net income rose 378 per cent.

If we compare the quinquennia 1946-50 and 1961-65, the situation for the Maritimes is even more unfavourable. In this region, while the increase in farm capital was only 42 per cent, partly because of the adjustment made at the time of the 1961 Census to the definition of farmland and farms, net farm income *declined* by 34 per cent. Using the same comparison for Canada, capital investment rose 92 per cent and total net income was up by 18 per cent.

Production per Acre

The total volume of output of Canadian farms in relation to the total improved acreage in farms increased by 47 per cent from prewar to 1961-65. Since 1946-50, the increase has been 27 per cent (table 30). In the Maritime Provinces, the increase in output on this basis for both time comparisons has been equal to or better than the national average. This would indicate that most of the land which has been removed from farms in this region was unproductive of farm products, contributing little to total agricultural output. The trend of volume of output per acre in both the Maritime Region and Canada as a whole has been upward, although for Canada output per acre declined somewhat in the early postwar years compared with wartime. This trend was not evident in the Maritime Provinces; in Nova Scotia, output per acre declined slightly during the war years.

Labour Productivity

In the Maritimes, agricultural labour productivity has shown a growth rate of about 3.6 per cent a year during the 20-year period 1946-65, compared with a national growth rate of 4.6 per cent (table 31). For the Maritime Region, this is the combined result of decreases of 4.6 per cent a year in the labour force and 0.9 per cent in real net output. For Canada as a whole, the rate of decline in the labour force has averaged somewhat less, at 3.7 per cent a year (2.6 per cent since 1956), while real net output has increased 0.8 per cent annually.

The trends in labour productivity in the Maritimes and Canada are portrayed graphically in Figures 1 to 3. The declining total real net output in the region contrasts sharply with the rising national real net output. However, in Figure 2, one can see that while the rate of decline in the Canadian labour force has levelled off somewhat, the more rapid decline is continuing in the Maritime Region. On the basis of the rate of decline in the national labour force from 1956-65, the total farm labour force in Canada would reach 400,000 workers by 1970, compared with 594,000 in 1965. In the Maritimes, the farm labour force in 1970 would total 20,600 persons if the rate of decrease from

TABLE 29

Farm Capital - Farm Income Ratios (Capital Investment per Dollar of Income,) Canada and the Maritime Provinces, Selected Periods, 1935-39 to 1961-65

Period	Canada (excl. Nfld.)		Prince Edward Island		Nova Scotia		New Brunswick		Maritime Provinces	
	Gross Income	Net Income	Gross Income	Net Income	Gross Income	Net Income	Gross Income	Net Income	Gross Income	Net Income
	- dollars -									
1935-39	5.49	14.56	6.32	14.46	4.78	9.23	5.16	10.79	5.16	10.46
1940-45	3.42	6.68	3.82	7.80	3.33	7.14	3.04	5.53	3.29	6.48
1946-50	2.91	5.53	2.91	6.15	2.97	7.03	2.63	5.17	2.81	5.96
1951-55	3.12	6.56	2.75	6.27	2.98	8.37	2.85	7.09	2.87	7.27
1956-60	3.52	8.57	2.81	7.29	3.19	10.71	2.99	8.24	3.02	8.75
1961-65	3.63	9.06	2.95	10.79	3.43	17.32	3.21	13.84	3.22	13.42

Notes: 1 *Gross farm income* is cash farm income plus income in kind and supplementary payments, plus or minus inventory changes in livestock or western grains. *Net Farm Income* is Gross Farm Income less operating expenses and depreciation allowances.

2 These ratios were obtained by dividing the estimates of farm income as published by DBS in Farm Net Income, Cat. No. 21-202 into the estimated total farm capital investment (owned capital); see Note 2, table 27.

TABLE 30

Agricultural Production per Acre of Farmland,
Canada and the Maritime Provinces,
Selected Periods, 1935-39 to 1961-65

Period	Canada		Prince Edward Island		Nova Scotia		New Brunswick	
	Total Area	Improved Area	Total Area	Improved Area	Total Area	Improved Area	Total Area	Improved Area
				- 1949 = 100 -				
1935-39	89.5	90	61	58	103.5	105	67	63
1940-45	108	108	69	66	102	101	81	77
1946-50	104.5	104.5	86	85	103	103	93	92
1951-55	125	117	98.5	99	117	114	98	96
1956-60	131.5	119.5	109	110	139	138	121	118
1961-65	137	132.5	113	120	159	197	134	159

Notes: 1 *Total area* refers to all land in occupied farms, as defined for census purposes, and it includes both *improved* and *unimproved* farmland.

2 Intercensal estimates of land in farms was made by straight-line interpolation. Projections from the 1961 census were on the basis of the rate of change from 1951 to 1961, using comparable census definitions.

3 Output was measured using the DBS Index of Farm Production, Cat. No. 21-203.

TABLE 31

Farm Labour Productivity, Canada and the Maritime Provinces, Quinquennia, 1946-65

Quinquennia	Canada	Maritime Provinces
	- 1949 = 100 -	
1946-50	107	96
1951-55	155	138
1956-60	177.5	147
1961-65	217	171
Growth Rate, 1946-65 (%)	4.6	3.6

Notes: 1 *Output* was measured using the net value of production, as published in Survey of Production, DBS, Cat. No. 61-202, adjusted to a constant dollar basis by the DBS Index Numbers of Farm Prices of Agricultural Products. The net value of production or *value added* definition used in this report is generally considered one of the better available measures of production for provincial analysis.

2 *Labour* was measured using the estimated numbers of the total farm labour force, including farm operators, family workers and hired farm labour as published by DBS, The Labour Force, Cat. No. 71-001.

3 Labour productivity is the ratio of the index of net value of production in constant dollars to the index of the labour force.

a The growth rate was 5.3 per cent for the years 1946-65 when calculated on the basis of a straight-line trend fitted to the logarithms of the index numbers of the ratio of Gross Domestic Production to the farm labour force (DBS, Daily Bulletin, June 7, 1966) using the method of simple least squares regression.

1946 is maintained[2]. This would be 13,600 fewer persons working on farms than in 1965. If net farm output in the Maritimes could be stabilized at its 1965 level (and indications are that the general decline has halted) while the trend in the labour force since 1946 continues, then the rate of productivity growth will equal the national average by 1970. This presupposes that the national growth rate in total net output continues at that shown for 1946-65 while the decline in the labour force is at the 1956-65 rate.

Figure 3 shows the relative rate of growth in labour productivity for the Maritimes, compared with the national average. The figure illustrates the wide swings which occur from year to year in labour productivity, because of the variability of total net output. While the variability of total output for Canada as a whole can be ascribed to the variability of western grain production, the variability in total farm output of the Maritime Region is in part a reflection of the size of the potato crops.

[2]See projections to 1980 in the section on The Farm Labour Force, this report.

Figure 1.

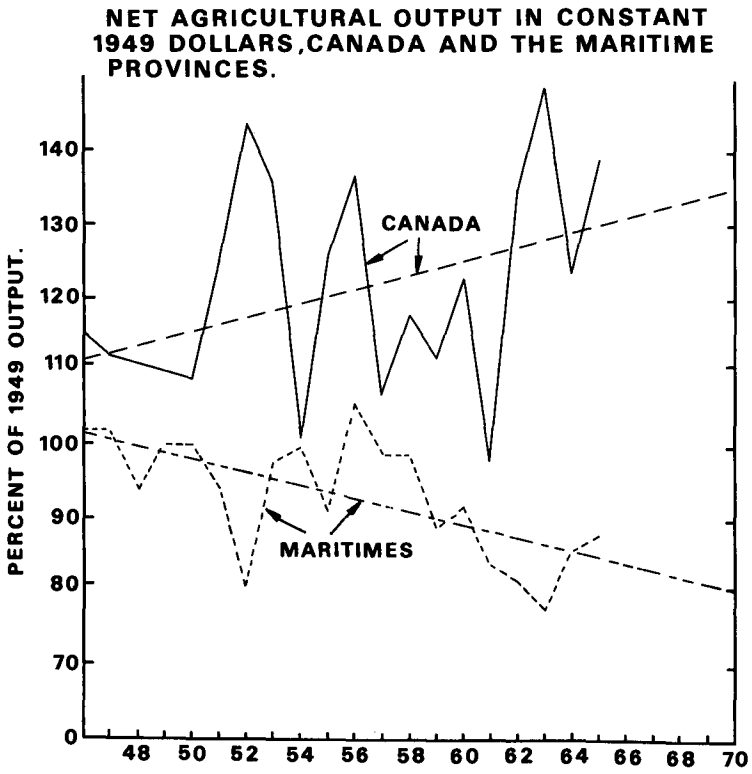


Figure 2.

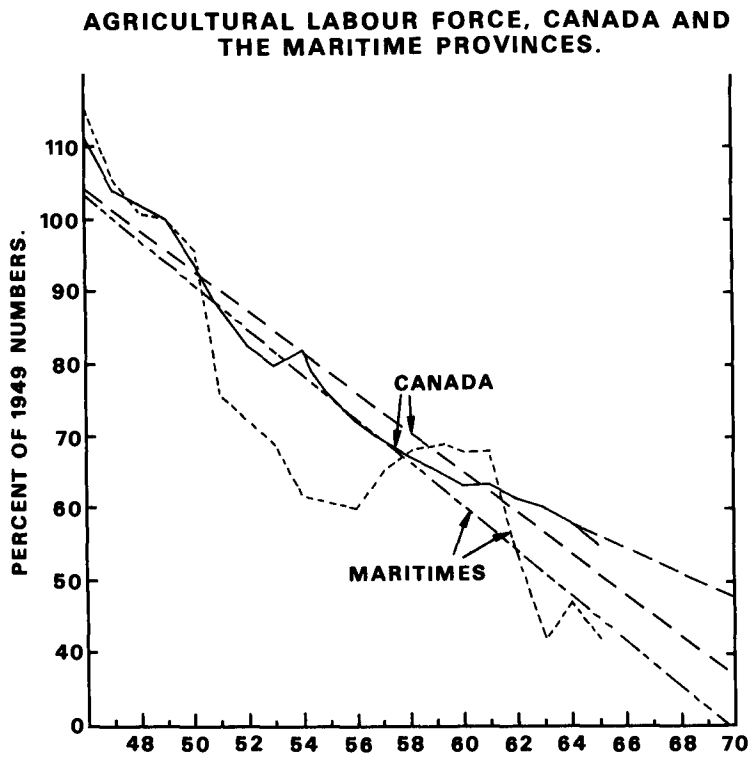
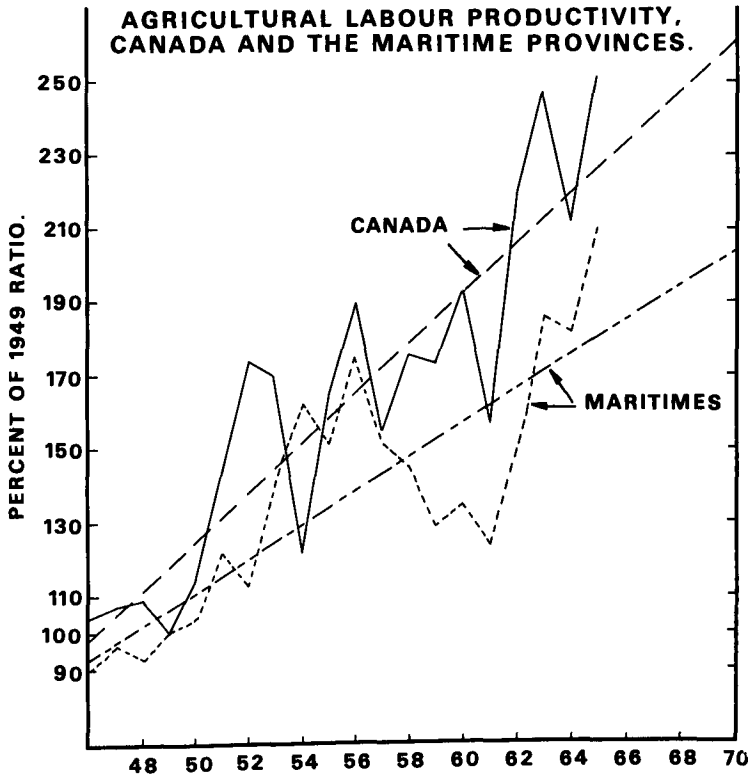


Figure 3.



Summary and Conclusions

The agriculture of the Maritime Provinces appears to lag significantly behind that of the nation in a number of important aspects. Generally, on the basis of the data examined, it appears to be a declining industry in this region at this point in time (1966). The net value of production per worker is 52 per cent of gross, compared with 65 per cent nationally; real capital investment per man is 49 per cent of the Canada average; current capital investment per dollar of net income is $13.42, compared with $9.06; and labour productivity is growing at 3.6 per cent a year compared to 4.6 per cent nationally, even though the labour force is declining more rapidly in the Maritimes.

However, it does appear that these economic factors are forcing adjustments. The gross volume of production in relation to real capital investment rose more in Nova Scotia and New Brunswick than for all of Canada in the postwar years. Prince Edward Island lags behind in this respect, though. The increase in the capital investment in relation to net income has also been less in the last decade, that is, since 1956-60. The withdrawal of unproductive farm land appears to have had a favourable effect on the relationship between output and acreage in all the Maritime Provinces.

Farm Income

Net income is one measure used to determine the status of a farm business. Farm net income, as used in the following analysis, is that adopted by the Dominion Bureau of Statistics. It includes farm cash receipts from farming operations, supplementary payments, the value of income in kind, changes occurring in inventories on farms between beginning and end of year, and deduction of farm operating expenses and depreciation charges.

The period 1941 to 1965 was considered to be long enough to permit comparison of current status and past trends in farm net income in Canada and the Maritime Provinces. There were five periods of five years each: 1941-45; 1946-50; 1951-55; 1956-60 and 1961-65; these are used as the basis for discussion of net income. Data on individual years are shown for the latest five years, from 1961 to 1965 (table 32).

The average farm net income for Canada was lowest during the 1941-45 period and highest during the 1951-55 period. The low and high periods of farm net income in the Maritime Provinces were experienced during the periods of 1961-65 and 1951-55, respectively.

Farm net income for Canada during the period of 1961-65 rose from a low of $935 million in 1961 to a high of $1,660 million in 1965 (table 32). These figures represent the low and high points since 1941. Recovery in the Maritimes was not as complete as that for Canada as a whole. Although the farm net income in the Maritimes rose to approximately $56 million in 1965 it did not approach the $65 million mark obtained during the 1951-55 period. The Maritime Provinces had an increase of 21.3 per cent in farm net income in 1965 over the 1964 figure.

Net Income per Farm

The 1958 Farm Survey indicated that the average farm net income in Canada at that time was $2,344. The average for the Maritime Provinces was $1,026 and for Ontario $2,532[1].

Non-farm Income

The most comprehensive and detailed information on non-farm income in Canada was collected in the Farm Expenditure and Income Survey of 1958 conducted by the Dominion Bureau of Statistics.

Fitzpatrick and Parker pointed out that 43 per cent of the farm operators in Canada in 1958 earned as much income from off-farm sources as was earned by the operator and unpaid family help for labour and management from farming. Off-farm income per farm operator was particularly important in the Maritime Provinces. It constituted about one-third of net farm income and off-farm income combined, and was approximately equal to the average return to

[1]Fitzpatrick, J.M. and Parker, C.V., Distribution of Income in Canadian Agriculture, Canadian Journal of Agricultural Economics Vol. XIII, 1965.

TABLE 32

Net Income of Farm Operators from Farming Operations, Canada and the Maritime Provinces, 1941-65 a

Year	Prince Edward Island	Nova Scotia	New Brunswick	Maritimes	Canada
			- thousands of dollars -		
1941-45	8,220	16,039	21,010	45,269	864,463
1946-50	11,122	18,590	25,720	55,432	1,279,579
1951-55	14,644	25,273	24,831	64,748	1,505,346
1956-60	11,304	20,565	18,402	50,271	1,172,368
1961-65	9,896	18,361	14,768	43,025	1,380,420
1961	6,840	20,229	12,249	39,318	935,288
1962	6,726	18,512	11,701	36,939	1,491,636
1963	7,827	18,525	11,093	37,445	1,501,690
1964	12,817	16,120	16,875	45,812	1,313,198
1965	15,268	18,418	21,920	55,606	1,660,290

a Farm Net Income, Dominion Bureau of Statistics, Cat. No. 21-202, 1950-65 revised in 1966.

the operator for labour and management in farming (including unpaid family help)[2]. The average farm family income from off-farm sources in that area in 1958 was $1,481, compared with $1,262 for all Canada and $1,697 for Ontario (table 33).

Farm Family Income from Off-farm Sources

Farm family income from off-farm sources is of particular importance to the non-commercial farm in that it comprises such a large portion of the total income. Income from off-farm sources in 1958 ranged from $2,403 on farms with less than $250 of products sold to $1,741 on farms where products sold amounted to $25,000 and over (table 33).

On the average, British Columbia had the highest figure ($2,148) for farm family income from off-farm sources and the Prairie Region had the lowest, with $847 of income from off-farm sources. Wages and job opportunities in the various areas have a bearing on the absolute amounts accumulated per farm holding, but these influences level out when dealt with on a proportion basis as was done in table 35. In the Maritime Region the off-farm income averaged $219 per farm family above the Canadian average of $1,262 (table 33).

[2]Ibid.

TABLE 33

Average Farm Family Income From Off-farm Sources, Regions and Canada, 1958 a

	Value of Agricultural Products Sold per Farm										
	Less than $250	250 to 1,199	1,200 to 1,999	2,000 to 2,499	2,500 to 3,749	3,750 to 4,999	5,000 to 9,999	10,000 to 14,999	15,000 to 24,999	25,000 and Over	Average
	- dollars per farm holding -										
Maritimes	2,112	1,621	1,395	1,313	1,064	529	952	509	1,431	2,897	1,481
Quebec	2,141	1,924	1,335	1,427	957	805	931	1,414	575	723	1,294
Ontario	3,390	2,684	1,961	1,556	1,714	1,153	1,213	1,131	1,000	1,918	1,697
Prairies	2,181	1,171	929	785	600	668	651	811	1,347	1,452	847
British Columbia	3,038	2,530	2,042	1,887	1,264	1,499	1,069	1,262	2,160	2,722	2,148
Canada	2,503	1,831	1,315	1,181	989	832	899	1,002	1,199	1,741	1,262

a Single-family, single farms, Farm Expenditure and Income Survey, Dominion Bureau of Statistics, 1958. Table prepared by J.M. Fitzpatrick and C.V. Parker.

TABLE 34

Farm Family Income from Sources other than Farm Operations, Canada and the Maritime Provinces, 1958 a

Item	Canada b	P.E.I.	N.S.	N.B.	Maritime Provinces
	- thousands of dollars -				
Total income from sources other than operation of farms	678,222	8,330	25,229	32,627	66,186
Farm employment, wages and salaries	24,930	354	642	889	1,885
Non-farm employment	410,512	4,715	15,206	20,301	40,222
Wages and salaries	341,816	3,328	12,850	16,574	32,752
Net Income from self-employment	65,755	1,332	2,105	3,438	6,875
Net Income from roomers and boarders	2,941	55	251	289	595
Income from other than employment	222,695	3,196	9,115	11,089	23,400
Government pensions and allowances	160,619	2,991	8,268	9,986	21,245
Family allowances	74,780	1,015	2,203	3,041	6,259
Old age pensions	57,825	1,505	4,349	4,760	10,614
Other government pensions and allowances	28,014	471	1,716	2,185	4,372
Investment income	45,244	172	608	509	1,289
Other income	16,832	33	239	594	866
Other money receipts	20,084	65	266	349	680

a Farm Expenditure and Income Survey, Dominion Bureau of Statistics 1958. Report No. 1.

b Excluding Newfoundland, Yukon and Northwest Territories.

TABLE 35

Farm Net Income as a Proportion of Total Farm Family Income, Regions and Canada, 1958 a

	Value of Agricultural Products Sold per Farm										
	Less than $250	250 to 1,199	1,200 to 1,999	2,000 to 2,499	2,500 to 3,749	3,750 to 4,999	5,000 to 9,999	10,000 to 14,999	15,000 to 24,999	25,000 and Over	Average
	- per cent -										
Maritimes	9	23	36	50	53	78	73	87	79	75	41
Quebec	b	24	46	46	65	75	78	76	98	96	58
Ontario	b	8	30	35	50	68	76	83	86	85	60
Prairies	b	35	55	69	78	79	86	90	87	93	77
British Columbia	b	12	27	41	61	66	78	85	81	87	48
Canada	1	22	44	54	65	75	81	86	86	90	65

a Single-family, single farms, Farm Expenditure and Income Survey, Dominion Bureau of Statistics, 1958. Table prepared by J.M. Fitzpatrick and C.V. Parker.

b Negative farm net income.

TABLE 36

Average Farm Operators Income From Off-farm Work, Maritimes, Ontario and Canada, 1958 a

	Value of Agricultural Products Sold per Farm										
	Less than $250	250 to 1,199	1,200 to 1,999	2,000 to 2,499	2,500 to 3,749	3,750 to 4,999	5,000 to 9,999	10,000 to 14,999	15,000 to 24,999	25,000 and Over	Average
	- dollars per farm holding -										
Maritimes											
Non-farm work b	828	565	367	296	310	97	160	-	390	819	473
Self-employment c	149	120	139	49	33	8	42	-	470	885	100
Other farm b	22	10	70	10	17	-	10	-	-	-	19
	999	695	576	355	360	105	212	-	860	1,704	592
Ontario											
Non-farm work	1,852	1,365	830	793	609	336	206	113	303	8	621
Self-employment	347	236	175	58	193	18	63	134	67	392	139
Other farm	1	30	12	27	17	14	24	4	1	8	18
Total	2,200	1,631	1,017	878	819	368	293	251	371	408	778
Canada											
Non-farm work	1,153	831	467	408	284	176	143	82	196	90	408
Self-employment	271	150	109	119	83	51	55	122	129	298	109
Other farm	17	25	26	18	15	18	14	3	2	4	17
Total	1,441	1,006	602	545	382	245	212	207	327	392	534

a Fitzpatrick, J.M. & Parker, C.V., Distribution of Income in Canadian Agriculture, Canadian Journal of Agricultural Economics. Vol. XIII, 1965.

b Wages and Salaries

c Non-farm

The various items included in farm family income from off-farm sources are shown in table 34. Non-farm employment is of first importance in the share of farm family income from off-farm sources, followed by government pensions and allowances, and investment income.

A comparison of off-farm income with the total farm family income shows how significant off-farm income really is. Sales of farm products of at least $2,000 had to be achieved before farm net income exceeded farm family off-farm income (table 35). On the average for all Canada, farm net income represented 65 per cent of the total farm family income. On a regional basis the Prairies had the highest with 77 per cent and the Maritime Region had the lowest with 41 per cent (table 35).

Farm Operator Income from Off-farm Work

This part of the farm operator income in Canada in 1958 ranged from $1,441 for farms with sales amounting to less than $250, to $392 for farms with sales of $25,000 and over (table 36). Non-farm work accounted for the largest part of the off-farm income to the operator when farm sales were less than $10,000. Self-employment accounted for the largest part of the operator off-farm income on farms with over $10,000 in sales. In 1958 an average of $408 per farm operator for off-farm income was received as compared with $109 for self-employment and $17 for work done on other farms.

In the Maritime Provinces the farm operator income from off-farm work ranged from $999 for farms with less than $250 in sales to $1,704 for farms with $25,000 or more in sales (table 36).

Farm Gross Income and Operating Expenses

Gross farm income from farming operations in Canada increased by 72.7 per cent from 1950 to 1965, while operating expenses and depreciation charges increased by 98.3 per cent (table 37). In the Maritime Provinces gross farm income, and operating expenses and depreciation charges increased by 40.3 and 58.8 per cent respectively. Net farm income increased by 36.1 per cent in Canada from 1950 to 1965, compared with an increase of only 1.6 in the Maritime Provinces. It is evident from these figures that the Maritime agricultural industry has not kept pace with Canada as a whole.

The distribution of farm operating expenses and depreciation charges for Canada and the Maritime Provinces is shown in table 38. The share of each item is shown as a percentage of the total for the years 1950 and 1965. The total farm operating expenses in Canada in 1950 represented 83.6 per cent of the total operating and depreciation charges as compared with 81.5 per cent in 1965. Petroleum, fuel and lubricants, and feed accounted for a smaller share of the total operating expenses in 1965 than they did in 1950. In the Maritime Provinces the total of farm operating expenses was about the same in 1965 as in 1950.

Farm Cash Receipts

Total farm cash receipts from farming operations reached a new high of $3,804 million in Canada in 1965[3]. A high of $151 million in farm receipts was reported for the Maritime Provinces during the same period. Farm cash receipts in the Maritime Provinces since 1941 have increased at a slower rate than those for Canada as a whole. For further discussion of farm cash receipts see the section on agricultural output.

[3]Farm Cash Receipts, Dominion Bureau of Statistics, Cat. No. 21-001 revised August 1966.

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TABLE 38

Farm Operating Expenses and Depreciation Charges for Canada and the Maritime Provinces, 1950 a and 1965 b

Item	Canada		Maritimes	
	1950	1965	1950	1965
	%		%	
1 - Taxes	6.1	5.4	5.0	5.0
2 - Gross Farm Rent	6.4	4.4	0.4	0.5
3 - Wages to Farm Labour	10.9	9.6	11.2	13.3
4 - Interest on Indebtedness	2.4	6.3	1.5	4.5
5 - Petroleum, Fuel and Lubricants	17.7	8.8	11.5	6.4
6 - Machinery Repairs	4.6	6.1	4.6	5.2
7 - Other Machinery Expenses	-	2.9	-	3.4
8 - Fertilizer and Lime	3.2	5.3	12.4	10.0
9 - Other Crop Expenses	1.9	3.7	4.3	5.2
10 - Feed	20.4	16.4	23.1	18.7
11 - Other Livestock Expenses	-	2.4	-	1.2
12 - Repairs to Buildings	3.3	3.2	5.6	6.8
13 - Electricity and telephone	0.5	1.4	0.8	1.2
14 - Miscellaneous	6.2	5.6	6.0	5.3
15 - Total Operating	83.6	81.5	86.4	86.7
16 - Depreciation Bldg. (1) & Machinery (3)	16.4	18.5	13.6	13.3
17 - Total Operating & Depreciation	100.0	100.0	100.0	100.0

a 1950 Handbook of Agricultural Statistics, Dominion Bureau of Statistics, Reference Paper No. 25.

b 1965 Farm Net Income, Dominion Bureau of Statistics, September 1966. Cat. No. 21-202.

TABLE 39

Annual Farm Cash Receipts from Farming Operations, Maritime Provinces, 1946-1965 a

Years	Prince Edward Island			Nova Scotia			New Brunswick			Maritimes		
	Crops,	Livestock	Totalb	Crops,	Livestock	Totalb	Crops,	Livestock	Totalb	Crops,	Livestock	Totalb
	- thousands of dollars -											
1946-50c	5,969	13,104	19,245	5,331	24,189	33,453	10,746	22,915	38,787	22,137	60,218	91,592
1951-55	8,624	16,358	25,270	6,116	32,561	42,056	10,395	26,615	41,879	25,135	75,534	109,205
1956-60	10,520	15,459	26,293	6,422	39,242	43,571	13,465	26,039	42,575	30,408	75,740	112,439
1961-65	12,212	16,361	29,049	8,101	36,888	47,568	16,733	26,869	45,612	37,046	80,118	122,228
1961	7,195	15,595	23,501	7,402	36,230	46,310	10,677	26,379	39,224	25,274	78,204	109,035
1962	7,568	16,383	24,284	7,128	37,047	46,792	11,176	26,839	40,913	25,872	80,269	111,989
1963	9,865	15,039	25,223	8,081	36,963	47,605	13,361	25,763	40,867	31,307	77,765	113,695
1964	14,991	16,331	31,654	8,335	35,631	46,455	19,083	26,730	47,372	42,409	78,692	125,481
1965	21,443	18,459	40,582	9,557	38,567	50,676	29,370	28,632	59,682	60,370	85,658	150,940

a Farm Cash Receipts, Dominion Bureau of Statistics. Cat. No. 21-001 revised August 1966.

b In addition to Crops and Livestock receipts the total also includes receipts from forest and maple products, deficiency payments and supplementary payments.

c 5 year averages 1946-1965.

Agricultural Output

In this section an over-all summary of agricultural output since the early post war period will be presented. It will be followed in later sections by more detail on crop and livestock production.

Value of Production

One measure of agricultural output is the record of farm cash receipts[1] from farming operations (table 39). For the three Maritime Provinces combined, the increase in output was from an average of $91.6 million annually in the period 1946-50 to $122.2 million annually during 1961-65 and $150.9 million in 1965. Prince Edward Island made the largest gain, the annual receipts for 1965 being just over double its average of the years 1946-50, whereas in both Nova Scotia and New Brunswick the increase was roughly 50 per cent. The trend was fairly steadily upward throughout the 20 year period.

The most significant increases in receipts came from sales of crops. The increase in Prince Edward Island was more than three-fold, from a $6 million average in the 1946-50 period to $21.4 million in 1965; in New Brunswick it was just under a three-fold increase while in Nova Scotia the gain was 79 per cent.

In livestock output the receipts indicate that Nova Scotia made a gain of just over 50 per cent in sales during the period; Prince Edward Island was up 41 per cent and New Brunswick 25 per cent.

On the basis of single enterprises potatoes have been the most important contributor to higher output. In Prince Edward Island potato sales brought in $19 million in 1965 compared with an average of $4.7 million in the years 1946-50. In New Brunswick the comparable totals were $25.8 million and $8.3 million respectively (Appendix B, table 5 and 7).

Percentage increases in receipts from other vegetables and fruits were substantial, ranging up to 200 per cent or more; but in terms of total income they were not large contributors.

In all three provinces livestock contributed to increased returns but the emphasis on the various kinds of livestock products varied considerably (Appendix B, table 5 to 7).

Volume of Production - Livestock

A second measure of output is afforded by the records of actual production. In table 40 the numbers of livestock and the output of livestock products in the Maritime Provinces as a group over the period since 1946 are shown. The horse population has declined drastically from 89,800 head to 16,400. Sheep, too, are less numerous today than formerly. Cattle numbers appear to have come close to holding their own, but the output of milk, contrary

[1]Farm Cash Receipts from Farming Operations. Dominion Bureau of Statistics, Cat. No. 21-001. Revised August 1966. Not available for Newfoundland.

to national trends, declined. Hogs, after a decline from an average of 205,000 head in the years 1946-50 to 153,000 in the 1956-60 period, have made something of a comeback in recent years.

Poultry numbers increased from an average of 2.7 million birds in the 1946-50 period to a 3.1 million average in the years 1961-65. The output of eggs increased from an average of 23.8 million dozen to 31.7 million in the same period.

Sheep numbers declined from an average of 125,000 in 1946-50 period to 61,000 in the 1961-65 years. Wool production followed the same trend, from 728,000 pounds to 384,000 pounds.

Provincial trends in output differed significantly from one another (Appendix B, tables 8 to 10). In the 20 years under review, cattle numbers in Prince Edward Island increased by more than one-third but poultry numbers declined by more than 50 per cent and egg production fell off more than one quarter (Appendix B, table 8).

In contrast, poultry numbers in Nova Scotia moved from 1.1 million average per year in the 1946-50 period to 1.9 million per year in the 1961-65 period (Appendix B, table 9). Hog numbers also increased somewhat but cattle declined. In New Brunswick poultry and eggs increased but the hog population declined by almost 50 per cent; cattle numbers fell by 13 per cent and milk production by 17 per cent (Appendix B, table 10).

Crops

The production of the major crops entering commerce in the Atlantic area since 1953 is shown in tables 41-44. Of these, potatoes and apples are the major contributors to the crops section of the Maritime farm economy. In spite of a 50 per cent reduction in Nova Scotia's relatively small output of potatoes, an increase of 9 per cent in Prince Edward Island and 34 per cent in New Brunswick resulted in a substantially larger volume of potato production from the Maritime area (table 41).

Apple production much more than doubled in Nova Scotia in the same period, and in New Brunswick was just short of doubling the output (table 42).

The production of strawberries has met with considerable success in all three provinces in recent years, with the result that output has about tripled in Nova Scotia and doubled in each of the other two provinces (table 43).

The output of blueberries, which in this instance includes data for Newfoundland, reveals a variable pattern of production but indicates increased volume in recent years in Newfoundland, Nova Scotia and New Brunswick (table 44).

Physical Volume of Production

Indices of the physical volume of agricultural production[2] in the Maritime Provinces (table 45), along with production data (table 40) also indicate considerable variability and relatively modest gains in output.

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[2]Index of Farm Production 1965, Dominion Bureau of Statistics, Cat. No. 21-203. Does not include Newfoundland.

TABLE 40

		1946-1950	1951-1955	1956-1960	1961-1965	1961	1962	1963	1964	1965
					- thousands -					
Hens & Chickens	No.	2,595	2,768	2,784	3,038	2,864	2,937	3,015	2,984	3,389
Turkeys	No.	60	86	97	75	80	79	60	79	76
Total Poultry	No.	2,701	2,896	2,907	3,125	2,959	3,030	3,086	3,074	3,475
Eggs	Doz.	23,814	28,298	31,466	31,660	31,042	30,847	32,757	32,070	31,583
Milk	lbs.	1,070,038	1,084,449	1,082,647	964,368	1,020,748	999,864	929,436	941,915	929,879
Hogs	No.	205	183	153	160	151	148	159	174	173
Sheep & Lambs	No.	125	121	97	61	75	70	59	52	48
Wool (Shorn)	lbs.	728	642	574	384	491	442	366	320	302
Cattle	No.	412	441	424	407	416	407	408	411	393
Horses	No.	89.8	64.9	38.2	20	25.1	22.3	19.8	18.4	16.4

a Production of Poultry & Eggs, Dominion Bureau of Statistics. Cat. No. 23-202.
Dairy Statistics, Dominion Bureau of Statistics. Cat. No. 23-201.
Animal Products Statistics. Dominion Bureau of Statistics. Cat. No. 23-003.

TABLE 41

Potatoes and Field Roots Production, Maritime Provinces and Canada, 1953-65a

Year	Prince Edward Island		Nova Scotia		New Brunswick		Canada	
	Potatoes	Field r.	Potatoes	Field r.	Potatoes	Field r.	Potatoes	Field r.
	000 cwt.	000 tons	000 cwt.	000 tons	000 cwt.	000 tons	000 cwt.	000 tons
1953	6,716	92	1,719	65	8,393	42	41,803	489
1954	6,075	88	1,432	64	6,074	32	32,163	453
1955	7,095	98	1,699	62	9,306	40	40,191	447
1956	7,012	85	1,438	56	9,148	30	42,325	425
1957	9,028	75	1,720	46	9,200	31	43,744	351
1958	8,120	76	1,274	51	8,050	30	39,610	398
1959	6,413	67	1,035	40	7,604	28	35,614	335
1960	7,200	41	953	30	8,700	18	42,696	262
1961	7,623	40	1,053	28	10,162	17	44,108	288
1962	7,462	-	932	-	10,690	-	46,671	-
1963	8,300	-	1,000	-	10,828	-	45,809	-
1964	8,372	-	965	-	11,610	-	47,733	-
1965	7,341	-	858	-	11,280	-	46,472	-

a Dominion Bureau of Statistics, Handbook of Agricultural Statistics; Part 1, Field Crops Cat. No. 21-507.

TABLE 42

Apple Production in Nova Scotia, New Brunswick and Canada, 1953-1966a

Year	Nova Scotia	New Brunswick	Canada
		- thousands of bushels -	
1953	1,087	260	11,731
1954	2,157	250	14,500
1955	3,250	450	19,142
1956	2,206	275	12,424
1957	2,918	450	15,906
1958	1,150	325	16,685
1959	2,260	500	15,517
1960	2,243	400	14,914
1961	3,151	525	17,106
1962	2,461	500	20,049
1963	3,180	475	23,016
1964	2,430	425	20,044
1965	3,100	450	22,292
1966	2,700	450	20,200

a Estimate of the Commercial Production of all Fruits. Dominion Bureau of Statistics Cat. No. 22-003. Second estimate used for 1965 & 1966, for other years the fourth estimate used.

TABLE 43

Strawberry Production in the Maritime Provinces and Canada, 1953-1966a

Year	Prince Edward Island	Nova Scotia	New Brunswick	Canada
		- tons -		
1953	442	447	438	20,571
1954	448	447	484	18,633
1955	556	516	531	15,112
1956	969	594	750	12,149
1957	603	359	438	10,908
1958	784	468	625	15,171
1959	406	756	373	14,154
1960	1,081	1,434	938	16,970
1961	1,188	1,438	875	15,056
1962	875	1,125	575	15,563
1963	969	1,250	938	15,368
1964	1,031	1,375	1,250	17,922
1965	1,000	1,250	812	11,151
1966	750	1,312	812	17,538

a Estimate of the Commercial Production of all fruits. Dominion Bureau of Statistics, Cat. No. 22-003. Second estimate used for 1965 & 1966; for other years the fourth estimate used.

TABLE 44

Blueberry Production in the Atlantic Provinces and Canada, 1953-1966a

Year	Newfound-land	Prince Edward Island	Nova Scotia	New Brunswick	Canada
			- tons -		
1953	-	300	562	640	9,487
1954	-	221	2,563	1,750	15,877
1955	-	-	-	-	-
1956	-	-	-	-	-
1957	-	150	2,400	1,650	6,382
1958	822	150	1,500	1,250	8,141
1959	750	300	2,600	1,750	12,487
1960	1,450	65	2,700	1,750	9,846
1961	1,467	226	2,850	2,250	9,033
1962	625	119	3,700	2,000	9,112
1963	700	75	3,500	2,000	11,977
1964	518	100	2,550	1,500	10,431
1965	1,132	125	3,500	1,250	9,069
1966	1,500	150	3,500	2,250	17,154

a Estimates of Commercial Production of all fruits. Dominion Bureau of Statistics, Cat. No. 22-003. Second estimate used for 1965 & 1966; for other years the fourth estimate used.

TABLE 45

Index Numbers of the Physical Volume of Agricultural Production, Canada and Selected Provinces, 1935-65a (1949 = 100)

Year	Canada b	Prince Edward Island	Nova Scotia	New Brunswick	Ontario
1935-40	91	66	124	78	88
1941-45	107	73	115	88	90
1946-50	104	86	105	94	96
1951-55	125	96	107	89	106
1956-60	132	102	115	97	124
1961-65	151	100	126	97	143
1961	122	99	123	99	138
1962	151	100	124	94	142
1963	163	98	128	95	141
1964	152	104	126	98	144
1965	166	101	128	97	150

a Index of Farm Production 1965. Dominion Bureau of Statistics, Cat. No. 21-203, Ottawa.

b Excludes Newfoundland.

There were, as already suggested, bright spots such as the poultry industry in Nova Scotia and to a lesser extent in New Brunswick; the dairy industry in Prince Edward Island; potatoes in New Brunswick and Prince Edward Island; apples in Nova Scotia and New Brunswick; and small fruits in several areas; but the output by the industry as a whole was less encouraging.

Using 1946-50 as a base, the indices suggest that the volume of output in New Brunswick in 1961-65 was up 3 per cent, that of Prince Edward Island 16 per cent and Nova Scotia 20 per cent. On the same basis the increase in Ontario was 56 per cent and for Canada 60 per cent. In short, increases in output over the past 20 years have been much greater in Ontario, and in Canada as a whole, than in the Maritime Provinces.

The Effect of Scale of Operations

In considering possible causes for the relatively small increases in agricultural output in the Atlantic area since 1946, a comparison of the size of farm operations as indicated by the 1961 census might be useful (table 46). In this table farms have been grouped in relation to the volume of products sold, and farms with sales amounting to $1,200 or more are termed commercial farms. In Canada as a whole 73.5 per cent of all farms were found to fall into that class. In Ontario the percentage was 74.5. Prince Edward Island, with 61.8 per cent, led the Atlantic Provinces; New Brunswick followed with 43.4; Nova Scotia with 39.5 and Newfoundland 26 per cent.

The table also provides detail on reported sales. It shows that in all of Canada 29.2 per cent of the farms reported sales of $5,000 or more.

TABLE 46

All Census Farms Classified by Economic Class of Farm, Canada and Selected Provinces, 1961a

Economic Class	Canada b		Newfound-land		Prince Edward Island		Nova Scotia		New Brunswick		Ontario	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Census Farms, total	480,903	100	1,752	100	7,335	100	12,518	100	11,786	100	121,333	100
Commercial Farms, total	353,293	73.5	456	26	4,530	61.8	4,939	39.5	5,116	43.4	90,345	74.5
Value of Products Sold												
$25,000 and over	9,507	2.0	37	2.1	52	0.7	160	1.3	133	1.1	4,811	4.0
15,000-24,999	14,411	3.0	27	1.5	79	1.1	191	1.5	188	1.6	5,781	4.8
10,000-14,999	25,923	5.4	29	1.7	184	2.5	282	2.2	276	2.3	8,598	7.1
5,000- 9,999	90,419	18.8	76	4.3	895	12.2	936	7.5	985	8.4	23,901	19.7
3,750- 4,999	49,759	10.3	31	1.8	701	9.6	525	4.2	540	4.6	11,442	9.4
2,500- 3,749	69,023	14.4	81	4.6	975	13.3	922	7.4	951	8.1	15,134	12.5
1,200- 2,499	94,256	19.6	175	10.0	1,644	22.4	1,923	15.4	2,043	17.3	20,678	17.0
Other Farms - total	127,610	26.5	1,296	74.0	2,805	38.2	7,579	60.5	6,670	56.6	30,988	25.5
Part-time farms	37,645	7.8	335	19.1	793	10.8	2,466	19.7	2,150	18.2	9,920	8.2
Other small scale farms	45,301	9.4	289	16.5	1,160	15.8	2,085	16.6	1,939	16.5	9,371	7.7
Residential and other	43,850	9.1	664	37.9	844	11.5	2,995	23.9	2,553	21.7	11,604	9.5
Institutional farms etc.	814	0.2	8	0.5	8	0.1	33	0.3	28	0.2	93	0.1

a 1961 Census of Canada agriculture, table 14.

b Includes data for Yukon and Northwest Territories.

Ontario had 35.6 per cent, Prince Edward Island 16.5, New Brunswick 13.4, Nova Scotia 12.5 and Newfoundland 9.6 per cent in that size grouping.

These comparisons indicate that the size of individual farming operations in the Atlantic Provinces, in spite of the favourable aspects cited, is smaller than elsewhere in Canada. The smaller physical volume of production (i.e. output) means inefficient high-cost operations, actually and relatively, throughout much of the industry. This means less of a contribution to the economy of the region and a lower income to the industry and those engaged in it than could otherwise be the case.

TABLE 47

Net Value of Agricultural Production a, as a Percentage of Estimated Gross National and Regional Product at Market Prices b, 1951-1962

	1951	1955	1960	1962
	- millions of dollars -			
Canada c				
Gross National Product	17,811.0	26,823.0	25,857.0	40,081.0
Agricultural Net Value of Production	1,883.0	1,948.5	2,043.1	2,443.1
NVP as a per cent of GNP	10.6%	7.3%	7.9%	6.1%
Maritime Provinces				
Gross Regional Product	986.0	1,312.0	1,749.0	1,893.0
Agricultural Net Value of Production	86.0	71.0	82.5	64.1
NVP as a per cent of GRP	8.7%	5.5%	4.7%	3.4%

a Preliminary Estimates by Atlantic Provinces Economic Council Staff.

b Fletcher, R.K., Post-war Agricultural Trends in the Atlantic Provinces. p. 28.

c Excludes Newfoundland.

Agriculture in the Regional Economy

An indication of the contribution of agricultural output to regional economic activity is given in table 47, which shows the net value of agricultural production as a per cent of estimated gross national (and regional) products. In 1962, agriculture contributed 3.4 per cent to the gross regional product, or Maritime economic activity, compared with 6.1 per cent for the nation as a whole, excluding Newfoundland.

Between 1950 and 1962 the decline in agriculture's contribution to aggregate Maritime economic activity was 60.9 per cent, compared with a decrease of 42.4 per cent at the national level.

In the same period the gross national product in Canada rose by 125 per cent (in current dollars) while the agricultural net value of production went up 29.7 per cent. In the Maritime Provinces the gross national product rose by 92 per cent, while the agricultural net value of production actually declined by 25.6 per cent.

Prince Edward Island is more dependent on agriculture than her neighbouring Maritime Provinces, deriving 11.2 per cent of provincial activity from this sector in 1962. New Brunswick obtained 3.4 per cent and Nova Scotia only 2.5 per cent from this source.

A consideration of these comparisons suggests that the role played by primary agriculture in the economy of the Atlantic Provinces is less important than the position of the industry in Canada generally. Moreover, the contribution of agriculture to economic activity in the region is declining faster than in the nation as a whole[3].

[3]Fletcher, R.K. Post War Agricultural Trends in the Atlantic Provinces. Atlantic Provinces Economic Council, Fredericton, June 1966, pp. 26-30.

Agricultural Research and Technology

It is probable that agriculture has been affected more by technological developments than most industries. The changes that have occurred have been far reaching and the end is not yet in sight. The trend toward larger and more specialized farms will continue and increasing competition seems likely to require that farmers accept and apply the most modern technological advances in order to stay in business. In this, government extension services will continue to play an important role in making available the latest information on new varieties of crops, improvements in fertility practices, and the latest information on livestock feeding and management[1].

The business aspects of farming will require more attention than in the past. Larger capital requirements and higher gross incomes will mean more complex management decisions. Farms will probably remain primarily family businesses, but will be more commercially oriented. More sales and purchases, credit, and other transactions will call for more attention to farm business records. Electronic computer equipment and regional farm data processing centers may facilitate such record keeping, farm management analyses, completion of tax returns and the like. The Economics Branch of the Canada Department of Agriculture and the Farm Credit Corporation are working with about 500 farmers, using an electronic mail-in record-keeping system. The Branch is also co-operating with several universities in developing a system that could be used across Canada[2]. These and other related forms of non-farm technology may become an integral part of the agriculture of the future.

The extent to which farmers accept and apply the new technology, and the variations in application between areas, is indicated by their purchase and use of its products: machinery, power equipment, fertilizers, lime, pesticides, herbicides, better feeds and feeding, improved seed and other inputs; also by the volume of production that results.

In table 48, expenditures by farmers on current operations are shown for the Maritime Provinces, Central Canada and all of Canada. This tabulation omits capital expenditures and hired labour. It is therefore essentially a summary of expenditures on the inputs just mentioned. The increases in all areas in 1965 compared with the period 1946-51 were significant but substantially less in the Maritimes than in other areas. On a percentage basis, the increase for Quebec was 139 per cent, for Ontario 124 and for Canada as a whole 129 per cent. Prince Edward Island with 98 per cent led the Maritime Provinces while Nova Scotia showed an increase of 75 and New Brunswick 59 per cent. It is apparent that the Maritime Provinces lagged considerably behind other areas in their acceptance and use of technological advances in the period since the war. Evidence to that effect is presented in table 49.

While these data indicate that in spite of substantial annual reductions in the farm labour force, production increased substantially throughout Canada, the rate of increase varied considerably. In areas other than the

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[1]Andal, M.E. Future Developments of the Agricultural Industry of the Atlantic Region. Paper presented at a Conference on Vocational and Technical Training in Agriculture, held at the Nova Scotia Agricultural College, Truro, N.S. 1965.

[2]Ibid.

TABLE 48

Current Operating Expenses for Selected Provinces and Canada, 1946-1965a

Years	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Canada
			- thousands of dollars -			
1946-50	8,511	14,824	15,798	119,557	227,918	644,593
1951-55	10,922	18,138	19,277	159,517	307,562	850,550
1956-60	12,544	20,151	20,749	204,706	381,545	1,047,314
1961-65	14,859	23,882	23,338	257,758	467,749	1,316,588
1961	14,040	21,903	22,568	231,650	414,560	1,152,557
1962	13,574	22,578	22,138	244,019	431,806	1,231,733
1963	14,458	24,001	22,835	260,676	469,138	1,320,900
1964	15,361	24,960	23,982	265,942	502,681	1,403,540
1965	16,864	25,970	25,167	286,501	520,558	1,474,212

a Farm operating expenses and depreciation charges less taxes, gross rent, interest on indebtedness, depreciation and hired labour. Source: Handbook of Agricultural Statistics, Part 2, Farm Income 1926-1965. Revised October 1966. Dominion Bureau of Statistics, Ottawa.

TABLE 49

Annual Average Percentage Rates of Change in Farm Production, Labour Employed and Production per Worker by Regions, 1947-49 to 1961-63a

Region	Farm Production	Labour Employed (annual average)	Production per worker
Atlantic Provinces b	0.8	-4.4	5.7
Quebec	3.0	-4.4	7.8
Ontario	2.8	-4.0	7.1
Prairie Provinces	2.5	-2.8	5.4
British Columbia	3.3	-2.9	6.5
Canada	2.6	-3.5	6.4

a Dawson, J.A. The Performance of Canadian Agriculture. Agricultural Institute Review, May-June 1966. Based on data from DBS. Index of Farm Production and DBS Labour Force Survey.

b For Farm Production, excludes Newfoundland. For number employed, includes Newfoundland in later period.

Atlantic Provinces the increase was from 2.5 per cent annually in the Prairie Provinces to 3.3 per cent in British Columbia, compared with 0.8 per cent for the Atlantic area. Production per worker was also lower in the Atlantic Provinces than elsewhere in Canada with the exception of the Prairie Provinces. The increases indicated are the result of a rapid rate of mechanization of farm operations and increases in most inputs, other than labour. The lower rate of increase in the Maritime Provinces is attributed to less use of some of these inputs than in other regions[3].

Similar differences in rates of production are indicated in the section of this report dealing with productivity. The net value of agricultural production per worker in the Maritime Provinces in the period 1961-65 averaged $1,806, compared with $3,604 for Canada. Since 1946-50 the increase has been 106 per cent for the Maritimes compared with 128 per cent for Canada.

Education: To the extent that higher levels of education contribute to greater acceptance and application of advances in technology, it will contribute to productivity and income. That agriculture may be handicapped in this respect is indicated by the fact that educational levels in agriculture are low. The census of 1961 revealed that only 29 per cent of Canadian farm operators had more than elementary school education compared with 75 per cent of those engaged in managerial occupations elsewhere in the economy[4].

In 1961 in the Atlantic Provinces, 12.7 per cent of the rural farm population over 10 years of age and not attending school had less than five years of schooling. This ranged from 27 per cent in Newfoundland to 5.9 per cent in Prince Edward Island. In contrast, only 8.7 per cent of the urban population had less than five years of schooling. Nearly 60 per cent of the rural farm population (aged over 10 and not in school) had no secondary education, compared with 41 per cent of the urban population. The proportion of the urban population that completed four or five years of secondary education was nearly twice as large as for the farm population[5].

Since incomes tend to be related to years of schooling it would appear that agricultural production and income are now, and will continue for some time to be, affected by levels of education in the farm sector of the Canadian economy.

Agricultural Research

The importance of technology to Canadian agricultural development and to that of the Atlantic Provinces in particular, suggests an examination of research efforts on which most technological advances are based.

Early efforts to improve farming techniques in the Atlantic Region have their origin in the founding of an agricultural society in Halifax in 1789, and in the agricultural fairs, crop improvement competitions and similar programs of the early eighteen hundreds. Subsequently, provincial boards, divisions and departments of agriculture were established in the Maritime Provinces and in Newfoundland[6].

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[3]Dawson, J.A. op. cit., p. 20

[4]Ibid p. 21.

[5]Andal M.E. op. cit., p. 10.

[6]Canada Yearbook 1924. p. 51; also Fowke, Canadian Agricultural Policy. University of Toronto Press 1946. pp. 33-66.

The establishment by the Federal Government of an experimental farm at Guelph in 1874, and five farms in various parts of Canada in 1886 (one of which was the farm at Nappan, N.S.) further extended this program. Up to that time our plants, animals, art and science of agriculture were of European origin[7].

The scope of the agricultural services undertaken by the several provinces varies with the extent of the agricultural development but generally it includes the services of specialists for field crops, horticulture, livestock and poultry, dairying, agricultural engineering and cooperative development. Subsidy programs for land development, the use of limestone and the improvement of livestock are more or less common to the area. All four provinces provide an agricultural representative service[8].

The scale of agricultural development and of the Atlantic area resources have precluded much provincial effort in the field of agricultural research. As a result the Federal Government has undertaken responsibility for activity in this field.

As presently functioning, the Research Branch of the Canada Department of Agriculture is concerned with both basic studies and the practical application of research. Its central core is a group of Institutes engaged in research relating to animals, plants, food, entomology, genetics, microbiology and soils. It also has Services conducting research in chemistry, engineering and statistics. In addition to this Ottawa establishment, the Branch functions through 63 regional research stations, laboratories, experimental farms and sub-stations scattered throughout Canada. Its efforts are coordinated with those of the National Research Council, the universities and similar bodies[9].

In the Atlantic area over the years five other federal experimental farms or research centres were added to the original establishment at Nappan. These are located at St. John's West, Nfld., Kentville, N.S., Charlottetown and Summerside, P.E.I. and Fredericton, N.B.

Distribution of the Research Effort

The distribution of the Canadian agricultural research effort by agency and field is indicated in table 50. Apart from industry research, which is not included, this table suggests that about 71 per cent of the activity occurs in the Federal Department of Agriculture, 19 per cent in the universities and 10 per cent in provincial research organizations. The contribution by private industry is estimated at between 5 to 10 per cent of the Canadian total[10].

In keeping with experience elsewhere, the Canadian effort has centered more on plant research than animal research. This was perhaps inevitable because the productive capacity of crops in new countries or regions was unknown,

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[7]Huntley D.N. How Effective is Canadian Agricultural Science? Agricultural Institute Review. May-June 1966, p. 50.
[8]Canada Year Book 1965. pp. 455-461.
[9]Information provided by Dr. J.C. Woodward, Associate Director-General, Research Branch, Canada Department of Agriculture.
[10]Huntley, D.N. op. cit. p. 51.

TABLE 50

Distribution of Research Effort by Agency and Field, Atlantic Provinces, 1966 a (Man Years)

	Canada Department of Agriculture	%	Provinces	%	Universities	%	Total	%
Plants	519	57	40	32	76	30	635	49
Animals	129	14	8	6	92	36	229	18
Soils	96	10	33	26	32	13	161	12
General	102	11	33	26	31	12	166	13
Research Direction	75	8	12	10	22	9	109	8
Total	921	100	126	100	253	100	1,300	100

a Huntley, D.N. How Effective is Canadian Agricultural Science? Agricultural Institute Review. May-June 1966.

whereas the ability of livestock to produce was reasonably apparent; moreover, the art of animal husbandry had already brought animals to a higher level of development than was the case with plants. This difference has since been narrowed or has disappeared and greater emphasis is now being focussed on livestock.

The Atlantic Provinces Establishment

In the establishment of experimental farms and illustration stations, the purpose of the Federal Department of Agriculture was twofold: to experiment with crops, equipment and animals; and to demonstrate to farmers the results of these experiments and their benefit to agriculture. Because of great variations in soil and climatic conditions a great many farms and substations were needed, each concentrating on the conditions and problems peculiar to its area.

That was the situation in Canada and in the Atlantic Provinces until recently. Conditions have changed, however, not only in farming but in the fields of extension and research. Modern facilities for travel and for the dissemination of information encourage research efforts to service regional and national needs as well as those of local concern. Then, too, the scope of the research called for and the techniques employed require a teamwork approach, the grouping of scientific abilities, and the use of buildings and equipment on a scale that suggests a large concentration of effort.

In the words of Dr. D.G. Hamilton, Assistant Director-General (Eastern), Research Branch, Canada Department of Agriculture, the federal department recognizing these needs has undertaken a research centralization and development program in the Atlantic region designed to increase the productive capacity of its agricultural economy[11]. The new program provides for the delegation of

[11]Hamilton, D.G., Agricultural Research in the Atlantic Provinces. An address to a Provincial Staff Conference. Fredericton, January 7, 1966.

specific major functions to each of the area's five major experimental stations. Each will continue to meet the particular needs of its locality but on the new basis of operation will also serve the Atlantic Region and, in some lines of endeavour, all of Canada. Similar developments are in progress in other parts of Canada.

The Atlantic program calls for two large research stations - Fredericton and Kentville - and a moderate sized establishment at Charlottetown. Nappan will be linked with Kentville, while at St. John's West in Newfoundland there will be a modest-sized well-equipped research group.

Fredericton is known as the potato research centre for Canada. It will continue this service and will strive for international recognition. Its second main role will be with animal nutrition, featuring maximum utilization of home grown forage and grain crops by dairy cattle, beef cattle, and sheep. There the team approach will link research men concerned with crops, soils and agricultural engineering. Soils research at Fredericton will feature the problems of potato, forage and cereal production. The soil survey of New Brunswick will be continued.

The station at Kentville in the orchard area of the Annapolis Valley will continue to be the centre for research in horticulture - tree and bush fruits, vegetables and greenhouse crops. It will be concerned with control of insects and diseases in orchards, fields and gardens; and with research on pesticide residues. It is the centre for research on processing and storage of fruits and vegetables. Close to a large commercial concentration of poultry, Kentville will also feature poultry breeding and management.

The program at Charlottetown features the soils of P.E.I., including organic soils, and the crops they can produce. The soils research program, being particularly strong in relation to forage and cereal production, will help serve the needs of the whole region. Charlottetown is the regional centre for cereal breeding, forage crop pathology and entomology. Cole crops are assuming increasing importance and small fruits could be important in the future. At Charlottetown, cows will be on test as part of the National Dairy Breeding Project.

Nappan, in addition to serving its nearby areas of Nova Scotia and New Brunswick, will be a proving ground for the whole Atlantic Region on dyke-land management, drainage systems, crop production and feeding of steers, breeding and management of beef animals, dairy-beef crosses and the dairy steer for beef production.

The experimental farm at St. John's West, the only establishment of its kind in Newfoundland and the youngest of the Atlantic group of research centres, will continue to focus its attention on the clearing and development of upland mineral soils and the conversion of boglands to commercial agriculture. It will also be concerned with pastures, blueberry barrens and the insect and pathology problems of the potato, turnip and cabbage, which are important to Newfoundland. Two problems found only in Newfoundland - the potato wart and the golden nematode - will continue to receive special attention.

Major Fields of Research

In Canada as a whole certain areas of research require strengthening. They include animal research, pesticide research, and agricultural engineering. All three of these are receiving attention in the Atlantic area. Within the region, major fields of research are grassland improvement, cereal management, potatoes, horticultural crops, the use of soils, and meat production[12].

Staff and Financial Aspects

The manpower resources for agricultural research in the Atlantic Provinces in 1966 appear to compare favourably with those for Canada as a whole when expressed in terms of professional staff and man years of effort (tables 50 and 51). While these tables are not constructed on exactly the same basis, the data they present are believed to be sufficiently similar to permit comparison. If so, the 108 professional staff in the Atlantic Provinces (table 51), would represent a research effort roughly equivalent to eight per cent of that of all agencies concerned with agricultural research in Canada and more than 10 per cent of the total of the Canada Department of Agriculture (table 50). When compared with the number of farms in the Atlantic area (33,391, or 7 per cent of the Canadian total of 480,903), it would seem that the Atlantic area is relatively well served in this respect.

While data are not shown, to permit a comparison of the expenditures on research at the six federal research centres in the Atlantic Provinces with those elsewhere, the amount indicated in table 52 ($3,334,858 in the fiscal year 1965-66) represents a considerable effort.

In this connection Hamilton states "There is no area (in Canada) where the coverage of research establishments in proportion to the extent of the industry is any better than in the Atlantic Region."[13]

Cooperation in Research and Other Services

Cooperation in the conduct of the provincial and federal agricultural services, including those of the Agricultural College at Truro, N.S., at both the administrative and operational levels in the Atlantic Region, is excellent - perhaps the best of any area in Canada. This may result from a realization by these provinces that they are less able to provide adequate services than other areas. The evidence of that cooperation is the existence of joint committees that have functioned successfully for many years.

Good as this has been, however, it is not perfect; and since it will be put to a severe test in emphasizing the regional approach and in effecting the transfer and consolidation of functions now in progress, there must be the utmost in communication and understanding. Nowhere will that be more important than in the translation of research results by extension services to farm organizations and farmers. The Atlantic Region Agricultural Services Coordinating Committee will have an important role to play in this very significant undertaking.

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[12] Hamilton, op. cit. p. 10.
[13] Hamilton, op. cit. p. 3.

TABLE 51

Personnel Establishment for the Federal Research Branch, Atlantic Provinces, 1966-67 a

	Professional	Other	Total
St. John's West	9	33	42
Kentville	39	73	112
Nappan	5	60	65
Charlottetown	19	57	76
Summerside	1	5	6
Fredericton	35	126	161
Total	108	354	462

a Provided by the Research Branch, Canada Department of Agriculture.

TABLE 52

Expenditures, by the Federal Research Branch Atlantic Provinces, 1965-66 a

	Salaries	Operation & Maintenance	Equipment	Total
		- dollars -		
St. John's West	183,336	42,304	16,090	241,730
Kentville	659,703	146,879	38,575	845,157
Nappan	300,032	106,028	26,850	432,910
Charlottetown	442,450	112,033	21,500	575,983
Summerside	37,600	12,224	2,300	52,124
Fredericton	834,783	309,210	42,961	1,186,954
Total	2,457,904	728,678	148,276	3,334,858

a Provided by the Research Branch, Canada Department of Agriculture.

Value and Disposition of the Agricultural Output

In this section consideration will be given to some of the broader aspects of Atlantic agriculture, including food consumption as indicated by food and feed balances, disposition of output, export trade and the position of agriculture in relation to gross regional product.

Food and Feed Balances - Newfoundland

The position with respect to agricultural food and feed balances in the Atlantic area during the 1961-64 period is indicated in tables 53-56. It will be noted that in Newfoundland (table 53) only one product, blueberries, showed a surplus over provincial requirements. The production of meat from all classes of livestock and poultry, except mutton and lamb, was but a small fraction of provincial requirements; for mutton and lamb it was about 43 per cent. The deficit on all meats when converted to live animals, chickens and fowl (159,900 hogs, 64,000 cattle, 12,000 lambs, 146,000 turkeys and 2.5 million chicken, and fowl) provides an indication of the annual market potential for Island production. Milk and all dairy products were in much the same position - a significantly deficit position.

The only products that came near to meeting provincial food or feed requirements were eggs (84 per cent of requirements), cabbage (80 per cent) and turnips (72 per cent). Potato production met 31 per cent of provincial requirements.

Prince Edward Island

The situation in Prince Edward Island differed appreciably from that in the other three Atlantic Provinces. Ten of the 17 products included in table 54 were produced in surplus volume in 1964. Of particular note was the surplus of pork, beef, mutton and lamb; also the surplus of all milk and milk products and of potatoes and strawberries.

Nova Scotia and New Brunswick

The position in Nova Scotia and New Brunswick (tables 55 and 56) was similar to that of Newfoundland in that all meat, chicken and fowl were in short supply relative to provincial needs. Production in most instances represented a larger percentage of requirements than was the case in Newfoundland, but in all classes of livestock and poultry meat there was a substantial market demand that was not being filled by provincial output: a shortage in Nova Scotia equivalent to 187,000 hogs, 76,000 beef cattle, 30,000 head of mutton and lamb, 996,000 chicken and fowl. Shortages were roughly the same in New Brunswick.

Milk in all its forms was also in short supply in both provinces as far as provincial production was concerned. The deficit in all milk in Nova Scotia would represent the production of 47,000 dairy cows at an average of 8000 pounds per cow and in New Brunswick 20,900 cows.

Nova Scotia in 1964 had a substantial surplus of blueberries and apples and a relatively small surplus of eggs. New Brunswick, in the same year, reported a very large surplus of potatoes and a substantial volume of blueberries and strawberries above provincial needs.

TABLE 53

Food and Feed Balances, Newfoundland

	Year	Unit	Production	Requirements	Deficit	Deficit Equivalent
Pork a	1964	000 lb.	515	22,586	22,071	159,900 head @ 138 lb.
Beef a	1964	000 lb.	1006	30,884	29,878	64,000 head @ 467 lb.
Veal a	1964	000 lb.	124	2,259	2,135	20,000 head @ 102 lb.
Mutton & Lamb a	1964	000 lb.	652	1,522	870	21,000 head @ 41 lb.
Chicken & Fowl a	1964	000 lb.	860	8,445	7,585	2,450,000 birds @ 3.1 lb.
Turkey a	1964	000 lb.	27	1,276	1,249	148,000 birds @ 8.5 lb.
Eggs a	1964	000 lb.	4,930	5,892	962	
All Milk b	1964	000 lb.	22,210	116,320	94,110	
All Manufactured Milk a/b	1964	000 lb.	890	95,000	94,110	
Butter(Milk Equivalent) a/b	1964	000 lb.	890	21,400	20,510	
Manufactured Milk a/b						
Other than butter	1964	000 lb.	-	73,600	73,600	
Potatoes c	1962	000 lb.	234	753	519	
Turnips c	1962	000 cwt.	77	106	29	
Cabbage a/d	1962	000 cwt.	120	149	29	
Grains a/c	1961	tons	-	19,510	19,510	
Blueberries a/f	1964	000 lb.	1216	-	Surplus 1,216	

a Dominion Bureau of Statistics, Maritime Regional Office, Truro, N.S.
b The Market for Farm Products in Newfoundland, 1948-50, W.C. Shipley, C.D.A.
c Demand for Agricultural Products in Newfoundland, 1964, ARDA Project No. 1002
d Marketing of Agricultural Products in Newfoundland - ARDA Project No. 1044
e Royal Commission on Transportation, Vol. II, 1961
f Data for blueberries sold in commercial channels, most of which are exported fresh or frozen.

TABLE 54

Food and Feed Balances Prince Edward Island, 1964 a

Commodity	Units	Production	Requirements	Deficit	Deficit Equivalent
Veal	000 lb.	315	535	220	2,000 head @ 104 lb.
Chicken & Fowl	000 lb.	898	2,300	1,402	452,000 birds @ 3.1 lb.
Turkey	000 lb.	122	428	306	36,000 birds @ 8.5 lb.
Blueberries	000 lb.	225	278	53	
Apples	000 lb.	N/A	83	-	
Vegetables	000 lb.	N/A	17,120	-	
Grains (1961) b	tons	145,014	150,925	5,911	
				Surplus	Surplus Equivalent
Pork	000 lb.	13,247	5,189	8,058	62,000 hogs @ 130 lb.
Beef	000 lb.	13,122	7,640	5,483	11,700 head @ 471 lb.
Mutton & Lamb	000 lb.	424	310	114	2,700 head @ 42 lb.
Eggs	000 doz.	3,995	2,247	1,748	
All Milk	000 lb.	230,968	97,600	133,368	16,700 cows @ 8000 lb.
All Manufactured Milk	000 lb.	188,278	63,100	125,178	
Butter (milk equivalent)	000 lb.	135,603	47,600	88,003	
Manufactured Milk (Other than butter)	000 lb.	52,675	15,500	37,175	
Potatoes	000 cwt.	5,860	165	5,695	
Strawberries	000 lb.	2,260	214	2,046	

a Dominion Bureau of Statistics, Maritime Regional Office, Truro, N.S.
b Requirements for feed and seed.

The Grain Situation

Having regard to the deficiency shown for livestock and livestock products in the Atlantic area as a whole (table 57), the feed grain situation indicated in tables 53 to 56 has particular significance. In Prince Edward Island, grain production and requirements for seed and feed were almost in balance and there was a surplus of meat, eggs and dairy products.

In the other three provinces, however, the grain deficit in relation to requirements was substantial, particularly in Nova Scotia where production fell 168,888 tons short of needs. In Newfoundland, with a heavy deficit in livestock and livestock products, no grains were produced.

Just as grain production has fallen short of requirements in three provinces and thus presumably has contributed to the deficit position in meat, poultry, eggs and dairy products, so, also the purchase of substantial quantities of feed grains under the stimulus of the Federal Feed Grain Assistance program has failed to bring production of livestock products into line with provincial requirements.

Geographical Distribution

A study completed in 1964 under the direction of Professor Kari Levitt provides considerable information on the distribution of the agricultural output of the Atlantic Provinces[1].

Products contributing cash income to the amount of $127 million originated in the Atlantic Provinces in 1960 (table 58). Sixty-two per cent of the volume came from livestock and livestock products. Thirty-one per cent represented sales of crops; the balance of $8.2 million came from farm forestry products and maple products. Dairy products ($30.1 million) and potatoes ($29.2 million) were the largest contributors to cash income. Cattle and calves($17.0 million), hogs ($9.7 million), poultry ($5.8 million) and fruit ($4.8 million) were other important income producers.

The bulk of the output, 79 per cent, represented by $100.7 million of cash income, remained in the Atlantic Provinces. Sixteen per cent went to other Canadian provinces and 4.7 to export trade.

Ninety six per cent of the livestock and livestock products stayed in the Atlantic area. Furs, with sales totalling $1.4 million, constituted the only sizeable movement of livestock products from the area. They went to other Canadian provinces.

In the crop category 40.7 per cent of output remained in the Atlantic Provinces; 45.2 per cent went to other provinces; and 14.1 per cent to foreign countries.

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[1]Agriculture in the Atlantic Provinces: Inputs and outputs 1960. Interim working paper No. 1, 1964 preliminary and restricted. The project received financial support from the Social Sciences Research Council; The Atlantic Provinces Research Board; the Atlantic Provinces Economic Council and the Atlantic Development Board.

TABLE 55

Food and Feed Balances Nova Scotia a

Commodity	Units	Production	Requirements	Deficit	Deficit Equivalent
Pork	000 lb.	11,648	35,966	24,318	187,000 hogs @ 130 lb.
Beef	000 lb.	17,192	52,883	35,691	76,000 head @ 471 lb.
Veal	000 lb.	2,007	4,648	2,641	25,000 head @ 104 lb.
Mutton & Lamb	000 lb.	1,016	2,286	1,270	30,000 head @ 42 lb.
Chicken & Fowl	000 lb.	15,505	18,593	3,088	996,000 birds @ 3.1 lb.
Turkey	000 lb.	791	3,734	2,943	346,000 birds @ 8.5 lb.
All Milk	000 lb.	321,651	695,096	373,445	47,000 cows @ 8000 lb.
All Manufactured Milk	000 lb.	100,365	450,037	349,672	
Butter (Milk Equivalent)	000 lb.	74,458	339,143	264,685	
Manufactured Milk Other than butter	000 lb.	25,907	110,894	84,987	
Potatoes	000 cwt.	648	1,181	533	
Vegetables	000 lb.	28,612	122,377	93,765	
Grain (1961)	tons	37,902	206,190	168,888	
				Surplus	
Blueberries	000 lb.	5,100	2,000	3,100	
Eggs	000 doz.	17,664	16,231	1,433	
Apples	000 bus.	2,430	593	1,837	

a Dominion Bureau of Statistics, Maritime Regional Office, Truro, N.S.

TABLE 56

Food and Feed Balances New Brunswick, 1964 a

Commodity	Units	Production	Requirements	Deficit	Deficit Equivalent
Pork	000 lb.	9,217	29,061	19,844	152,600 hogs @ 130 lb.
Beef	000 lb.	17,333	42,882	25,549	54,300 head @ 471 lb.
Veal	000 lb.	1,955	3,887	1,932	18,600 head @ 104 lb.
Mutton & Lamb	000 lb.	756	1,789	1,033	24,600 head @ 42 lb.
Chicken & Fowl	000 lb.	5,420	14,746	9,326	3,000,000 birds @ 3.1 lb.
Turkey	000 lb.	419	2,900	2,481	290,000 birds @ 8.5 lb.
Eggs	000 doz.	9,521	13,080	3,559	
All Milk	000 lb.	355,489	562,700	107,211	20,900 cows @ 8000 lb.
All Manufactured Milk	000 lb.	178,945	364,000	185,055	
Butter (Milk Equivalent)	000 lb.	156,991	274,600	117,609	
Manufactured Milk (Other than Butter)	000 lb.	21,954	89,400	67,446	
Vegetables	000 lb.	23,900	98,742	74,842	
Apples	000 bus.	480	480	-	
Grain b	tons	80,478	170,429	89,951 Surplus	
Potatoes	000 cwt.	8,127	956	7,171	
Blueberries	000 lb.	3,375	1,600	1,775	
Strawberries	000 lb.	2,250	1,234	1,016	

a Dominion Bureau of Statistics, Maritime Regional Office, Truro, N.S.
b Requirements for Feed and Seed.

TABLE 57

Food Balances: Livestock and Livestock Products in the Atlantic Provinces, 1964 a

	Production	Requirements	Deficit	Deficit Equivalent
	- thousands of pounds -			- head -
All Milk	930,318	1,471,716	541,398	-
All manufactured milk	468,478	972,137	503,659	-
Butter (Milk Equivalent)	367,942	682,743	314,801	-
Mfg. milk other than butter	100,536	289,394	188,858	-
Beef	48,653	134,289	85,636	182,600
Veal	4,401	11,329	6,928	66,500
Pork	34,627	92,802	58,175	437,500
Chicken & fowl	22,683	44,084	21,401	-
Turkeys	1,359	8,338	6,979	-
Eggs (000 doz.)	36,110	37,450	1,340	-
Mutton & Lamb	2,848	5,907	3,059	64,100

a Dominion Bureau of Statistics, Food Balance Sheet, 1964 and The Market for Farm Products in Newfoundland, 1948-50, W.C. Shipley, Canada Department of Agriculture.

The Net Position

As indicated in table 58, data for 1960 suggest that products representing about 21 per cent of agricultural output in the Atlantic area moved to other parts of Canada or into export trade that year. A substantial volume of potatoes went to Central Canada from New Brunswick and Prince Edward Island; furs found their way to the same market. Potatoes, blueberries, apples and vegetables contributed to the area's trade with other countries. In addition there were lower volume movements of products such as cattle and calves, wool, sheep and mutton, eggs, and strawberries and tobacco.

The food and feed balance situation indicated by the 1960-64 data is believed to be typical. The out-movement, in some instances the result of locational and other advantages, e.g. the shipment of livestock to Montreal stockyards, balanced to some extent by return movements of meat, may have been affected to some extent by the development of facilities and markets within the Atlantic Provinces; but in the main, and notably in the production of livestock and livestock products (table 57), the area as a whole experiences substantial deficits in food and feed production. The movement of products out of the area, though varied and in a few instances of considerable volume, is on the whole rather limited.

The movement of farm products within the Atlantic Region in itself is also small. Newfoundland is entirely on the receiving end of such movement, while New Brunswick is a net importer. Nova Scotia and Prince Edward Island

TABLE 58

Value and Disposition of Agricultural Output a
by Commodity, Atlantic Provinces, 1960 b

Commodity	Cash Income	To other Canadian Provinces		To Foreign Countries		Remaining Atlantic in Provinces	
	$000	$000	%	$000	%	$000	%
Oats	890	-	-	-		890	100
Potatoes	29,191	17,843	61.1	4,141	14.2	7,207	24.7
Fruit	4,860	166	3.4	1,246	25.6	3,448	71.0
Blueberries	*1,240*	*90*	-	*612*	-	*538*	-
Strawberries	*1,215*	-	-	*40*	-	*1,175*	-
Apples	*2,301*	*76*	-	*594*	-	*1,631*	-
Other Fruits	*104*	-	-	-	-	*104*	*100.0*
Vegetables	2,765	13	0.5	230	8.3	2,522	91.2
Misc. Agric. Products	1,923	-	-	-	-	1,923	100.0
Clover & Grass Seed	54	-	-	-	-	54	100.0
Hay & Clover	210	-	-	-	-	210	100.0
Tobacco	25	13	52.0	-	-	12	48.0
Total Crops	39,918	18,035	45.2	5,617	14.1	16,266	40.7
Cattle and Calves	16,960	612	3.6	266	1.6	16,082	94.8
Hogs	9,727	3	0.1	20	0.2	9,704	99.7
Sheep and Lambs	1,000	117	11.7	2	0.2	881	88.1
Poultry	5,819	-	-	-	-	5,819	100.0
Eggs	13,597	14	0.1	85	0.6	13,498	99.3
Dairy Products	30,127	-	-	-	-	30,127	100.0
Wool	297	287	96.6	-	-	10	3.4
Honey	71	-	-	-	-	71	100.0
Furs	1,455	1,455	100.0	-	-	-	-
Total Livestock & Products	79,053	2,488	3.1	373	0.5	76,192	96.4
Maple Products	88	-	-	-	-	88	100.0
Forest Products	8,103	-	-	-	-	8,103	100.0
Deficiency Payments	81	-	-	-	-	-	-
	127,243	20,523	16.1	5,990	4.7	100,730	79.2

a Exclusive of income in kind and inventory changes.
b Levitt, Mrs. Kari. Agriculture in the Atlantic Provinces, Inputs and Outputs, 1960, pp. A 55-56.

are net exporters of farm products to the other Atlantic Provinces[2].

Agricultural Exports of the Atlantic Provinces

In addition to the Levitt report already referred to, another study, by Professor John F. Earl, throws additional light on agricultural exports of the Atlantic Region[3]. The Levitt study was based on the disposition of agricultural output as "farm cash income". It included movement to other provinces. The Earl study, which deals with all export trade, records the values of exports of agricultural raw materials, and of processed and manufactured products of agricultural origin, and is concerned only with export trade.

In table 59, the agricultural exports of the Atlantic Provinces to all countries as compiled by Earl are presented. The total for the three years 1960-62 averaged roughly $21 million annually. Fruits and vegetables ranging from $9.6 million to 14.7 million led the several commodity groupings. Potatoes, seed and other, led the individual products with sales abroad ranging from roughly $5 million to $8 million annually, and averaging 27.9 per cent of total agricultural exports. Apples averaged 13.9 of the total per cent. The list of products suggests a considerable diversification of agricultural products.

The variety of agricultural exports is more impressive, however, than the volume, when comparisons are made with other segments of the economy and other periods.

In each of the years 1960, 1961 and 1962 "total agricultural exports ranked last in importance among the major Atlantic export industries, behind forest products, fish and fish products, metallic ores and concentrates, and iron and steel products"[4]. With total Atlantic area exports ranging from $411 million in 1960 to $470 million in 1962 agriculture's share of the total was 5.2 per cent in 1960 and 5.0 in 1962.

Land Use and Crop Production

The following section reviews and analyzes trends in land use on farms in the Atlantic Provinces. Analysis of crop production is by type of enterprise, with emphasis on factors influencing costs and returns, growth potential and the overall significance of the various crops from the point of view of employment and farm income.

Trends in land use on farms in Prince Edward Island, Nova Scotia and New Brunswick are indicated by census data for the 1931-61 period (table 60). In general, these indicate a substantial decline in farm land, an even sharper decline in number of farms, but an increase in size of farm. During the thirty year period there was an annual movement of 1,823 farms and 141,820 acres of land a year out of agriculture. While the trend has admittedly been accentuated

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[2]Levitt, Kari, op. cit. PA3

[3]Earl, John F. A Report on the Exports of the Atlantic Region. Atlantic Provinces Research Board, Fredericton, May 1964.

[4]Fletcher, R.K. Post War Agricultural Trends in the Atlantic Provinces. Atlantic Provinces Economic Council. Federation June 1966. p. 24.

TABLE 59

Agricultural Exports of the Atlantic Provinces
1960, 1961 and 1962 a

Year	1960		thousands of dollars 1961		1962	
Live Animals		540		472		519
Meat and Meat Products		2776		2021		1753
Dairy Products - Total		2216		2611		1667
Cheese	53		70		73	
Milk Powder - whole	1427		2122		954	
Milk Powder - skim	475		79		396	
Milk Evaporated	139		178		163	
Eggs in shell	101		84		53	
Other	21		78		28	
Cereals and Cereal Products		2347		1687		1809
Fruit & Vegetable Products		9649		9754		14693
Apples - Fresh	1869		1947		2673	
Blueberries - Fresh	494		479		401	
Other Fruit - Fresh	42		38		58	
Frozen Fruits & Berries	874		630		733	
Apple Juice	314		300		171	
Other Juices	-		2		5	
Canned Apples	77		330		898	
Canned Peas	9		10		154	
Other canned	64		54		64	
Nuts	34		38		61	
Onions & Shallots	34		442		487	
Potatoes - seed	3098		3422		4436	
Potatoes - other	1859		1194		3826	
Turnips	302		220		144	
Other Fresh	85		81		76	
Frozen Vegetables	283		328		149	
Canned Vegetables & Juices	127		109		104	
Pickles and Dressings	84		130		253	
Other Food & Feed Products		3842		2315		3138
Total Agricultural Exports		21370		18860		23579
Total Exports		411312		446605		469738
Agriculture as a % of total		5.20%		4.22%		5.02%

a Fletcher, R.K., Post War Agricultural Trends in the Atlantic Provinces. Atlantic Provinces Economic Council, Fredericton 1965, p. 27. A consolidation of Agricultural export data from J.F. Earl's report op.cit.

by the change in the definition of a farm in the 1961 census, if the decline is projected on the 1931-61 basis it would mean a complete movement out of farm land in 82 years.

Lack of historical data for Newfoundland prevents the inclusion of information on that province for the 1931-61 period. However, data for the 1951 and 1961 census periods are shown in Appendix B, tables 11 and 15, and a similar trend is evident in farm numbers and size of farm as in the other Atlantic Provinces.

While all types of farm land have declined in the 1931-61 period, the decline is by no means uniform. Major declines have occurred in woodland and other unimproved land reflecting farm abandonment and movement off the land in areas less suited to agriculture. A further indication of this trend is the more pronounced decline in cropland as compared to other improved land. In the process of farm abandonment, land has been moving out of crops into improved pasture and other uses. Provincial data (Appendix B, 12-14) indicate that declines or movement out of agriculture have been much more pronounced in New Brunswick and Nova Scotia than in Prince Edward Island.

Trends in crop production are indicated by acreage data (table 61) and cash receipts from sale of farm crops (table 62). These trends, which will be discussed in more detail in the analysis of individual enterprises, indicate a sharply downward trend in the acreage of field crops and tree fruits, considerable variation in acreage with an upward trend in value of potatoes, and an upward trend in the acreage and value of small fruits and vegetables.

While there is a tendency to emphasize the importance of cash crop production, it is obvious that production of feed crops represents the major land use operation on farms in the Atlantic Provinces. Grain and hay account for about 85 per cent of the total crop acreage, and these two crops plus pasture account for 84 per cent of the total improved farm acreage. The importance, or potential importance, of these crops is further emphasized by the fact that feed represents from one-half to two-thirds of the cost of producing livestock and livestock products which, in turn, account for about two-thirds of total cash receipts of farms in the region.

In most farming areas, production of feed is an integral and basic phase of livestock operations. The fact that acreages of these crops in the Atlantic Region declined over the years to a greater extent than livestock numbers indicates that feed production is a major weakness of Atlantic agriculture. Unfortunately, this fact is obscured by the tendency to explain the regional deficits in meat and livestock products largely in terms of deficiencies in organization and management of livestock operations. The old observation that Maritime livestock is better bred than fed, appears to have increasing validity.

Two main feed crops in the region are grain and hay. Declining production of these crops in a large part reflects weaknesses of the resource base, particularly in the soils of the region, which tend to be acid and of low fertility. The extent of these limitations is indicated by the Canada Land Inventory, which already includes Prince Edward Island, Nova Scotia and about one-third of New Brunswick and has found no land in class 1. While the influence of resource limitations can be reduced by good cultural and management practices, it would appear that added applications of fertilizer and lime required to

TABLE 60

Trends in Land Use in Prince Edward Island, Nova Scotia and New Brunswick, 1931-1961 a

Item	Unit	1931	1941	1951	1961	1961 as a per cent of 1931
Cropland	ac.	2,089,167	1,912,199	1,615,316	1,202,774	58
Improved Pasture	ac.	703,185	709,074	596,917	495,428	70
Other Improved Land	ac.	148,284	163,961	101,914	112,984	76
Total Land Improved	ac.	2,940,636	2,785,234	2,314,147	1,811,186	62
Woodland	ac.	5,274,419	4,601,437	4,235,942	2,890,489	55
Other Unimproved Land	ac.	1,429,774	1,562,952	1,189,140	688,552	48
Total Farm Area	ac.	9,644,829	8,949,623	7,739,229	5,390,227	56
No. of Farms	no.	86,334	77,096	60,081	31,639	37
Average per Farm						
Cropland	ac.	24.2	24.8	26.9	38.0	157.0
Improved Land	ac.	34.1	36.1	38.5	57.2	158
Total Farm Area	ac.	111.7	116.1	128.8	170.4	152

a Census of Canada, Agriculture by Province, 1961 - Vol. V, Part I, table 2.

TABLE 61

Trends in Crop Acreage in Prince Edward Island, Nova Scotia and New Brunswick, 1931-1961 a

Crop	1931	1941	1951	1961	1961 as a % of 1931
	- acres -				
Grain	580,779	508,501	465,846	324,809	56
Hay	1,249,085	1,191,404	989,741	699,509	56
Root Crops	25,823	29,464	16,005	7,667	30
Potatoes	136,739	103,012	79,061	108,476	79
Other Field Crops	34,684	18,547	24,158	24,659	71
Green Peas	69	403	884	3,535	5123
Other Vegetables	1,682	2,654	3,666	4,582	272
Tree Fruits	57,879	40,419	24,500	15,719	27
Small Fruits	1,838	1,661	2,881	13,129	714
Other Crops	589	16,134	8,574	689	117
All Crops	2,089,167	1,912,199	1,615,316	1,202,774	58

a Censuses of Canada, Agriculture by Province,
1961 - Vol. V, Part I. Tables Nos. 4,5,16,17-
1951 - Vol. VI, Part 1, Tables No. 17-29 -
1941 - Vol. VIII, Part 1, Tables No. 31-49 -
1931 - Vol. VIII, Tables No. 24-19.

TABLE 62

Cash Receipts from Sale of Crops, Prince Edward Island, Nova Scotia and New Brunswick, 1931-1965 a

Crops	1931	1941	1951	1961	1965
			- thousands of dollars -		
Oats	576	616	1,271	937	454
Potatoes	3,817	6,395	10,148	14,152	46,379
Fruits	3,512	3,194	2,218	5,903	6,755
Vegetables	422	879	1,062	2,091	3,178
Other Crops	1,057	1,151	2,239	2,301	3,604
All Crops	9,384	12,235	16,938	25,384	60,370

a Dominion Bureau of Statistics, Farm Cash Receipts

TABLE 63

Grain Acreage in the Atlantic Provinces, 1931-41-51-61 a

Province	1931	1941	1951	1961	1961 as a % of 1931
			- acres -		
Prince Edward Island	195,605	186,584	181,629	155,507	79.5
Nova Scotia	104,512	90,466	77,499	49,421	47.3
New Brunswick	280,662	231,451	206,718	119,881	42.7
Newfoundland	-	-	143	122	-
Atlantic Region	580,779	508,501	465,989	324,931	55.9

a Census of Canada, Agriculture by Province, Vol. 5, Part I, Table No. 4.

secure yields comparable to those in Southern Ontario, plus higher charges for mechanization and farm supplies, result in added production costs of at least $10 per acre. In the case of intensive crops, such as potatoes and small fruit, these added costs may be offset by other factors, but for extensive crops such as grain and forage they represent a serious problem.

Grain

The major feed deficiency is in grain; a related comment is that grain can be purchased cheaper than it can be produced, in the Atlantic Region. During the 1930's feed prices in the area were influenced by imports of Argentine and South African corn, which were laid down at Atlantic ports at very low prices. Subsequent reductions in feed costs were provided by wartime policies of feed freight assistance and subsidy payments on coarse grains and feed wheat.

During this period there is little question that grain could be purchased more cheaply than it could be grown on many farms in the area, and particularly on the smaller and less efficient operations. As a result, grain acreage dropped sharply (table 63).

Following the removal of subsidy payments on coarse grains and feed wheat in 1947, feed prices advanced by about 50 per cent over the next two years and a further upward trend has developed in recent years. As a result, many of the larger farmers are currently showing increased interest in grain production and Provincial Departments of Agriculture are planning increased promotion of the crop: particularly in barley, where yields have increased sharply with the introduction of new varieties and improved cultural practices.

Data in tables 63 and 64 indicate considerable variation in acreage trends and grain requirements in the four Atlantic Provinces. In Prince Edward Island, grain is mostly produced on the residual fertility from the potato crop. While acreage has declined since 1931, total output has been more than maintained through an increase in yields; the province produces about 80 per cent of its total grain requirements. Unfortunately there is some conflict in the potato-grain rotation, in that potatoes require a relatively low pH for scab control (not over 5.4) while to secure high yields of the new grain varieties, and particularly barley, a pH of 6.0 or better is recommended.

In New Brunswick increased specialization in the potato producing areas, expansion in processing crops, and a decline of grain acreage in outlying areas, has resulted in a sharper drop in production. In Nova Scotia the decline in grain production is even more pronounced; this province produces less than 20 per cent of its grain requirements. Very little grain is grown in Newfoundland and much of this is cut for hay.

While grain will probably face increasing competition from processing crops in Prince Edward Island, it is probable that the potato-grain relationship will tend to be maintained. In New Brunswick and Nova Scotia, however, it appears that increases in grain production will have to come mainly from dairy and mixed farms, and particularly those located outside cash crop producing areas.

The point is frequently expressed in Ontario that those who depend to a large extent on freight assisted grain are not making much money in farming. On the basis of current feed prices and local production costs, there appears to be considerable justification for some increase in grain production and particularly in barley. Some beneficial side effects may also be anticipated including improved forage, increased size of farm and a reduction in per acre mechanization costs.

Hay

As indicated in table 65, a substantial decline occurred in the acreage of hay in the Atlantic Provinces during the 1931-61 period. Furthermore, the decline has not been offset by an increase in yields or quality as in the case of grain.

The cool, moist climate of the region favours the growth of grass but constitutes a problem in making hay. In line with this it is suggested that greater efforts should be made to capitalize on the natural advantages of the

TABLE 64

Grain Production and Requirements in the Atlantic Provinces, 1961 a

	Production	Imports	Total Supplies	Production as a per cent of Total Supplies
		- tons -		%
Prince Edward Island	145,014	29,381	174,395	83.2
New Brunswick	80,478	83,433	163,911	49.1
Nova Scotia	37,902	142,414	180,316	21.0
Newfoundland	-	19,989	19,989	-
Atlantic Region	263,394	275,207	538,611	48.9

a Report of the Eastern Canada Feed Grain Survey and Census of Canada, Agriculture, Vol. 5, Part I, table no. 20.

TABLE 65

Hay Production in the Atlantic Provinces, 1931-1961 a

	1931	1941	1951	1961	1961 as a % of 1931
		- acres -			%
Prince Edward Island	235,022	228,220	203,783	178,555	76.0
Nova Scotia	420,816	401,096	344,629	233,884	55.6
New Brunswick	593,247	562,088	441,329	287,070	48.4
Newfoundland	-	-	15,378	9,203	-
Atlantic Region	1,249,085	1,191,404	1,005,119	708,712	56.7

a Census of Canada, Agriculture by Province, 1961, Vol. V, Part 1, table no. 4.

area in terms of pasture; the problems of hay making should be reduced by more emphasis on silage and hay.

A major problem in the production of silage and hay is the heavy investment involved in machinery and equipment. This tends to restrict the program to the larger farms. A further deterrent is the fact that many farms currently have a heavy investment in balers and other hay-making equipment. Despite these difficulties there appears to be increased interest in such a program, and in 1966 the Nova Scotia Department of Agriculture introduced a policy of special financial assistance for silo construction.

The advantages of the area in respect to pasture appear to justify much greater emphasis on the promotion of this crop. It is somewhat of a paradox that cream and manufactured milk produced elsewhere in Canada mostly on pasture are, in the Maritimes, frequently associated with a fall calving and winter feeding program.

In the early part of the century hay was an important cash crop in the Maritimes. The profitability of the enterprise was reflected in extensive marshland developments and the high land values and general affluence of these areas. With the replacement of the horse by mechanical power, demand for hay declined while production costs increased. Despite substantial expenditures on marshland reclamation, farming has declined in many of these areas and on those farms which have retained a high degree of involvement in cash sale of hay.

Other Feed Crops

As indicated in table 61, acreage in other field crops in the Maritimes is relatively small. Root crops, while well adapted to the area, have declined sharply. The bulky nature of these crops, plus the fact that they do not lend themselves well to mechanized operations, has been a major factor in this decline. The introduction of new and improved varieties has led to some increase in the production of forage corn in recent years. Cool night-time temperature, however, restricts growth and the crop tends to be limited to the more favoured areas.

Potatoes

From the point of view of acreage and receipts, the major cash crop grown in the Atlantic Provinces is potatoes. Of every hundredweight of potatoes grown in Canada, 42 pounds are produced in the region; of these 40 pounds come from New Brunswick and Prince Edward Island. Production is concentrated mainly in the three counties of Prince Edward Island, in the Upper St. John Valley of New Brunswick and in Kings County, Nova Scotia. Output is increasing in these areas but generally declining elsewhere in the region.

Potato specialization in the Atlantic Region is associated with a number of factors. These include the cool, moist climate of the area and favourable soil characteristics such as moisture retention and acidity, which influence potato shape and structure as well as providing protection against disease. Other contributing factors are above average scale of operation, seed potato specialization, and in recent years an expansion in processing which has brought added stability as well as increased market outlets to the industry.

Organization and management of the potato enterprise differs considerably between the main producing areas. Much of this appears to stem from variations in soils.

The Caribou and Homesville soils of New Brunswick have remarkable moisture holding capacity and appear to be able to stand up under programs which frequently include a number of consecutive crops of potatoes. The short rotations and intensity of potato production are indicated by data for Victoria County where potatoes in 1961 accounted for half the total acreage under crops. Of the 705 farms in the county, 545 reported potatoes with an average of 37.8 acres per farm in this crop. The recommended economic unit for the area is 80-100 acres of potatoes, or an acreage which a good single line of equipment will handle. One problem of the soils in the area is that they tend to be stony and restrict harvesting operations. While mechanical harvesters are being introduced, a substantial part of the crop is picked by hand.

In contrast, the soils of Prince Edward Island are sandy with a lower moisture holding capacity, but are relatively stone free and particularly well adapted to mechanization. In order to build up moisture-holding organic material in the soil, potatoes are grown in a longer rotation which usually includes a crop of grain and at least one crop of hay prior to potatoes. As a result, potatoes are usually associated with a mixed type of farming which includes other crop and livestock operations. This tends to restrict size of unit and specialization in potatoes. In 1961 the average size of enterprise in Prince, the major producing county in Prince Edward Island, was 10.8 acres per farm reporting potatoes. Due to such factors as smaller size of unit and greater distance from market, growers in Prince Edward Island have emphasized seed potato production and table stock quality to a greater extent than in New Brunswick.

The Royal Commission appointed to investigate the potato industry in New Brunswick in 1960 was particularly concerned with the lack of progress in the post war period. "During the last decade and a half New Brunswick has been standing still, while Prince Edward Island and, more recently, other provinces have moved steadily ahead. Growth in some American States (e.g. Idaho, North Dakota, Minnesota and Maine) has also been more pronounced than in New Brunswick."[1]

Lack of progress was generally attributed to deficiencies in organization within the industry and to inadequacies in research, extension and promotion in comparison with those in competing areas. The Commission noted that throughout North America the production marketing and utilization of the potato crop is undergoing a veritable revolution. It wished to discourage the idea that the mere possession of a superb soil and a cool climate will, by themselves, guarantee the future prosperity and development of the industry.

In commenting on changes long overdue in the industry, the Commission observed that the fact that changes have not been introduced in past years has been due to the inability of the potato industry to organize for itself a representative association capable of serving the basic interests of all those who participate in the different aspects of potato production, distribution and processing. As an initial step in a potato development program, the Commission recommended the establishment of a joint industry committee with representatives from producers, shippers and processors. Established under the joint committee would be four standing committees with specific responsibility in the fields of research, production, marketing and processing. The Commission also recommended a wholesale re-organization of government programs relating to the New Brunswick potato industry. In the recommended program, agencies of the Federal and Provincial Governments would be assigned specific fields of responsibility and would work in close conjunction with the industry committees.

One of the current major weaknesses of the industry, as seen by the Commission, was in the field of marketing. It emphasized that a continued preoccupation with production, to the exclusion of marketing problems, could seriously undermine New Brunswick's position in increasingly competitive potato markets.

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[1]Report of the Royal Commission on the New Brunswick Potato Industry, 1962, p. 2.

Another major point of concern to the Commission was inadequacies of extension and of dissemination of information, as a result of which producers were ill equipped or inadequately informed on many aspects of production as well as marketing. It doubted whether any substantial improvement is possible in New Brunswick until the level and extent of operational knowledge is substantially increased.

The Commission report reflects the special problems of the New Brunswick potato industry during the early post war period, including declining acreage, low returns to producers, unsuccessful attempts in establishing marketing organizations, and related problems which gave rise to considerable pessimism in the industry. While many of these problems are attributable to deficiencies in the industry, it is also obvious that the rapid application of technology to the industry and the effect of price support programs in the United States during this period were important contributing factors. In more recent years improved prices, reversal of the long term decline in per capita consumption, and a general increase in production efficiency have placed the industry in a more favourable light.

While improved demand in recent years has relieved the marketing situation, this continues to be a basic problem of the industry. Other problems include heavy requirements for short term and intermediate credit, conflicts between potatoes and other crops associated with variations in pH requirements, the need for greater diversity on New Brunswick farms as an insurance against income variability in potatoes, and increased farm storage facilities on Prince Edward Island farms.

Data in table 66 provide some indication of the variation in acreage, yield and prices which characterize the potato industry. The 1951 acreage represents an all time low, but was compensated for by the highest prices ever secured by potato growers in the region. Since 1951 there has been an upward trend in production and value of the crop. In Newfoundland potatoes declined from 2,505 acres in 1951 to 1,975 acres in 1961.

Data secured from a small group of potato growers in New Brunswick in 1960 indicate a production cost of $233 per acre or a $1.10 per hundredweight for marketable potatoes[2]. On only two occasions since 1951 have prices to producers fallen below this level.

Vegetable Crops

From the point of view of soils and climate, the Atlantic Provinces are relatively well suited to vegetable production. The absence of large consuming centres of population in the region, however, tends to restrict demand. A further factor limiting demand is the increasing preference for fresh as opposed to stored vegetables. While the region meets a substantial part of its in-season requirements for vegetables, the trend in recent years has been toward the production of processing crops and particularly those in which it has a comparative advantage.

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[2]Retson, G.C. Cost of Producing Potatoes on Selected New Brunswick Farms in 1951 - Economic Annalist, February 1962, Department of Agriculture, Ottawa.

TABLE 66

Potato Acreage, Production and Value for Selected Years in Prince Edward Island, Nova Scotia and New Brunswick, 1951-1965 a

Years	Acreage	Production	Value of Production
	000 ac.	000 cwt.	$'000 dollars
1931	137	13,171	3,779
1941	103	10,412	13,902
1951	79	10,487	36,236
1961	109	18,838	17,708
5 year average			
1951-55	94	14,745	26,948
1956-60	100	17,379	27,747
1961-65	103	19,387	33,283 b

a Census of Canada, Agriculture by Province, 1961, Vol. V, Part I, table no. 4 Crop and Seasonal Price Summaries 1951-65, Part I, Part II, Canada Department of Agriculture.
b Four Year Average.

TABLE 67

Acreage of Vegetables on Farms in the Maritime Provinces, 1931-1965 a

Vegetables	1931	1941	1951	1961	1965
			- acres -		
Beans	152	330	416	893	2,500
Beets	97	151	225	152	150
Cabbage	482	455	522	466	577
Carrots	225	544	744	568	552
Cauliflower	33	54	95	127	130
Corn	277	355	495	690	730
Lettuce	29	51	84	166	194
Peas	69	403	884	3,535	7,840
Tomatoes	111	232	360	322	349
Other Vegetables	276	482	725	1,198	622
Total area in vegetables	1,751	3,057	4,550	8,117	13,644

a Seasonal Crop Report on Acreage, Production and Farm Value of Commercial Vegetables, Dominion Bureau of Statistics.

As indicated by the data in table 67, the major expansion in vegetable acreage has occurred in peas. Contributing factors are the cool, moist climate of the area, which makes for high yields and quality, plus the fact that the

crop is particularly well adapted to processing. Like potatoes (with which they combine well) processing peas are an intensive crop grown on an extensive basis. The result has been a substantial reduction in costs over those of competing products.

Production costs in various pea producing areas in the region indicated by a study conducted in 1959[3] ranged from $77 to $125 per acre. Receipts from peas for all farms in the study averaged $127 per acre. At that time the crop was relatively new to many producers and with increasing experience as well as added processing outlets, it is anticipated that some further expansion of acreage may occur.

Aside from peas, the chief processing vegetable crops are beans (which have been processed for a number of years) and cole crops such as cauliflower, brussel sprouts, broccoli and spinach, where the development is more recent. Unlike peas, which tend to be a highly specialized and larger scale operation, these crops are more labour-intensive and are frequently grown as small cash crop enterprises on dairy and mixed farms. Heat-loving crops such as corn and tomatoes, important processing crops elsewhere, are grown in the region mainly for the fresh vegetable trade.

Census data for Newfoundland indicate a total of 1,651 acres of vegetable crops on farms in 1951. In 1961 these crops, which consisted largely of turnips, cabbage, carrots and beets, had declined to 1,268 acres.

Although the Atlantic Region appears to have special advantages in production of root crops and vegetables, output has generally declined in recent years. The decline is frequently attributed to inadequate cultural practices and pest control measures, but more basic contributing factors appear to be the bulky nature of these crops plus the fact that some of them do not lend themselves to, or have not been adapted to, processing. The impact of processing is dramatically indicated by changes in per capita consumption of potatoes which declined steadily for about 50 years but began to move upwards in the mid 50's with the introduction of instant mashed and other processed products (table 68).

In the Atlantic Region, beets are largely an in-season vegetable crop. To a slightly lesser extent this also applies to carrots, which were formerly sold out of storage but now have difficulty competing with fresh imported produce. Turnips, particularly well adapted and at one time an important cash crop in the region, have declined sharply in recent years. While root maggot has been a factor, lack of a convenient and acceptable processed product would appear to be a more basic problem. The declining production of parsnips has strengthened prices to a point where some additional outlet is likely to be forthcoming.

Increased vegetable production is closely related to the establishment of new processing plants and expansion of existing ones. The development has been a most desirable one in that it has provided increased employment in the non-farm as well as the farm sector. Further development in vegetable production is encouraged by the fact that per capita consumption of vegetables is increasing at a faster rate than that of most other crops.

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[3]Retson, G.C. and Boswell, A.M. - Processing Peas in the Atlantic Provinces, The Economic Annalist, Ottawa, April 1962.

TABLE 68

Per Capita Consumption of Farm Crops in Canada, 1951-53 & 1961-63 a

	1951-53	1961-63	Increase or Decrease
	- pounds -		- per cent -
Cereals	167.1	153.0	- 8
Potatoes	149.2	157.2	+ 5
Vegetables	134.1	174.2	+ 30
Fruits	164.3	167.9	+ 2

a Based on data from the Dominion Bureau of Statistics

Distance from market, plus the bulky nature of vegetable crops, places the region at somewhat of a disadvantage in their export. Reports from competing areas, however, emphasize such problems as steadily increasing costs, restrictions on use of migratory labour, added problems in water supply for production and processing, higher costs of land association with urban sprawl, and other adverse factors whose impact appears less serious in the Maritime Provinces. An added, but as yet largely unexploited, asset in vegetable production is the considerable area of peat soils in the region.

Apples

Next to potatoes, apples are the most important cash crop in the Atlantic Provinces. Commercial production is confined largely to the Annapolis Valley of Nova Scotia, a small but expanding acreage in the St. John River Valley and a few orchards in Prince Edward Island.

Before World War II, production in Nova Scotia consisted mainly of culinary varieties; up to 70 per cent of the crop was exported to Europe. With the loss of this market tree numbers declined, particularly in Nova Scotia. The decrease in Nova Scotia and New Brunswick was from 2.6 million trees in 1931 to 702,000 trees in 1961 (table 69). The downward trend continued until 1964, when there was a slight increase in new plantings over tree removals. The upward movement in tree numbers was continued in 1965.

After World War II there was a movement from culinary to fresh fruit varieties. Processing, however, continues to provide the major market with about two-thirds of the crop marketed through this outlet. With increased pressure in fresh fruit markets it appears that processing will continue to provide the major market for the crop. The industry is expanding and currently handles about one-third of all apples processed in Canada. A major problem in Nova Scotia is that many of the culinary varieties well adapted to processing are now in the over-age categories and until recently there has been little planting of processing varieties.

Following a lengthy period of decline and adjustment there now appears to be a more optimistic outlook for the apple industry in the region. Contributing factors appear to be substantially increased efficiency in production and marketing plus a larger measure of agreement on programs necessary for the development of the industry.

On the production side there has been a substantial improvement in efficiency associated with such factors as increased scale of operation, higher yields per tree, and reduced labour requirements for pest control and harvesting. Reductions in number of growers and number of varieties, as well as improved technology, have helped to cut marketing costs. A major problem in the early post-war period was heavy overhead costs due to expansion in facilities mainly associated with fresh fruit apple marketing. In recent years Scotian Gold, the main apple marketing organization in Nova Scotia, has greatly diversified its operations and overhead costs are spread over a number of lines including a large modern processing plant.

While recent plantings show increased emphasis on processing varieties, supplies are likely to decline in the next few years. In addition to age of trees, related factors include lack of indication or agreement on varieties likely to meet future market demands, plus the fact that an apple tree represents a high-cost long-term investment. A major hope of the area is the development of a good dual purpose apple suitable for both the fresh fruit trade and processing.

While it appears that the decline in commercial tree numbers in Nova Scotia has been checked, it is obvious that readjustment will continue to be a problem for some time to come. In line with this a current requirement appears to be a propagation program that will provide varieties and strains of apples well adapted to the special requirements of the area, as well as to probable changes in orchard management and market demand. While improved management practices will reduce the period from planting to bearing age it is also obvious that such a program will mean an initial reduction in income on many farms. This raises a question of assistance or credit needed to bridge this gap.

Other Tree Fruit

Acreage of tree fruits other than apples in the Atlantic Provinces is relatively small and is confined mainly to Nova Scotia. The chief tree fruits are pears, peaches, plums and cherries. As indicated in table 70, tree numbers have generally declined in recent years. The decline is mainly attributed to climatic factors less favourable than those in competing areas.

Pears

Of the various tree fruits other than apples, pears appear to offer the major potential for development in the region. Of the two main varieties grown, Clapps have some problem of market acceptance, while for Bartletts the problem is mainly one of size. Pear tree numbers reached a high point about 1951 and thereafter declined as new plantings fell off sharply from 28,601 trees in the 1941-51 period to 7,591 in the 1951-61 period. From a production point of view pears are similar to apples and there is generally little variation in the management program; but requirements for the crop differ from apples

TABLE 69

Apple Tree Numbers, Production, Prices and Yields in Nova Scotia and New Brunswick, 1931-1961 a

Year	Tree Numbers	Farms Reporting Tree Fruit	Production	Yield per Tree (all trees)	Farm Price per bushel
	- 000 -	No.	- 000 bu.-	- bu. -	- dollars -
1931	2,606	36,420	4,654	1.8	0.67
1941	2,295	4,837	3,645	1.6	0.79
1951	1,062	-	1,899	1.8	0.88
1961	702	1,990	3,676	5.2	0.97

a Census of Canada, Agriculture, 1961 - Vol. V, Part I, table no. 5. Crop and Price Summaries, Part 1,2, 1947-1961. Canada Agriculture.

TABLE 70

Tree Fruits Other than Apples in the Atlantic Region, 1931-1961 a

Kind of Fruit	1931	1941	1951	1961
		- number of trees -		
Pears	20,652	40,962	59,495	46,340
Peaches	760	1,470	8,116	13,085
Plums	43,677	b	27,630	11,585
Cherries	29,105	30,572	7,040	5,094

a Census of Canada, Agriculture by Province - Vol. V, Part I, table no. 5.
b Not available.

in a number of respects (soils, spray program, wind damage, etc.) and if the enterprise is to be expanded it must receive more specialized treatment than has been accorded it in the past.

Peaches

Peach tree numbers in the region increased sharply during the war and early post-war period and reached a peak of 16,315 trees in 1956. New plantings in the 1951-61 period, however, were only one-half those in the 1941-51 period. As a result there has been a downward trend in number of trees since 1956. On the basis of varieties currently grown it is generally suggested that peach production in the area is marginal and barring some major development in this respect, it is assumed that little expansion in the entreprise is likely to occur.

Plums and Cherries

Since 1931, there has been a marked decline in number of plum trees in the region. This, it is suggested, is more a reflection of market demand than production potential. For cherries, the decline in tree numbers is generally attributed to adverse climatic factors including frost damage and high rainfall during the harvest period.

Small Fruit

Blueberries

Aside from potatoes and apples, blueberries are one of the few cash crops in the Atlantic Provinces where production exceeds local requirements. There is a small acreage of high bush varieties but commercial production comes largely from native low bush blueberries found generally throughout the region on burnt-over forest land and run-out farm land. Blueberries have special significance for the region, in that production tends to be located in rural areas where income and employment problems are most acute.

In the 1960-65 period the Atlantic Provinces accounted for 61 per cent of commercial blueberry production in Canada. Within the region, production is concentrated mainly in Nova Scotia and New Brunswick, which have 31.5% and 17.9% respectively of total Canadian output. Sixty-two per cent of Canadian production is exported, about one-third of it in fresh fruit form.

Commercial blueberry production is a relatively recent development, much of which has occurred since World War II. Early post-war forecasts were very optimistic over production and market potential for the crop. Since current marketings fall somewhat short of these forecasts, questions arise as to factors which have restricted output and what steps may be taken to promote the enterprise.

Initial post-war development of the blueberry industry occurred in New Brunswick and was largely an expansion of the industry in the neighbouring State of Maine. A considerable amount of New Brunswick production is owned or controlled by American operators and is picked and exported fresh to processors in Maine. While outside ownership may not be responsible for lack of expansion in recent years, it tends to restrict the employment and income potential of the enterprise.

Blueberry production (table 71) has been less variable in Nova Scotia than in the other Maritime Provinces and there has been a steady upward trend in output. A considerable amount of production is processed locally or exported in frozen form. Availability of processing facilities and an active program of research and extension have been important factors in expanding production. A current limitation is lack of freezer storage space.

While increased efforts are being made to expand output, commercial production of blueberries in Prince Edward Island is quite small. The major problem is lack of production rather than processing facilities. Contributing factors are lack of development of blueberry lands and low yields per acre.

TABLE 71

Blueberry Production and Prices in the Atlantic Region for Selected Years, 1952-1965 a

	1952-1956 5 year average		1957-1961 5 year average		1962-1965 4 year average	
	Production	Price per lb. b	Production	Price per lb. b	Production	Price per lb. b
	000 lb.	$	000 lb.	$	000 lb.	$
Prince Edward Island	468	0.106	356	0.112	210	0.130
Nova Scotia	2,945	0.119	4,820	0.108	6,625	0.146
New Brunswick	3,176	0.106	3,460	0.120	3,375	0.148
Newfoundland	1,567	0.090	1,777	0.078	1,488	0.078
Atlantic Region	8,156	0.108	10,413	0.107	11,698	0.135

a Crop and Seasonal Price Summaries, 1951-65, Part I - Part II, Canada Department of Agriculture.

b Prices quoted are prices to producers.

While early estimates may have been somewhat optimistic, long term prospects for blueberries appear quite good. To date the main outlet has been the bakery trade. Increased movement into the retail packs plus additional and improved processed products should, it is stated, expand the demand for blueberries. It also appears that there is considerable room for increased efficiency in marketing operations.

Development of Atlantic Provinces production as a secondary source of supply for New England processors has tended to limit expansion, particularly in years of heavy production. An added factor is the rapid increase in blueberry production which has occurred in the United States in recent years. Lack of market facilities and requirements (including compulsory grading for export), combined with what appears to be an excessive amount of handling, tends to increase marketing costs and reduce returns to producers.

On the production side the rapid growth of the industry, its location in declining or non-agricultural areas, the high degree of outside ownership, plus the fact that many of the people involved are not farmers, has tended (notwithstanding what has been said about Nova Scotia) to limit research and extension on blueberries. The need for expansion of such programs is emphasized by special problems within the industry as well as by its potential. To date, commercial propagation of low bush blueberries has not been successful and expansion in production is confined to improvements on land on which blueberries are currently growing. A further factor is that cultural practices such as burning, and disease and insect control, appear to have adverse side effects on pollination, root cover, and soil moisture retention. In addition to the cultural aspects of management, there are also problems of organization including the kind of farm or forestry enterprises which will combine best with blueberries to support locally based production programs.

Blueberry operations in Newfoundland differ from those elsewhere in the Atlantic Region in that the crop is not produced on farms but is harvested on Crown lands located mainly in the Avalon, Burin and Bonavista Peninsulas.

"The blueberry industry is very much underdeveloped and should, it is estimated, be producing a crop of 10,000,000 pounds a year."[4] The main reason for this is that producing areas are located mostly in sections of the province where common rights have been established, and no leases, grants or titles to land are issued for the purpose of growing or harvesting blueberries. Under such conditions there is virtually no production program other than that involved in harvesting the crop.

Harvesting operations are conducted mainly by dealers who arrange for picking and purchase of berries and transport of the crop to cold storage plants. The berries are cleaned and stored in frozen form and marketed in the United States.

As presently conducted the enterprise is largely a side-line activity for fish processing plants which may have cold storage space available at harvesting time. As a secondary enterprise, which is largely dependent on space over and above that required for fish, blueberry production operates rather precariously.

Retention of blueberry lands for common use restricts further development and it may result in declining production. In view of its potential for development it is felt that steps can and should be taken to place the industry on a more permanent and profitable basis.

As a compromise solution it is suggested that certain areas be reserved for public use and other blueberry lands be made available to private operators on lease. Such action, it is stated, would promote the use of recommended cultural practices, expand production and improve the marketing situation.

While detailed plans are not yet available the government has indicated it intends to proceed along such lines and, as an initial step, plans to conduct a survey of the location and extent of blueberry lands in the province.

Strawberries

Next to blueberries, strawberries are the most important small fruit crop in the region. From the point of view of soils and climate the crop is well adapted to the area and has good potential for development.

The cool late spring which adversely influences many other crops in the region favours strawberry production by delaying harvesting until labour is available from schools and reduces competition on export as well as local markets. Other advantages of the enterprise are its low capital requirements and high returns per acre, both important on smaller types of farms.

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[4]Badcock, A.C. Report of the Blueberry Industry in Newfoundland, ARDA Project No. 1009, St. John's, 1965, p. 1.

Unfortunately the association of strawberries and small scale farming has in the past restricted development of the enterprise. On many of the smaller farms production and marketing practices have not kept pace with those on the larger operations. A further weakness on the smaller operations is in the recruitment and management of labour at picking time, which is probably the chief factor limiting expansion of the enterprise.

Data in table 72 indicate an upward trend in strawberry acreage, particularly in Prince Edward Island during the 1941-61 period. An active program of research and extension, including the introduction of new virus-free varieties, has had an even greater influence on output for the region, which increased from 3,390,000 quarts in 1956 to 5,222,000 quarts in 1961. Added storage and processing facilities have improved and increased market outlets. From the point of view of future prospects a significant development is the recent restriction on use of migratory labour in producing areas of the United States. This plus a natural advantage on the late strawberry market should, it is felt, increase demand and facilitate exports of fresh fruit to that country.

Other Small Fruits

A number of other small fruits are grown in the region. Production, however, is relatively small and has tended to decline in recent years. Of these, raspberries and cranberries are probably the crops with greatest potential for development.

Raspberries

Raspberry production in the region declined from an average of 94,000 quarts in the period 1950-54 to an 87,000 quart average for the years 1959-64 (table 73). The chief reason given for the decline is low or unsatisfactory yields. In recent years introduction of new virus-free varieties has increased yields as well as interest in the crop and in 1965 some air freight shipments were made to New England markets. There is a strong demand for raspberries and no problem in marketing is anticipated.

Cranberries

While native cranberries are to be found in many parts of the Atlantic Provinces, there are only a few commercial developments. Limited data available on the crop indicate a downward trend in production. The main contributing reasons are said to be frost damage and the high cost of developing producing units. (In commercial developments in the United States the cost usually ranges from $3,000 to $5,000 per acre.)

A study recently conducted in Nova Scotia indicates that commercial production of cranberries is feasible and a research program on the development and testing of varieties and cultural practices is underway. Production of the crop is well below national requirements; about 80 per cent of the cranberries consumed in Canada are imported from the United States.

On the basis of such factors as soil, climate, land values and labour costs, it appears the region has more advantages in small fruit than in many

TABLE 72

Strawberry Production in the Atlantic Provinces, 1941-1961 a

	1941	1951	1956	1961
	- acres -			
Prince Edward Island	62	278	595	682
Nova Scotia	684	788	646	703
New Brunswick	578	758	742	557
Newfoundland	-	6	12	7
Atlantic Provinces	1,324	1,830	1,995	1,949

a Census of Canada, Agriculture, Dominion Bureau of Statistics.

TABLE 73

Production of Raspberries and Cranberries in the Atlantic Provinces for Selected Years, 1950-1964 a

Item	5 year Average 1950-54	5 year Average 1955-59	5 year Average 1959-64
	- thousands of quarts -		
Raspberries b	94	90	87
Cranberries	684	353	282

a Dominion Bureau of Statistics.
b Data for Nova Scotia and New Brunswick only.

other types of agricultural production. What appears to be needed is an expanded program of research and extension aimed at the development of larger, more efficient commercial operations. For raspberries, cranberries, and other small fruit, the answer would appear to be a program similar to that developed for strawberries in Nova Scotia. A further consideration is greater specialization in small fruit production as opposed to the mixed type of farming frequently associated with these enterprises. On small farms, strawberry production, for example, frequently has to be restricted to a few early varieties due to conflicts with haying. Enterprises such as strawberries, raspberries and blueberries have a considerable degree of similarity in production and marketing practices. Furthermore, their peak requirements for labour and equipment do not seriously conflict. In view of this it would appear that initial steps to expand output of other small fruit might be directed toward farms currently doing a good job on strawberry production.

Greenhouse and Nursery Products

Before 1931 there was a considerable development in the greenhouse and nursery business in the Atlantic Provinces. The industry at that time included a number of company and partnership operations and this, plus falling demand for such products during the depression, was probably a major factor in the decline in the enterprise in the 1931-41 period, table 74.

TABLE 74

Greenhouse Area in the Atlantic Provinces, 1931-1961 a

	1931	1941	1951	1961
	- square feet -			
Prince Edward Island	17,374	3,397	14,785	28,909
Nova Scotia	285,955	345,678	483,834	645,959
New Brunswick	300,313	160,673	95,643	268,348
Newfoundland	-	-	118,239	47,470
Atlantic Provinces	603,642	509,748	712,501	990,686

a Census of Canada, Agriculture, Dominion Bureau of Statistics

Following World War II a rapid increase in home construction, and increased emphasis on rural as well as urban beautification, created a strong demand for nursery products. Factors such as increased use of flowers at funerals and social occasions, combined with increased requirements for out-of-season vegetables, also stimulated demand for greenhouse production.

Nursery and greenhouse operations are a highly specialized undertaking; a relatively high level of investment is required as well as technology and management. While a strong demand for ornamentals and greenhouse products has been a basic factor in expansion of the industry, government programs of research and extension including the provision of specialist services has played an important role. In at least one province, capital assistance is also provided under the Provincial Farm Loan Program.

A further factor which has influenced expansion, particularly in Nova Scotia, is the overall organization developed by the industry. Services provided by the organization include the purchase of supplies; this has made possible substantial savings to growers and particularly in greenhouse construction. The organization is also active in the field of marketing. Under an arrangement negotiated by the organization, greenhouse vegetables are currently marketed through Scotian Gold, a large fruit co-operative. This program of central marketing, combined with the added facilities made available by this arrangement, has been of considerable benefit to growers. Since the enterprise includes a number of small and rather isolated producers, as well as highly perishable products, the presence of an active organization has been a significant factor in the development of the industry.

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While few data are available on organization and management and their relation to returns, it would appear that the enterprise is reasonably efficient and comparatively well adapted to the region. Moderate winter temperatures, plus favourable fuel and labour costs, would appear to give it some production advantages. While production tends to be highly specialized, added output and greater diversity has been secured in recent years through the use of temporary shelters in the early spring and full time operation of regular and stand-by boilers.

High transportation costs, plus the perishable nature of its output, tends to insulate the industry from outside competition. The cool late spring and low night temperatures of the region stimulate demand for products such as greenhouse tomatoes and cucumbers. As a result of expansion the region has now moved away from a large deficit in flower production and some export shipments are being made. Development in the next few years, it is suggested, will tend to emphasize vegetable production.

The substantial upward trend in greenhouse and nursery sales indicated in table 75 has been well maintained since 1961 and further expansion in the industry is to be expected. From the point of view of production, marketing and overall organization, this appears to be one of the more progressive industries in the region and one that merits further promotion.

Special Crops

Tobacco

Tobacco is a comparatively recent crop in the Atlantic Region but appears to have successfully passed the feasibility stage. Following an initial period of research, the first commercial crop was grown in 1958. Since then output has increased steadily with all provinces except Newfoundland engaged in commercial production (table 76). In addition to its advantages as a high income cash crop, the fact that rye is part of the standard tobacco rotation is of added value to the region.

Fibre Flax

In 1964 commercial production of fibre flax was begun in Prince Edward Island and nearly 1,000 acres of the crop were grown. Indications are that flax is well adapted to the province, but difficulties in processing and marketing the crop have placed the industry in a precarious position. It is suggested that these reflect inexperience in handling the crop, or management problems which can be successfully overcome.

Data secured in a feasibility study conducted by officials of the Canada Department of Agriculture in 1965 indicate estimated receipts of $158 per acre from flax. Farm production costs, calculated at $61, and the local processing cost of $45 per acre leave a net profit of $52 per acre for the crop. While the data indicate that flax may be a profitable enterprise, the analysis is based on the 1964 crop, when growing conditions were particularly good. Further evaluation of yield data and market prospects are required to establish the feasibility of the crop.

TABLE 75

Sales of Greenhouse and Nursery Products in the Atlantic Region, 1931-1961 a

	1931	1941	1951	1961
	- dollars -			
Prince Edward Island	7,401	2,406	10,855	79,940
Nova Scotia	126,611	125,921	380,954	1,045,420
New Brunswick	183,016	41,408	106,022	582,170
Newfoundland	b	b	79,863	95,390
Total	317,028	169,735	577,694	1,802,920

a Census of Canada, Agriculture, Dominion Bureau of Statistics.
b Data for Newfoundland not available.

TABLE 76

Tobacco, Acreage, Production and Value in the Atlantic Provinces, 1961-1965 a

	Acreage	Production	Value
	Acres	lbs.	$
1961	162	155,501	79,188
1962	515	374,000	157,000
1963	782	649,281	307,955
1964	711	756,706	428,477
1965	734	853,454	512,799

a Quarterly Bulletin of Agricultural Statistics, Dominion Bureau of Statistics, 1962-65.

Farm Forestry

As indicated in the initial discussion of land use, woodland takes up a substantial segment of farm acreage in the Atlantic Provinces. In 1961 the average farm in the region consisted of 163 acres, of which 87 acres were in woods. Within the region there was considerable variation, with farms in Nova Scotia and New Brunswick having slightly over 100 acres of woods per farm, while farms in Prince Edward Island had an average of only 40 acres in forest land. In Newfoundland the wooded area amounted to only 11 acres per farm.

Variations in acreage of woodland on farms in the Atlantic Provinces reflect the influence of settlement and tenure policies as well as competitive aspects of farming and forestry. The relatively small acreage of woods on farms in Prince Edward Island is mainly the result of emphasis on agriculture. In Newfoundland, where the wooded acreage per farm is even smaller, the main contributing factors have been settlement and tenure policies.

The decline in farm woodland acreage has been somewhat greater than that which has occurred in other types of farmland. This reflects a higher rate of farm abandonment in less favoured agricultural areas where woodland acreage tends to be high, and some land clearing in the better farming destricts. Trends in cash receipts from sale of forest products (table 77), indicate an upward movement in the 1931-41 period, a sharp increase in the 1941-51 period, when they reached an all time high, and a downward trend in subsequent years.

TABLE 77

Cash Receipts from Sales of Forest and Maple Products on Farms in the Maritime Region, 1931-1965 a

	1931	1941	1951	1961	1965
	- thousands of dollars -				
Prince Edward Island	70	84	357	385	308
Nova Scotia	1,835	1,881	3,826	2,672	1,402
New Brunswick	1,165	2,627	6,430	4,189	2,424
Total	3,070	4,592	11,613	7,246	4,134

a Farm Cash Receipts - Dominion Bureau of Statistics.

Variations in receipts from forest products in the 1931-65 period reflect the influence of various factors. Prices of pulp and saw logs advanced sharply from 1941 to 1951, and account for much of the increase in this period. Following an equally sharp decline in the 1952-54 period, prices were relatively stable until about 1962 when there was a slight upward movement. Sales of Christmas trees increased until about 1957 and have since been maintained at about that level. An important factor in the decline in cash receipts in the 1951-63 period is a reduction in sales of fuel wood, use of which has declined sharply in rural as well as urban areas.

Farm forestry in the Atlantic Region is closely linked with development in the pulp and paper industry. The sharp drop in pulp prices following 1951 resulted in a cost/price squeeze for woodlot owners probably more serious than that which occurred in farming. One result of this, however, is that pulp companies have tended to secure a relatively large supply of wood outside their own operations and this trend is expected to continue. Currently, about 60 per cent of pulpwood production in Nova Scotia comes from small operators (including farmers) with less than 1,000 acres of wood. While low prices for pulp have restricted operations in recent years, long term prospects are said to be good.

Pulp cutting is not highly mechanized and ties in well with farm operations, particularly during the winter months. Unfortunately, however, the enterprise has not as a rule been conducted on an integrated or sustained basis and this has frequently had an adverse influence on the forest as well as the farm operations with which it is associated. The extent and manner in which farming and forestry can or should be combined is rather an involved question; it includes some broad implications for land use, as well as for improving incomes of individuals who may to advantage engage in such operations.

These problems are of particular concern to the Atlantic Region, because the line between the farm and the forest has been changing rapidly in recent years with a large amount of what was formerly crop or pasture land going back (or already reverted) to woods. The implications of this development are recognized and some action is being taken. Most of the provinces, and particularly New Brunswick, have expanded their extension programs and related services to farmers and small woodlot operators.

In view of its potential for forestry, and the assistance available under the ARDA program to improve the situation, the level of management and output of much of this land appears to be very low. This reflects the influence of such factors as small scattered holdings, absentee and uninterested ownership, lack of municipal action other than that of attempting to retain it as part of the tax base rather than have it revert to the Crown, and a general inertia presumably arising from the fact that much of this land lies on the periphery of agriculture and forestry and is of prime concern to neither. A more basic reason, however, appears to be lack of definite understanding and agreement as to what types of programs or action are both feasible and desirable.

Livestock and Livestock Products

Agriculture in the Atlantic Provinces tends to emphasize livestock production. Since 1931, annual income from the sale of livestock and livestock products in the three Maritime Provinces has varied from about half to almost three-quarters of total farm cash receipts (table 78). The proportion of cash receipts contributed by livestock ranges from about 75 per cent in Nova Scotia to 50 per cent in Prince Edward Island and New Brunswick. The lower percentage in the two latter provinces is due mainly to greater emphasis on potato production. In 1951 and 1961 receipts from livestock and livestock products in Newfoundland accounted for about two-thirds of the value of farm products sold.

While livestock farming predominates in the region, receipts from this source have shown only a moderate increase since 1951 and on a percentage basis have not kept pace with those from other sources. The major development outside of livestock has occurred in cash crop production and is confined largely to Prince Edward Island, New Brunswick and Nova Scotia. In Newfoundland the emphasis is mainly on livestock; receipts from this source were up 73 per cent in the 1951-61 period (Appendix B, table 22).

Trends in livestock numbers are shown by data in table 79. These include livestock numbers on farms for census years and the 1966 annual estimates of livestock as compiled by the Dominion Bureau of Statistics. The data indicate a downward trend in cattle, sheep and horses and a variable but generally upward trend in pigs and poultry.

As a result of declines in livestock numbers and an increase in human population the region has a current deficit, in varying amounts, in all major classes of livestock and livestock products. As indicated by data in table 57, the major deficiency is in beef, pork and dairy products. These deficits, it may be noted, are in sharp contrast to a traditional complaint in the region about loss of markets.

The major input in livestock production is feed. Trends in livestock thus, to a considerable degree, reflect changes which occur in the production

TABLE 78

Farm Cash Receipts, Maritime Provinces, 1931-1965 a

Item	1931	1941	1951	1961	1965
	- thousands of dollars -				
Cattle and Calves	2,203	6,184	21,133	18,062	20,648
Hogs	1,764	4,161	14,050	11,012	13,335
Sheep	742	874	1,624	774	750
Dairy Products	6,944	9,882	25,445	29,985	29,489
Poultry	1,001	1,074	6,137	5,913	7,189
Eggs	1,305	2,495	9,187	12,001	11,917
Other	1,665	1,821	1,065	1,199	2,330
Total Livestock & Products	15,624	26,491	78,641	79,056	85,658
Receipts from other Sources	12,454	16,827	28,551	33,056	65,282
Total Cash Receipts	28,078	43,318	107,192	112,112	150,940

a Farm Cash Receipts, Dominion Bureau of Statistics, Cat. No. 21-001.

TABLE 79

Livestock on Farms in the Maritime Provinces, 1931-1966

Item	1931 a	1941 a	1951 a	1961 a	1966 b
		- number -			
All Cattle	534,938	506,264	426,023	444,908	404,000
Dairy Cows	253,206	269,298	200,236	170,942	142,000
Pigs	169,463	160,526	199,108	148,855	179,000
Sheep	418,499	275,034	185,005	142,476	84,000
Hens & Chickens	3,400,338	3,022,491	3,838,889	3,733,990	4,033,000
Turkeys	56,421	62,557	88,249	89,812	101,000
Horses	124,187	109,381	78,343	26,101	15,500

a Census of Canada, Agriculture by Province, 1931-1961.
b Dominion Bureau of Statistics, Agriculture Division.

or availability of feed. The two main feed crops in the Maritimes are hay and grain. With acreages of these crops declining over the years at a faster rate than livestock numbers, it appears that the major livestock problem in the region is one of feed supply. As previously noted, this fact is frequently obscured by the tendency to explain the regional deficit in meat and livestock products largely in terms of deficiencies in the organization and management of livestock operations.

Cattle and sheep are mainly forage-consuming animals; declining numbers in the region are associated with deficiencies in forage production. As previously noted, a contributing factor is limitations in the resource base. Another factor is small herd or flock size, which tends to increase unit costs of field as well as stable operations. The influence of the scale of livestock production is indicated by the downward trend in numbers of cattle and sheep during the 1951-61 period on farms with product sales below $3,750 and the upward trend on farms with sales ranging up to $5,000 and over (table 80). For pigs and poultry the influence of scale was even greater, with a decline in numbers on farms having sales of less than $5,000 annually.

TABLE 80

Livestock on Commercial Farms in the Atlantic Region Classified by Value of Products Sold, 1951-1961 a

		Farms with Value of Products Sold of			
		$1,200-2,499	$2,500-3,749	$3,750-4,999	$5,000 & over
		- numbers of livestock -			
All Cattle	1951	118,176	64,192	35,716	62,701
	1961	87,157	59,825	42,888	146,127
Dairy Cows	1951	54,174	38,982	16,122	29,288
	1956	33,011	22,442	16,821	59,908
Pigs	1951	54,460	32,847	18,677	38,679
	1961	20,949	17,262	14,922	75,283
Sheep	1951	54,618	19,765	8,072	10,735
	1961	32,751	15,791	9,871	25,089
Hens & Chickens	1951	807,299	494,717	297,613	1,293,539
	1961	257,986	209,183	208,704	2,828,975

a Census of Canada, Agriculture, 1951 and 1961.

Hogs and poultry are raised largely on grain. In view of the declines which have occurred in grain production in the region, recent increases in these kinds of livestock are attributed in large part to supplies of feed made available via the Federal Freight Assistance Policy, which account for over one-half the grain consumed on farms in the region.

In recent years the freight assistance policy has been the subject of increased interest and controversy. The overall implications of the policy are beyond the scope of this report[1] and reference is confined mainly to regional aspects and points of view.

[1]Kerr, T.C. An Economic Analysis of the Feed Freight Assistance Policy, Agricultural Economics Research Council of Canada, Ottawa, 1966.

In recent years revisions in rates of assistance, storage payments and proposed reductions in types of feed to be included in the policy have led to the fear that benefits under the program might be reduced. This plus rising feed costs has resulted in increased call for permanent legislation covering the movement, and more effective action to improve the performance, of eastern feed grain markets. At the same time there has been some criticism of the program. It has been suggested that the policy has had an adverse influence on the region, that it merely provides a crutch for a low income livestock economy and should be terminated[2].

Current criticism of feed freight assistance coincides with increased interest in grain production and comes mainly from areas best adapted to grain growing in the region. As such, it represents an intra-regional version of the conflict arising from the fact that grain growers' receipts are livestock producers' costs. While removal or reduction of freight assistance would probably encourage grain growing, any associated reduction in supplies or added costs for feed could have serious repercussions on livestock production and particularly in the less favoured grain growing sections of the region.

Feed freight assistance was established as a war-time policy in 1941. Data on movements of feed and assistance payments to the various Atlantic Provinces for the 1941-65 period are shown in tables 81 and 82.

For most of the war-time period the government paid practically all of the freight cost of feed moved under this program. In 1947, assistance rates were revised and at the same time subsidy payments on feed wheat and coarse grains were discontinued. The resultant rise in feed prices caused a sharp drop in the movement for the next two years (table 81). Since 1947, a number of further revisions in regulations have been made. The objective of the policy, as established in 1964, has been to achieve a net balance of cost (i.e. cost of freight less assistance) no greater than $2.60 per ton for all destinations in Eastern Canada with the possibility of further reductions as a result of truck competition.

As previously noted, the region has become highly dependent on freight-assisted grain, particularly for such enterprises as poultry and hogs. The chief criticism of the policy is that it penalizes the local grain grower and is responsible for the reduction in grain production, and, to some extent, the overall decline in farming in the area.

While the Freight Assistance Policy may represent a contributing factor, it is obvious that the decline in grain acreage in the Atlantic Region commenced long before 1941. Grain production in the region reached a peak sometime between 1911 and 1921. Since 1921, there has been a steady decline in the acreage seeded to grain; this in turn has had as adverse influence on forage production.

The long term decline in grain production in the region is associated with the fact that the area has traditionally been a heavy importer of livestock and poultry feeds. The chief reason for this is that on many occasions such feed could be purchased cheaper than it could be grown locally. In the early

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[2]MacDonald, D.W., Does Anyone Really Want That Feed Grain Subsidy? Family Herald, May 12, 1966.

TABLE 81

Tonnage of Grain and Millfeed Moving into the Atlantic Region Under Freight Assistance Policy, 1964-1965 a

Year	Nfld.	P.E.I.	N.S.	N.B.	Atlantic Provinces
		- tons -			
1941	-	2,353	19,585	14,864	36,802
1942	-	27,138	112,304	92,262	231,704
1943	-	51,836	164,370	134,869	351,075
1944	-	44,722	166,224	127,266	338,212
1945	-	45,420	156,493	149,166	351,079
1946	-	55,489	184,862	169,445	409,796
1947	-	49,932	172,234	172,281	394,447
1948	-	47,707	152,479	131,781	331,967
1949	11,636	34,616	127,753	89,304	263,309
1950	15,022	31,375	126,196	86,856	259,449
1951	14,048	29,845	127,408	90,679	261,980
1952	19,607	33,408	132,454	101,694	287,163
1953	15,333	23,681	122,526	83,550	245,090
1954	18,454	17,673	128,883	86,901	251,911
1955	18,949	29,621	132,388	88,741	269,699
1956	17,618	29,662	130,915	85,580	263,775
1957	17,131	20,043	133,156	72,033	242,363
1958	15,401	25,108	126,558	83,277	250,344
1959	19,950	30,018	146,756	98,498	295,222
1960	20,356	31,050	158,015	95,343	304,764
1961	19,989	28,670	142,415	83,433	274,507
1962	19,289	20,240	104,260	71,353	215,142
1963	27,438	20,616	133,766	79,041	260,861
1964	27,482	29,371	142,406	84,101	283,360
1965	31,060	26,642	156,428	80,142	294,272

a Commodity Unit - Economics Branch, Canada Department of Agriculture, Ottawa.

part of the century, cotton seed was generally recommended as an essential ingredient in low cost milk production. Before World War II, Argentine and South African corn were major constituents of poultry feeds in the region. Imported grains or by-products moved to the region by cheap ocean transport competed with, and presumably were a factor in establishing, prices for Western as well as local feed grains.

Before World War II much of the grain produced in the region consisted of oats which were used mainly as feed for horses. The reduction in horse numbers which coincided with it was also probably a factor in the decline in grain production.

With the introduction of freight assistance and subsidy payments on feed grains during World War II the competitive position of local grain declined

TABLE 82

Assistance on Grain and Millfeed Moving into the Atlantic Region Under the Freight Assistance Policy, 1941-1965 a

Year	Nfld.	P.E.I.	N.S.	N.B.	Atlantic Provinces
		- dollars per ton -			
1941	-	8.20	8.10	7.50	7.86
1942	-	8.20	8.10	7.50	7.87
1943	-	8.20	8.10	7.50	7.88
1944	-	8.20	8.10	7.50	7.89
1945	-	8.20	8.10	7.50	7.86
1946	-	8.20	8.10	7.50	7.87
1947	-	8.20	8.10	7.50	7.85
1948	-	9.42	8.40	8.62	9.10
1949	20.01	10.42	10.20	9.45	10.45
1950	21.08	11.25	11.26	10.33	11.51
1951	20.19	11.67	11.73	10.82	11.86
1952	19.28	12.27	12.28	11.37	12.43
1953	21.34	15.54	12.91	12.14	13.43
1954	21.39	13.30	13.30	12.20	13.39
1955	21.67	13.30	13.30	12.20	13.53
1956	21.38	13.30	13.30	12.20	13.48
1957	23.98	14.40	14.38	13.20	14.71
1958	23.32	14.78	14.82	13.56	14.92
1959	24.77	16.53	15.58	14.73	16.02
1960	26.00	15.46	14.88	13.78	15.34
1961	27.32	14.41	14.18	13.38	14.92
1962	27.24	14.03	14.67	13.69	15.41
1963	27.05	14.31	13.42	13.26	14.87
1964	26.62	14.47	13.47	13.60	14.89
1965	24.92	15.00	13.19	14.14	14.85

a Commodity Unit - Economics Branch, Canada Department of Agriculture, Ottawa.

still further. There appears to be little question that, during the war and early post-war period, expanded livestock operations based on imported feed provided the best opportunity for increasing farm income in the region. Since 1947, the competitive position of imported feed and local grain, however, has changed substantially. Removal of subsidy payments on feed wheat and coarse grains in 1947 was followed by an increase of about 50 per cent in prices of feeds in the next two years. Feed prices continued to increase during the 1950's, but interest in local grain production was curbed by emphasis on a grassland program which frequently promoted forage at the expense of grain. A further factor was and continues to be the long standing opinion that grain can be bought cheaper than it can be grown.

Rising feed costs and improved technology in grain growing have resulted in increased interest in grain production; it is expected that some expansion in acreage will occur in the next few years. While it appears that

one can be quite optimistic on this score it is also apparent that the region is, and will for sometime to come be, deficient in feed grains. As such, it will continue to have a stake in freight assistance and any associated policies which may help to reduce feed costs.

One further point which needs some examination is the extent to which local grain growers might benefit from removal of freight assistance. The assumption frequently made in this connection is that prices of local grain would rise by the current value of the subsidy which, in potential grain growing areas of the region, amounts to around $13 to $15 per ton. One fact overlooked in this assumption is that freight assistance facilitates the marketing of Western grain, as well as reducing the cost of raising livestock in the East. While Eastern feed grain prices would no doubt rise with removal of the policy, the extent of this rise would in the long run be determined not by the current value of the subsidy but rather by the ability of Eastern farmers to remain in livestock production, and the potential value of the area as a market for Western feed grains.

It appears that the region now has a vital interest in retaining freight assistance as well as expanding grain production. A preferable alternative to the removal of freight assistance would seem to be (as in Ontario) the expansion of feed production to the point where freight assistance tends to be a minor consideration.

While deficiencies in feed, and small size of unit, are two of the major factors restricting expansion in livestock production, additional factors include relatively high charges for taxes, farm equipment and supplies; and the lengthy stabling period associated with the cool late spring of the region. Taxation procedures bear heavily on the farmers in the region and in contrast to those elsewhere include (in Nova Scotia and New Brunswick) an assessment on livestock. This, combined with relatively heavy assessments on farm buildings, means added production costs. It is presumed, however, that a considerable reduction in tax charges will result from recent changes in the Municipal legislation[3].

Dairying: Dairying is the major livestock enterprise in the Maritime Region and sales of dairy products in 1965 (table 78) accounted for 20 per cent of farm cash receipts. Production of milk has remained relatively constant in the past 25 years but there has been considerable change in utilization (table 83).

Fluid milk sales, which currently account for over 50 per cent of production in Nova Scotia and New Brunswick, increased steadily in the 1931-65 period, but milk used in factories reached a peak in 1961 and subsequently declined. While total milk production in the Maritime Provinces has declined since 1951, output in Prince Edward Island has continued to increase. In the absence of large centres of population, fluid milk sales are relatively small and sales to factories provide the main outlet.

With a decline in numbers of cows (table 84) and sales to factories, an increasing percentage of the milk produced in the region is marketed in fluid

[3]For further information on taxation problems in the region see: Retson, G.C. & L'Ecuyer, P.R. A Study of Rural Problems in Madawaska County, New Brunswick.

TABLE 83

Milk Production and Utilization, Maritime Provinces, 1931-1965 a

Utilization	1931	1941	1951	1961	1965
	- thousands of pounds -				
Fluid Sales	165,598	227,844	314,228	375,981	377,044
Used in Factories	275,661	365,223	477,158	501,853	446,256
Used on Farm	569,469	446,834	255,431	142,914	106,579
Total Production	1,010,728	1,039,901	1,046,817	1,020,748	929,879

a Dominion Bureau of Statistics, Ottawa.

TABLE 84

Dairy Cow Numbers in the Atlantic Provinces, 1931-1961 a

	1931	1941	1951	1961
	- number -			
Nova Scotia	108,145	108,130	78,970	64,047
New Brunswick	100,841	114,764	82,362	67,306
Prince Edward Island	44,580	46,404	38,909	39,589
Newfoundland	-	-	4,062	2,760
Atlantic Provinces	253,566	269,298	204,303	173,702

a Census of Canada, Agriculture by Provinces, 1931-1961.

form. Demand for fluid milk is closely related to changes in population; the prospect is for a gradual expansion, which will be associated at the farm level with a decline in number of shippers and an increase in the amount of milk shipped per farm. In 1966, for example, the largest milk distributor in the Halifax market reported a reduction of 37 shippers.

The small scattered nature of farming in the region, combined with low output per farm, has in the past tended to favour production of butter over that of other manufactured dairy products. On the basis of size of herd, age of operators and market prospects, it appears that production on many of these farms will continue to decline despite recent increases in price support payments. Shippers to processing plants in Nova Scotia and New Brunswick who are increasing herd size are generally doing so with the expectation of securing a fluid milk contract. Production of manufactured milk products in these provinces will probably to an increasing degree become a by-product of fluid milk operations.

In Prince Edward Island, greater concentration of farming and limited outlets for fluid milk provide better prospects for manufactured milk production. On the basis of current returns there will probably tend to be more emphasis on

cheese and concentrated milk products. Dairy operations will have increasing difficulty in competing for land in cash crop areas and may have to place more emphasis on alternative enterprises such as raising of dairy herd replacements and hogs.

Recent increases in dairy subsidies and support payments will improve the financial position of manufactured milk producers. They do not, however, attack the basic problem of the enterprise, which is one of cost reduction and ability to compete on world markets where the prices of such products are determined. The problem of cost reduction also extends beyond livestock operations and includes the production of feed and particularly forage.

As previously noted, a major problem in the enterprise is small size of herd; this limits efficiency and frequently also the quality of the product delivered to the plant. What constitutes an economic or desirable size of unit is difficult to analyze in detail, because herds on these farms are, in terms of any standards which can be applied, virtually all small. It may be suggested, however, that if a minimum of 25 to 30 cows are required for a reasonably efficient fluid milk enterprise, at least this number of cows and probably more will be required for an efficient manufactured milk operation. There are very few herds producing milk for manufacturing purposes of this scale in the region and those which do attain it almost invariably move into fluid milk production.

Low cost milk production in competing areas is frequently attributed to the fact that much of this milk (in Canada and elsewhere) is produced on pasture. Since one of the major advantages of the Atlantic Region is in pasture production, a question may be raised as to the desirability of greater emphasis on summer dairying, in contrast to the fall calving and high cost fluid milk type of operation conducted on many farms producing milk for processing.

Another current problem in the enterprise is reduced efficiency associated with indiscriminate crossing of dairy and beef breeds. Before World War II, breeding programs on manufactured milk farms were largely oriented toward milk production. As beef became less a staple and more and more a luxury item, the by-product beef has become an increasingly important factor in returns on such farms. This has led to revisions in breeding programs including more emphasis on a dual purpose type of animal, or cross breeding. In recent years, indiscriminate crossing of breeds has increased the beef, but greatly reduced the output of milk on many of these farms.

Beef: There are few farms specializing in beef cattle and much of the beef produced in the Atlantic Region is a by-product of the dairy industry. Of the 205,042 cows and heifers on farms in 1961 (table 85) 173,702 or 85 per cent were kept for milk purposes. The balance of 31,340 (presumably cattle kept mainly for beef purposes) was higher than the corresponding figure in 1951, indicating some increase in beef production. However, this probably includes a considerable number of dairy cows raising calves and as such may reflect a decline in dairying rather than a significant increase in beef.

During the 1931-66 period (table 79) there was a downward trend in cattle in the region. One exception was in Prince Edward Island, where numbers have moved upward since 1941 and reached an all-time high in 1965. In part this represents a transfer within the region, because Island farmers have been importing a considerable number of calves from Nova Scotia and New Brunswick.

In recent years, considerable effort has been made to expand beef production in the region. Related programs have emphasized such factors as market potential (as indicated by the large deficit of the region) low labour requirements, availability of land, and the general need for expanded farm production. Declining cattle numbers indicate that such programs have not been very successful and raises a question of the place of beef on farms in the Atlantic Region.

Studies across Canada generally indicate that profit margins on beef are lower than those of most other farm enterprises, and that to be successful specialized beef farming or ranching must be conducted on a large scale. In the Atlantic Region the absence of extensive grazing areas, the high costs of stabling, winter feed, and particularly grain, all tend to restrict beef operations. On the small farms of the region emphasis must be placed on intensive rather than extensive types of operations and in the past this has favoured dairy rather than beef.

Despite these problems it is obvious that beef operations are being successfully conducted and the enterprise has a place on farms in the region. Lack of expansion in beef in part reflects a weakness in extension programs which have tended to promote beef in general terms rather than emphasizing what its place can and should be on the various types of farms and farming areas in the region.

Probably one of the first and most important suggestions in this connection is that only in exceptional circumstances can beef be recommended as the major farm enterprise. The place of beef in the region appears to be that of a secondary enterprise which can increase farm income by making more effective use of such resources as labour, pasture, housing and by-products, which are currently not being fully utilized. Because of its low margin of profit, beef preferably should be combined with more intensive enterprises. This is supported by the fact that some of the most successful beef operations in the region are located in cash crop areas, while lack of success (as in some of the more favoured marshland areas) reflects lack of such combinations. Here beef is generally combined with another extensive type of operation - cash sale of hay.

Hogs: Hog production in the Atlantic Region has varied considerably during the past 35 years (table 79). Following a decline in the 1951-1961 period, hog numbers are now increasing. Production, however, falls far short of market requirements and the current deficit for the region is in the vicinity of 400,000 carcasses annually (table 57).

A combination of favourable prices and improved management has made the enterprise quite profitable in recent years, and on the basis of current conditions further expansion can be expected. While there has been an overall increase in hogs since 1961 (table 79) output in the various provinces of the region differs considerably (table 86).

Since 1931, hogs have increased in Prince Edward Island; current numbers reflect the overall expansion in livestock which has occurred in that province in recent years. In Nova Scotia, hog numbers were relatively stable during the 1931-61 period. The sharp upward movement since 1961 appears to be attributable in large part to an active promotional program which has resulted in a considerable increase in efficiency and output. While annual statistics on livestock numbers in Newfoundland are not available, it is felt that the

TABLE 85

Cattle Numbers on Farms in the Atlantic Provinces, 1951-1961 a

Item	Year	Prince Edward Island	Nova Scotia	New Brunswick	Nfld.	Atlantic Provinces
			- number -			
All Cattle	1951	97,924	166,202	161,897	7,944	433,967
	1961	121,069	163,690	160,159	7,320	452,238
All cows & heifers	1951	44,119	85,933	86,208	4,437	220,697
2 yrs. & over	1961	45,018	77,896	78,408	3,720	205,042
Cows & Heifers	1951	38,909	78,970	82,362	4,062	204,303
2 yrs. & over for milk purposes	1961	39,589	64,047	67,306	2,760	173,702

a Census of Canada, Agriculture 1951 and 1961.

TABLE 86

Hog Numbers on Farms in the Atlantic Provinces, 1931-1966 a

Province	1931	1941	1951	1961	1966
		- number -			
New Brunswick	85,012	68,018	78,393	47,126	38,000
Nova Scotia	43,865	44,303	48,216	46,856	68,000
Prince Edward Island	40,586	48,205	46,676	54,873	73,000
Newfoundland	b	b	1,712	1,554	b
Atlantic Provinces	169,463	160,526	174,997	150,409	b
Farms Reporting	49,405	46,019	34,388	12,870	b

a Annual Livestock Statistics and Census of Canada, Dominion Bureau of Statistics.
b Data not available.

overall decline in the 1951-61 period has been more than offset by recent increased production in the Avalon Peninsula. This is also associated with a promotional program which has included the establishment of a hog nursery and a processing plant in the St. John's area. In New Brunswick, once the major producer of hogs in the region, production has generally declined since 1931. One factor contributing to the small number of hogs on farms in the province in 1966 was competition for weanling pigs from the neighbouring province of Quebec. High prices for hogs have stimulated demand for weanling pigs, and Quebec feeders have made substantial purchases from Northern New Brunswick in recent years. Current requests for assistance in the construction of hog buildings indicate a probable increase in production during the coming year.

Besides being grain-consuming livestock, hogs are in many respects similar to poultry. The enterprise has tended to lag behind poultry in research and development, and future trends are likely to follow a similar pattern to

those which have occurred in the poultry industry. As with poultry, research is providing more specific answers to problems in breeding, feeding and management and the enterprise is moving away from its position as a small side-line activity (including a good many inners and outers) to larger more efficient commercial operations.

One of the more significant prospects for expansion in hogs in the region is that it may replace poultry, which has moved off many of the smaller farms and is currently concentrated in a few large factory-type operations. Hogs may also provide a more permanent replacement, because scale of operation (which is all-important in poultry) appears to be less significant with hogs. Current studies of the enterprise, for example, frequently indicate that costs and returns per hog on small, well-run operations compare quite favourably with those on larger units. Increased output of hogs on fewer farms (table 86) indicates a trend toward larger units. While this will result in increased efficiency, it also appears that a scale of operation which would be out of the question for poultry may, in the case of hogs, make a significant contribution to farm income.

Sheep: Sheep are somewhat of a paradox in Canadian agriculture. While those associated with the industry are optimistic over its prospects, and studies of the enterprise generally indicate that good returns can be secured from sheep if properly managed, each succeeding decennial census in the past 40 years has shown a decline in numbers. In the Maritime Provinces the high point in sheep numbers was in 1871. Since then there has been a downward trend; in the past 35 years (table 79) the annual loss has averaged about 9,500 sheep annually. The decline, if continued at this rate, could wipe out the industry in less than 10 years.

The low capital and labour requirements of sheep, their general hardiness and grazing ability, plus the fact that gains are made largely on grass rather than grain, favour expansion of the enterprise in the area. The scale of operations in successful competing areas, however, tends to be much larger. Small flocks, combined with a generally low level of management, appear to be the main problem of sheep production in the region.

The chief limitation in increasing the flock size appears to be a lack of extensive grazing areas. While the high rainfall of the area promotes the growth of grass, the natural crop of the region is not grass but spruce trees; these rapidly take over abandoned farms which might otherwise provide large areas for grazing. Crown land purchase programs, and promotion of forestry, also exclude sheep from such areas. The well managed sheep flocks tend to be located in the better farming, rather than the more remote, areas. Here high costs of fencing, competition for land from more intensive enterprises, and added problems of parasites and predators, hamper operations and limit expansion.

Despite these problems it is felt that production and marketing potential justify further efforts to expand the enterprise. The reduction in farms keeping sheep has been much greater than the decline in numbers of sheep, and the average size of flock in the 1951-61 period increased from 18.6 to 27.7 head per farm reporting sheep. It is probably safe to assume that this increase in size of flock was also accompanied by some improvement in management.

A further reason for the promotion of sheep is the fact that there are still some fairly extensive areas of unused land which might be used for

grazing. These include some shoreline areas where fencing costs would be relatively low and kelp provides an additional source of feed. In Newfoundland also the absence of municipal taxes and fence requirements, combined with extensive barrens which provide sparse but low cost grazing, suggest the feasibility of range type operations. Such larger operations presumably would be associated with better management; being located in more remote areas would reduce losses from dogs, which can be a serious problem on farms located close to built-up areas.

Poultry: Of the various livestock enterprises in the Atlantic Region, poultry comes closest to meeting market requirements (table 57). Following a slight decline in 1941, numbers of hens and chickens moved steadily upward and in 1966 stood at an all time high of 4,033,000 birds (table 79).

The upward trend in hens and chickens has been maintained in all provinces of the region except Prince Edward Island, where numbers have declined since 1951. Poultry is a market oriented enterprise, and producers located close to markets have considerable advantage over those in outlying areas. With only limited local markets, much of the Island production has had to be exported from the province; returns to poultrymen have traditionally been lower than those secured by other producers in the region. As a result, the transition from farm flocks to large commercial operations has not occurred in Prince Edward Island to the same extent as elsewhere and farmers have generally turned to other livestock operations such as hogs and cattle in which they have greater advantages.

In terms of efficiency, poultry has virtually no equal in the livestock field. One indication of this is the fact that while prices of other livestock and livestock products have advanced sharply in recent years, those for poultry and eggs have changed very little and in some cases have declined. As is frequently the case in agriculture, the main benefit has accrued to consumers rather than producers. Low profit margins, plus efforts to secure greater efficiency through increased scale, have developed to the point where poultry have disappeared from many farms. In the 1931-61 period the number of farms reporting hens and chickens in the Maritime Provinces dropped from 69,871 to 17,089; nearly half of this decline occurred in the 1951-61 period.

Over the years poultry operations in the region have been conducted with a relatively high degree of efficiency. This has more than offset disadvantages in feed supply and has increased output to a point where production is approaching market requirements, particularly for eggs. With the industry highly dependent on feed freight assistance, and margins of profit quite low (plus the probability that these will decline further if the region goes on an export basis), it would appear that future expansion should emphasize such deficit aspects as that of poultry meat production.

While regret is frequently expressed over the drop in number of farms keeping poultry, and its loss as a prop to the small farm economy, it is obvious that consolidation in fewer hands has resulted in a greater degree of stability in the industry. Increasing size and specialization has restricted movement in and out of poultry and has aided in the establishment of improved marketing facilities. Two related developments in the past year have been the setting up of a new egg breaking plant and the establishment of a broiler chicken marketing board.

TABLE 87

Hens and Chickens in the Atlantic Provinces, 1931-1961 a

Item	1931	1941	1951	1961
	- number -			
New Brunswick	1,281,671	1,101,921	1,230,565	1,039,718
Nova Scotia	1,244,718	1,113,218	1,630,305	2,184,995
Prince Edward Island	873,949	807,352	978,019	509,277
Newfoundland	b	b	73,714	227,929
Atlantic Provinces	3,400,338	3,022,491	3,912,603	3,961,919
Farms Reporting	69,871	b	42,628	18,085

a Census of Canada, Agriculture, Dominion Bureau of Statistics.
b Data not available.

TABLE 88

Number of Fur Farms and Revenue from Fur Bearing Animals and Pelts Sold from Fur Farms in the Maritime Provinces, 1938-1965 a

	Fur Farms	Value of Fur Animals and Pelts Sold	Revenue per farm
	- number -	- $ -	- $ -
1938	2,997	1,799,046	594
1943	1,924	1,930,084	1,003
1948	670	841,052	1,255
1953	213	443,844	2,084
1958	180	525,295b	2,918b
1963	167	1,378,008b	8,252b
1965	198	1,912,291b	9,658

a Quarterly Bulletin of Agricultural Statistics, Dominion Bureau of Statistics, 1941-1965.
b Includes sales of pelts only.

Fur Farming: Fur farming, initially developed in Prince Edward Island about 1885, was at one time an important enterprise on many farms in the Atlantic Region. Before World War I the industry had a boom period, when abnormally high prices were paid for silver fox pelts. In 1910, a price of $2,627 was recorded for the sale of a single pelt on the London fur auction. Sales of breeding stock were also a major source of income, and prices as high as $10,000 for a single fox are reported.

Following a collapse in prices about 1914, the industry became more stable and a rapid expansion occurred in the 1920's and early 1930's. With a decline in demand for long-haired furs the number of fur farms dropped sharply in the late 1930's and after World War II foxes were generally replaced by mink.

Data in table 88 indicate a sharp decline in the number of fur farms in the Maritime Provinces after 1938, and an equally sharp decline in receipts from the sale of breeding stock and pelts by 1943. Number of fur farms declined until 1962, but since then there has been an upward movement in both number of farms and revenue derived from the industry. Data available since 1955 on fur farming in Newfoundland indicate some 30 to 40 operators engaged in fur farming, with annual sales in recent years close to $500,000.

The region has special climatic advantages in the production of fur and even more so in terms of feed supplies such as fish and whale meat. Competing areas, on the other hand, have been adversely influenced by declines in production of horse meat and increasing demands for packing house products for pet foods. Early operations included a large number of small fur farms. In later years increasing costs and declining prices and profit margins have encouraged a trend toward larger units. The extent of this trend is indicated by the fact that revenue per fur farm increased from $594 in 1938 to $9,658 in 1965 (table 88). This increase in size is presumably associated with a higher level of management and an improved competitive position of the industry.

Since it does not fall within the normal category of agricultural operations, fur farming has not received attention comparable to that accorded most other farm enterprises. Probably more effort has been made to promote the industry in Newfoundland than in other provinces of the region. Despite its apparent advantage in terms of feed supply, the program has not been as successful as anticipated. Major problems of the industry are said to be lack of both capital and experience in fur farming.

Major expansion of the enterprise in recent years has occurred in Nova Scotia, which in 1965 accounted for over two-thirds of the value of pelts sold off fur farms in the region. Nova Scotia was not as heavily involved in foxes as were Prince Edward Island and New Brunswick, and current expansion may reflect the fact that it was less adversely affected by the decline in the fox business. Probably a more important contributing factor is an active program of promotion currently being conducted in the industry. In view of the increased output of recent years and the apparent potential of the industry, it is suggested that this program merits further expansion.

The Atlantic Provinces, as noted elsewhere, are a deficit area in the production of most agricultural products, but with fewer deficits in Prince Edward Island than in the other two provinces. This creates additional problems in marketing that could be overcome through increased production and the development of prospective market outlets. Low volume of production increases marketing costs and thus lowers returns to the producers. Marketing facilities tend to operate less efficiently and at higher costs per unit of produce handled. High marketing costs discourage some producers from selling their produce through regular channels; consequently they sell direct to the consumer, which accentuates existing market problems.

Agricultural exports from the region are less than three per cent of all exports[1]. The Atlantic Region is not likely ever to become a major agricultural producer. This conclusion can be drawn from the general discussion throughout this report. However, the significant importance of some commodities must not be overlooked. Fruit, vegetables and potatoes demand attention in this regard and probably poultry and eggs, which continue to gain a more prominent position in the total farm cash receipts. Present data indicate that most agricultural production is for local consumption. Apples, blueberries and potatoes are the main commodities sold beyond provincial boundaries.

Potatoes: Prince Edward Island and the St. John River Valley in New Brunswick are the main commercial potato growing areas in the Maritimes and the principal surplus-producing regions of the country[2]. All potatoes entering interprovincial trade must be inspected by federal officials of the Canada Department of Agriculture. Most growers have potato storage facilities on their farm or at shipping points. Some producers sell their crop directly from the field to local shippers, who in turn often rent storage space at destination points. Grading and packing are performed on the farm or by the shipper. The Royal Commission Report shows the changes in the movement of potatoes from rail to trucks. An increasing number of trucks are moving New Brunswick potatoes to central Canadian markets. In the 1960-61 season 46 per cent of the New Brunswick potatoes were shipped by truck, compared with 17 per cent in 1959 and 11 per cent in 1955. Prince Edward Island potatoes mainly move by rail.

The Royal Commission pointed out that greater care must be taken in harvesting, grading, packing, shipping and general handling of New Brunswick potatoes in order to maintain the best possible quality product at the consumer level. The "image" of Prince Edward Island tubers is such that they are preferred to New Brunswick potatoes by many buyers in the large Canadian cities, and they usually sell at higher prices[3].

Apples: Commercial apple production is mainly confined to the Annapolis Valley in Nova Scotia, although a considerable volume of apples is produced along the

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[1]Earl, John F. A Report of the Exports of the Atlantic Region, Atlantic Provinces Research Board, Fredericton, N.B., 1964.

[2]Report of the Royal Commission on the New Brunswick Potato Industry, Fredericton, N.B. 1962.

[3]Ibid p. 135 and p. 145.

St. John River Valley in New Brunswick. One large co-operative and a few large private growers collect, grade, and market most of the Nova Scotia apple crop. The Scotian Gold co-operative has estimated that it handles about 60 per cent of the total apple crop in addition to other fruits and vegetables. Before the 1939-45 war the bulk of Nova Scotia apples were exported as fresh fruit to Great Britain. During the war this market was cut off and has only been partially recovered since. Today, Great Britain and the United States are the main export markets. A large part of the apple crop was processed during and since the war mainly due to the reduction in overseas markets, and because many of the apple varieties were better suited for processing than they were for the fresh fruit trade, especially for the North America market. In 1942 about 76 per cent of the apple crop was processed[4]. About 60 per cent of the crop is now marketed that way. It would appear that a high percentage of the crop will continue to be processed in future years.

Blueberries: Commercial blueberry production in the Atlantic Region provides farmers and rural residents with a regular source of cash income. The United States is the main export market for this crop. Maggot infestation, except in Newfoundland, generally poor handling of the crop, and competition from American producers appear to be the principal problems facing the blueberry industry. The Maine production is the major factor in determining the price for berries received by the Atlantic producers.

Co-operatives: One of the answers to the many marketing problems in a deficit area is to have a central collection and selling agency willing to handle the produce from many small farms. In this way it is quite possible for an organization to obtain sufficient volume to operate efficiently and be in a better bargaining position to market the produce. Such an agency is a co-operative, owned and operated by producers themselves. Co-operatives play an integral part in the marketing of farm produce in the Atlantic Provinces. Co-operatives serve all the main agricultural areas in the region[5].

Some developments in marketing organization have taken place during recent years in Newfoundland. These relate to the poultry industry and livestock marketing.

Prince Edward Island co-operatives reported sales of farm products valued at $6.5 million and sales of supplies amounting to $5.9 million in 1965. Dairy products brought the largest share of farm products sold with $3.7 million, followed by fruit and vegetables (mostly potatoes), with $1.0 million. The main supplies sold were food products valued at $3.9 million, followed by feed with $0.7 million and fertilizer with $0.1 million.

In Nova Scotia co-operative sales of farm products were valued at $27.8 million and farm supplies at $18.7 million in 1965. The principal farm products sold were: dairy products $12.0 million, livestock $6.0 million, fruit and vegetables $4.2 million and poultry and eggs $1.5 million. The main supply commodities were: food $8.3 million, feed $4.7 million, fertilizer and spray materials $1.4 million, hardware $1.2 million, and building materials $0.2 million.

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[4]Retson, G.C. Apple Processing in Nova Scotia, Economic Annalist, June, 1960.
[5]Co-operation in Canada, 1965, Economics Branch, Canada Department of Agriculture.

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New Brunswick co-operatives reported sales of farm products valued at $13.5 million and sales of supplies amounting to $14.1 million in 1965. Sales of farm products by commodity show dairy products worth $7.8 million, fruit and vegetables (mostly potatoes) $1.5 million and poultry and eggs $1.3 million. The major sales of supplies were food products with $5.8 million, feed $3.3 million, hardware $1.0 million, and petroleum $1.7 million.

It is apparent that co-operative associations in the Atlantic Provinces play an important role in the marketing of a wide variety of farm products and in the purchase of farm supplies.

Marketing Boards[6]

A number of marketing boards have been established in the Maritime area and have experienced varying degrees of acceptance.

Nova Scotia has four marketing boards. Products under their jurisdiction include hogs, wool, and broiler chickens. The value of products sold through the boards amounted to $6,027,000 in 1965. The Nova Scotia Hog Marketing Board controls sales to packing houses buying more than 200 hogs per month. The Cape Breton Milk Board sets prices for fluid milk sales. Producer returns from the sale of milk under this board amounted to $2,039,000 in 1965. The Nova Scotia Wool Marketing Board negotiates a minimum price to producers. The Broiler Chicken Marketing Board was established in 1966.

New Brunswick has six marketing boards. The Cream Producers Marketing Board is a promotional board. The cheese board maintains storage facilities and sets the minimum price on cheese received for disposal. The New Brunswick Hog Marketing Board controls hogs sold to federally inspected plants. The pulpwood board negotiates minimum prices to producers. The products handled by the New Brunswick boards were valued at $2,335,000 in 1965. The Kent Forest Products Marketing Board, 1966 and the New Brunswick Broiler Marketing Board, 1967, are new boards on which no information is available.

Prince Edward Island has one marketing board, the potato board, which is inactive at the present time. A potato marketing board in New Brunswick and an apple marketing board in Nova Scotia ceased functioning after operating for some time.

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[6]Marketing Boards in Canada 1965, Economics Branch, Canada Department of Agriculture.

APPRAISAL, OBJECTIVES AND CONCLUSIONS

The analysis of Atlantic agriculture presented in the various sections of this study and summarized briefly elsewhere indicates that for several decades agriculture in the Atlantic Region has made less progress than in other areas of Canada; and in some respects has declined. It has declined in terms of numbers of farms and farm people and in area of farm land. In other respects, however, there have been gains. The total capital value has increased and the value per farm is up fourfold since 1931; the investment per farm in constant dollars is up a third since 1941. Cash receipts, output, and productivity have increased.

The problem is not that there has been no improvement but rather that in most (if not all) respects, losses have been greater and the increases less than in other areas. Thus the loss in farm numbers and land areas has been greater in the Atlantic area than elsewhere. The labour force is relatively smaller, older, less well paid and contributes less in proportion to the Atlantic economy than its counterpart in all Canada.

Net farm income at the national level 1961-65 was up 59 per cent above that of 1941-45, while the Maritime Provinces experienced a decline. The percentage increase in physical volume of production, 1964-65, for Canada was substantially greater than that of the Maritime Provinces. Relatively much greater expenditures were made by farmers for various production inputs at the national level than by farmers in the Maritimes in the years 1946-65. These brought annual production responses several times greater in areas from Quebec to British Columbia than were obtained in the Maritime area.

Policy Objectives

Before proceeding further with this analysis, it may be well to consider what the objectives of agricultural policy should be. Broadly speaking, the choice would seem to lie between the maintenance of an industry that is large in respect of numbers of farms and farm people and an industry that is large in terms of output and efficiency of operation.

The evidence brought out in this study indicates that the second of these alternatives is the desirable one to pursue. The evidence also seems to indicate that greater progress toward the attainment of this objective has been made in other parts of Canada than in the Atlantic Provinces.

If greater output and efficiency are to be the objectives of regional agricultural policies, a substantial increase in the income of those remaining in agriculture and the gradual movement and rehabilitation elsewhere of those giving up farming should be the goal[1].

[1]Agriculture and the Atlantic Economy, Atlantic Provinces Economic Council. Pamphlet No. 10. July 1966, p. 24.

Scale of Operations

In seeking the basis for the greater output per worker and the apparent greater efficiency of Canadian farms generally than prevails in the Atlantic Provinces, one is confronted with differences in size of farms. Farms and farm businesses are larger in other parts of Canada than in the Atlantic Region. As already noted, the average capital value of a farm in the latter region in 1961 was $12,314 compared with $16,965 for Quebec, $30,837 for Ontario, and $27,388 for all Canada. The capital investment per farm worker for 1961-65 (in constant dollars) for Canada as a whole averaged $13,950 compared with $6,775 in the Maritime Provinces.

In the period 1946-50 the average investment per worker for the Maritimes was 60 per cent of the national average. In 1961-65 it was down to 49 per cent.

Other evidence of the larger scale of operations at the national level is the larger percentage of farms in the higher income brackets, as revealed by the 1961 census.

The operators of the larger and better financed farms of Canada as a whole were able to purchase more large-scale machinery, power equipment, better bred and better fed livestock, improved seed, more pesticides, herbicides and other production inputs than could the operators of Maritime farms. Thus they were the more able to increase their output.

The gross value of agricultural production per farm worker on these larger all-Canada farms averaged $5,512 annually in the years 1961-65, compared with $3,459 for workers in the Maritime Provinces. Production per man in these provinces was therefore about 63 per cent of the national average.

The larger farm output and earnings at the national level would contribute more to the national economy than would the smaller scale operations of Atlantic area farms. The latter means smaller purchases of the goods and services from the rest of the economy and thus a smaller contribution to urban industry. It also means less farm products to the urban community to turn the wheels of processing and manufacturing plants.

While drawing attention to these differences which emphasize the results achieved elsewhere, one must not overlook the fact that there are within the Atlantic Region itself several notable exceptions to the over-all provincial and regional picture presented. Those that should be recognized are the potato, apple, blueberry and poultry industries. The potato industry, particularly that of New Brunswick and Prince Edward Island, is conducted on a scale and degree of efficiency comparable with the best in Canada; so, too, is the production of apples in Nova Scotia and New Brunswick; blueberries throughout the region; and poultry and eggs in Nova Scotia.

There are also upwards of 4,000 commercial farms in the Atlantic Provinces, each of which sold farm products to the value of $5,000 or more in 1961. The operators of these farms have demonstrated that farming on a commercial scale is possible in all Atlantic Provinces.

Attainment of Objectives

Can the objective - that of an industry that is large in terms of output and high in efficiency - be attained, and what resources support an affirmative answer to this question? The remaining pages of this appraisal will be devoted to a consideration of these questions, including some of the effects. The treatment will be concerned with farm people, education, land resources, soil fertility, farm consolidation, research facilities, credit and other matters.

Farm People

In striving for larger scale operations it must be recognized that a large number of small farms are going to be absorbed by one means or another into a smaller number of larger farms. This will be done in many instances by the rental or purchase of additional land; in others by the consolidation of two or more farms or parts of farms. Some farms will, of course, be enlarged by the addition of new land or by the reclamation of long-abandoned parcels.

Enlargement by combination and consolidation will result in further displacement of farm people. Some of these will be absorbed in the farm community by employment on the larger farms. Some will find employment in the multitude of service agencies in nearby town and country; others will migrate to the larger urban centers. Many will find the change and adjustment regrettable and unpleasant; but not all. Many will be better off.

The point is, however, that the process of adjustment is going to go on. The question is not "will it happen?" but rather "how will it be achieved?" If it is part of an established program, with various measures to facilitate adjustment, the result should be less difficult than if it is brought about by the pressures of competition alone. If the former procedure prevails the hardships of change may be alleviated and the new status of those displaced could be better than that given up.

Education

There was a time when the skills acquired by farm people in the variety of activities on a farm were sufficient to ensure a place for such people in non-farm employment. We still have the people; they are our most important resource; but their training and skills may not now always be such as to ensure employment.

Additional education and training is now necessary, whether it be for continued association with farming or for non-farm employment. Technological advances in agriculture require knowledge and skill not hitherto necessary and the business aspects of commercial farming involve the making of complex management decisions.

The educational program of the future should therefore have a two-fold purpose: to up-grade the educational status of farm people to meet the challenge of larger scale operations; and to assist those who will leave farms to obtain other employment, including association with services and industries concerned with or related to agriculture. The type of training will include

both technical and vocational instruction. It may mean remaining longer in grade schools and in high school.

The additional facilities and expanded program of the Nova Scotia Agricultural College show awareness of the need in this field. To make the most effective use of the new program may require additional scholarship funds.

Obviously, few of the farm working force can take advantage of such opportunities. Therefore training programs nearer home will be necessary, to meet some of the needs. Though much is already being done in this respect, more will be required. Such programs should include farm management, the business aspects of modern farming, agricultural engineering, and mechanics.

In short, the process of adjustment is going to mean still fewer people on farms in the years ahead. Enough will remain to carry on but many of those who do may need assistance in acquiring the newer knowledge and skills required to achieve the desired increases in efficiency and output.

Land Resources

The larger farming units envisaged in this program, as far as they involve additional land, will be achieved in several ways. One will be, as already noted, by the purchase or rental of land now in farms, which will in one way or another involve the combination or consolidations of existing farms or parts of farms. A second method may involve the acquisition and reclamation of land that has gone out of agricultural use. A third method will be by the purchase and preparation of new land. For these purposes there is a considerable area of potential farm land - roughly 3.4 million acres of soil in land capability classes 2,3 and 4 in Nova Scotia, 4.8 million in New Brunswick and 570,000 acres in Prince Edward Island. In Newfoundland there is a potential of an additional 100,000 acres of agricultural land and 2,000,000 acres of peat suitable for reclamation and development. These organic soils will probably play a more prominent role in the regional agriculture of the future than they do at present. The additional area of land in classes 2,3 and 4 in Prince Edward Island is about equal to the acreage of improved land now in farms; in the other provinces the area is considerably larger. Much of the land is in bush or forest but would be suitable for agriculture if cleared.

Other Ways to Expand

Although land resources would seem to be ample for substantial expansion, such lands are not always accessible to the farmer who wants more land. Moreover the addition of land may not be the most economical or otherwise desirable means of expanding.

The size of farm businesses can be substantially expanded by other means, gradually, as finances permit. Output and income can be increased by the use of more fertilizers and lime; by improving the quality of livestock and by feeding them better; by expanding a particular part of the business; or by adding an enterprise such as the finishing of feeder hogs, cattle or lambs.

Soil Fertility

Information presented in this study shows that output on many farms, including many commercial farms in the Atlantic Provinces, is too small for efficient operations and the production of adequate incomes. An increase in output and size of business on many of these farms will probably call for increased acreage of improved land, but on the majority of farms the land resources presently available do not seem to be used at anything like the intensity that is possible.

It may well be that improving the fertility of soils in the Atlantic Region will prove to be the most effective way to increase productivity and income. Most soils of the region are naturally poor in many of the elements essential for plant growth, and crops respond well to the application of fertilizer. General fertilizer recommendations for the various crops grown, based on the most recent experimental results, are approved for each province and made available by the Maritime Fertilizer Council. A soil testing service is provided in each province and should be taken advantage of by farmers to obtain specific recommendations for their particular conditions.

The importance of liming the soils of the Atlantic Region, which are highly acid, is well recognized[2]. MacKay and Munro state that experiments demonstrating increases in yields of several hundred per cent from the use of lime are numerous[3]. Yet though the results are well established and are generally accepted by better farmers everywhere in the region, both of these reports urge more research to determine the optimum amounts of lime that should be added in different circumstances, and the frequency of application.

Most organic soils are derived from sphagnum peat; with few exceptions, they are in the very acid range of 3.4 to 3.6 per cent. Recent experiments have shown that proper drainage, liming and fertilization, with special attention to micro nutrients, will produce outstanding crops. The same source concludes with the observation that "it is likely that organic soils (boglands) will play a more prominent role in the regional agriculture of the future than they do at present"[4]. Experiments on boglands in Newfoundland have produced similar crop yields[5].

Although the use of fertilizers and lime is widely accepted as necessary and profitable, the quantities used are generally less than is considered desirable. This raises a question as to steps which may be taken to promote increased and more effective use of these inputs.

Lime is currently highly subsidized and there is some question as to the nature and type of additional promotion or assistance that should be provided. Suggested programs include local supply depots which could make lime more readily available as and when required. For Prince Edward Island, a further point

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[2]Atkinson, H.J. Research Branch, Canada Department of Agriculture. A Statement prepared for this study.

[3]MacKay, D.C., and Munro, D.C. Soil Productivity in the Atlantic Region. Agricultural Institute Review November - December 1964.

[4]Ibid.

[5]Research Report, 1956-63. Experimental Farm, St. John's West. Nfld. 1966, p. 15.

emphasized is the elimination of long term provincial purchases as a basis for determining subsidies to be paid by the federal Department of Agriculture. Until recent years, applications of lime in the province were low, reflecting fear of potato scab. Current applications are considerably above long term purchases and the cost of the subsidies on the increased tonnage must be borne by the province.

Suggested steps to increase use of fertilizer include financial assistance for increased purchases. In a federally assisted program currently in operation in Nova Scotia, a subsidy of $20 per ton is paid on fertilizer purchases in excess of 200 pounds per animal unit up to a maximum of 700 pounds per animal unit, with a maximum payment of $300 per farm. The policy is further limited to crops to be used for livestock feed. It is felt that such incentive type programs as this, and particularly those for which federal assistance is available, should be expanded throughout the region.

While such programs may be helpful, it is obvious that in the future as in the past the major factor influencing increased use of fertilizer and lime will be continuing and improved programs of research and extension. One related point which may be suggested is that fertility recommendations should emphasize more effective as well as increased use of fertilizer and lime. A major, if not the most important, need of Atlantic Agriculture is cost reduction. A factor contributing to farm costs in some instances is inputs of fertilizer and lime at rates which are much higher than in other regions of the country and which, on an improved acre basis in 1965, were six times the average tonnage applied elsewhere in Canada[6]. While there is need for increased use of fertilizer on many farms it is also true that in some cases there is a tendency "to apply liberal, even excessive rates of fertilizer"[7].

The high fertility requirements of the Atlantic Region also raise a question as to the extent to which this problem is adequately reflected in agricultural policy. In the past, regional as well as national programs have been heavily oriented toward livestock. They have tended to overlook the fact that crop production is the initial and basic source of farm income, while livestock are in large part merely an alternative means of marketing farm crops.

A further point is that fertility programs must be integrated with the over-all farm program. Fertility practices, while of major importance, are only one of the factors involved in crop production and utilization. The moist climate of the region, which is an important consideration in fertilizer response, can be a serious problem in harvesting and storing crops. A survey of some of the fifty farms which took advantage of the Nova Scotia fertilizer assistant policy in 1966 indicated that, while increased applications of fertilizer resulted in higher yields of better quality forage, part of the increase was lost through inadequate programs of harvesting and storing the crop.

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[6]Fertilizer Trade Cat. No. 46207, 1965, and Census of Canada Agriculture, 1961.
[7]Report of the Royal Commission on the New Brunswick Potato Industry Fredericton, N.B. 1962, p. 76.

Type of Farming

The production of cash crops such as potatoes, apples, small fruits and vegetable processing crops should receive the highest priority in a farm program where soil condition and other factors are suitable, and assuming a satisfactory market is available. However, the greater part of the area that is likely to remain in commercial farming in the Atlantic Region would seem to depend on livestock production.

This increased output of livestock and livestock products will in turn depend largely on improvements that can be made in forage and cereal crop production. Considering current feed prices and local production costs, there would appear to be justification for some increase in grain production, particularly barley. Beneficial side effects that could follow might include improved forage, increased size of farm business and a reduction in mechanization costs per acre.

For cattle-farming a decision must be made as to the type of enterprise. In areas where there is an outlet for fluid milk, this would seem to provide the most profitable undertaking. In other areas it is not a choice between beef and milk for processing but rather which combination of the two should give the best returns. The producer of milk for processing is likely to find it profitable to raise some calves to marketable age. So too in a beef-cow-calf enterprise it may be good economics to plan on some income from milk in addition to the sale of beef calves. It should be possible, using a dairy-beef cross, to raise calves either on part of the whole milk or on the skim milk and at the same time obtain a substantial revenue from the sale of milk or cream.

Alternatively some consideration should be given to the advantage, from an economic point of view, of emphasizing milk production in the summer season when grass provides most of the feed requirements. The feasibility and profitability of such a proposal requires further study.

In spite of the fact that sheep numbers have declined for many years in the region there are possibilities of attractive returns from this enterprise under good management. Low returns in the past have been due to small flocks and inadequate management. In 1951 there were 9,403 farms reporting less than 123 sheep, and only 25 farms with more than that number per farm. By 1961, although sheep numbers registered a further decline, the farms with over 123 sheep had increased to 85. Many farms in the Atlantic area could be adapted to sheep production with a smaller capital outlay than for other kinds of livestock.

Hog and poultry production in the region is based largely on feed imported under the Federal Freight Assistance Policy. While there is now an increased interest in grain growing, it appears that for some time to come hog and poultry numbers, and returns from these enterprises, will closely reflect the amount of assistance provided under this or similar policies.

In recent years hogs, and to an even greater extent poultry, have been concentrated in larger units on fewer farms. Poultry (which consists mainly of hens and chickens) is a highly efficient enterprise, but keen competition and low profit margins will probably tend to hold production at or near current levels, which are slightly below regional market requirements.

The outlook appears more optimistic for hogs. Deficit production (less than half regional market requirements), increasing scale and efficiency, currently combined with a favourable price situation, suggest increased output and returns from hogs.

Fur farming (i.e. foxes) was at one time a large industry in the Atlantic Region. After a long period of decline, the present industry (based largely on mink) is expanding and the value of sales of pelts in 1961 was about three times that in 1951. Contributing factors are a favourable climate, feed supplies (fish), improved management, and a general program of promotion by the Industry. The enterprise appears to be well adapted to the region and further expansion can be expected to take place.

Farm Forestry

Statistics on land use support the evidence, observed in travelling through the Atlantic Provinces, that a high proportion of the land that is, or has been, in farms may be marginal or sub-marginal for use in commercial farming; it would seem to be questionable whether normal community services should be maintained. For areas that fall into this category, more consideration should be given to farm forestry and woodlot management.

It would appear that in future there will be an increasing demand for pulpwood, which might be harvested on a sustained yield basis. During the period of development, projects of this nature could help considerably in providing local employment, particularly for older men who cannot easily be transplanted to other occupations[8].

Such a program should claim the support of federal and provincial governments as well as institutional and local interests. Having regard to these several factors it seems desirable that a detailed study of the potential of forest production in some marginal areas should be made.

Feed Production

In this appraisal, and in part of this study dealing with the production of field crops and livestock, we refer to current interest in efforts to increase feed production. Trends in livestock production, to a considerable degree, reflect changes which occur in the production or availability of feed. With acreages of grain and forage declining over the years faster than livestock numbers it appears that the major livestock problem in the region is one of feed supply.

An attempt is being made to alter this trend. As already indicated, a federally assisted fertilizer program in operation in Nova Scotia is aimed specifically at increasing the output of crops to be used for livestock feed. In other provinces, where such help is not now being provided, consideration should be given to the desirability of providing financial assistance in some form as part of a program to promote feed and forage crop production.

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[8]Hudson, S.C. Economics Branch, Canada Department of Agriculture. A memorandum prepared for this study.

The Field of Research

The section on research and technology features a review of research facilities in the Atlantic Region. From it we learn that the Canada Department of Agriculture assumes responsibility for most of the activity in this field. The six research centers have recently been reorganized to achieve a team-work approach and, in addition, a research centralization and development program in the Atlantic Region designed to increase the productive capacity of its agricultural economy. Each station will serve local needs, but in specialty fields will serve the Atlantic Region and all of Canada. Each station also now operates a number of project farms. The animal research program for the Atlantic Region, centered at Fredericton, will emphasize livestock and forage production.

Referring to the 108 professional personnel and the $3.3 million expenditure in the fiscal year 1965-66, Dr. D.G. Hamilton stated, "There is no area (in Canada) where the coverage of research establishments in proportion to the extent of the industry is any better than that in the Atlantic Region"[9].

A review of the present establishment for agricultural research in the Atlantic area suggests that it is in a position to equal (at least) the contribution of staff in other areas; but whether comparability with other areas is enough is another matter. The agriculture of the Atlantic Region is not as large or as efficient as that of other regions of Canada; it may require something better than that to put it on a basis approaching equality.

Inefficiencies and high costs are not all necessarily the result of small scale operations. Some may be attributable to lack of knowledge; to possible gaps in research information; perhaps to the relative newness of some phases of the region's commercial agricultural development. To meet this situation the research program available to agriculture in the Atlantic Provinces must be adequate to the needs of an expanding agricultural effort.

In one respect at least there is already a shortcoming, although it is not peculiar to the Atlantic establishment. Agricultural economists must associate with natural scientists in the conduct of research and the assessment of results[10]. The Atlantic Provinces would be an appropriate area in which to initiate such an association. It is suggested that this matter be brought to the attention of the Federal and Provincial Departments of Agriculture.

Extension Services

We have already referred to the importance of education in the preparation either for farming or for off-farm employment. Agricultural extension is a particular form of education that is closely related to research; as such, it calls for special comment in that connection.

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[9]Hamilton, D.G., Assistant Director General (Eastern) Research Branch. Address to a Provincial Staff Conference, Fredericton, January 7, 1966.

[10]Heady, Earl O. Considerations Involved in Designing and Implementing Interdisciplinary Research. Also; Glen, Robert, Theme Critique, Agricultural Institute Review, November - December, 1966.

If the sort of development suggested by this study as desirable occurs; if agriculture becomes more highly commercialized and more dependent on the results of research; then vocational training, assistance in the application of new technology,a knowledge of farm accounting and business management, the use of outlook material, markets information and the like, will have greater significance in farming. To help farmers obtain and make use of such information will require the assistance of an adequate and well trained agricultural extension service.

Accordingly it is recommended that present and future needs in this respect be examined, and where additions to staff are found to be needed, well trained and competent agricultural extension specialists be appointed.

Also, having regard to the costs entailed in providing an adequate extension service, the limited scope of the agricultural industry in the Atlantic Region, and the disparities between provinces in their abilities to finance an expanded program, it is suggested that the possibility be considered of establishing some basis for the pooling of personnel and facilities of the provinces in order to provide more adequate extension services for all.

Credit and Expansion

The expansion of farms by the addition of land and the consolidation of holdings to achieve that result is likely to be a matter of much discussion and action in the years ahead. Expansion by the addition of another enterprise or by substantial increases in non-labour inputs will also occur, but may attract less attention because fewer people will be affected.

But whatever the method, credit will be involved, for not many farmers will be in a position to incur the costs entailed without financial aid in one form or another.

There has been a considerable increase in credit availability at both the provincial and federal level, particularly the latter, in recent years. It is possible, however, that the scale of individual farming operation in the Atlantic Provinces, in a great many instances, is not such as to meet the security requirements of some lending agencies. If so, then it is quite possible that the Atlantic area has not benefited to the extent that other areas have from the operations of such agencies.

Whether available sources of credit have been sufficient to meet the needs in recent years, and seem likely to do so in the years ahead, may be a matter of concern to provincial governments. They may wish to consider especially the need for intermediate term credit; also the matter of interest payments by provinces on Farm Credit Corporation loans on a basis similar to that in effect in New Brunswick - both with a view to bringing about an expansion of credit.

Rehabilitation and Development

An encouraging development of recent years has been the enactment of the federal Agricultural and Rural Development Act (ARDA), and the establishment of a comprehensive program under its authority. In co-operation with the provinces, an eight part effort embracing research, land use and farm adjustment,

rehabilitation of rural people, rural development, and soil and water conservation, has been undertaken.

ARDA, with $27.8 million available for projects in the Atlantic Provinces from 1965 to 1970, is in a position to provide a generous infusion of new funds and efforts into a varied program (including the adjustment of farm size and improvement in the efficiency of land use in that area); to aid materially in economic development; to rehabilitate rural areas and re-establish the people affected; to establish economic farm units; to create drainage systems; and to develop to peat lands, cranberry bogs, blueberry barrens, etc.

Programs already in effect include several that will facilitate the establishment of viable farms through enlargement by consolidation, re-grouping, and improvement of existing sub-marginal units. Every effort should be made to press forward with this type of program, including enlargement of farms by the development of new land. Provinces not now taking full advantage of these joint arrangements with ARDA should consider doing so.

To fulfill ARDA's purpose calls for a close working relationship with many other agencies, federal and provincial, particularly with the Canada Department of Agriculture at both the national and regional levels.

We refer in the preface of this report to the lack of certain statistical information for Newfoundland. This refers particularly to current and annual data on farm income, cash receipts, capital investment, labour force and the like, which are issued by the Dominion Bureau of Statistics for other provinces but not as yet for Newfoundland. Such information is of great value to those concerned with provincial agricultural policies and with the conduct of extension services. They are also useful to persons interested in the study of Newfoundland agriculture.

This matter should be brought to the attention of the Dominion Statistician.

Conclusion

This study indicates that the farms of the Atlantic Provinces in general are smaller and less efficient than those of other sections of Canada. Their output is below that of other areas. Their earnings are lower. They contribute less to the general economy of the region in terms of products sold to urban industry and in purchases from the urban sector. They have experienced a greater decline in numbers and in farm workers than has agriculture in other parts of Canada - thus indicating greater difficulty in adjusting to the economic and technological pressures of recent years.

Earlier in this section a question was raised, whether an agriculture that is large in output and high in efficiency can be attained in the Atlantic Provinces. It was also noted that the means to that end were available. Human resources are more than adequate, but would probably benefit from an up-grading of skills and business management. Land resources suitable for farming greatly exceed the area presently in farms. The climate is generally favourable. Research facilities are comparable with those of other areas. A variety of agricultural services is available.

Market-wise, the outlook is good. For most products, particularly those of livestock, the food and feed requirements of the region exceed its production. There is thus a ready market within the region for most products. Moreover, although the region is remote from the markets of central and western Canada, it does send some products there. It also has the advantage of location in relation to export outlets. With world population and food needs increasing rapidly, relative accessibility to export markets could become an important factor in the agricultural economy of the area in the years ahead.

The adjustments already mentioned will, in all probability, continue to be necessary throughout the next decade and beyond, though their extent and severity may diminish. In the process, farms can become even fewer. But they can also become larger and more efficient. Output can be expanded. Earnings by those able to make the necessary changes can increase and levels of living can rise. These new farmers will become more interdependent. They will purchase more from the urban community and sell more to it. In short, the net result can be a substantially more productive industry even though its proportionate contribution to the varied and more elastic total economy of the region declines.

These are the possibilities. Considerable progress has been made in recent years toward their attainment. Legislative measures recently introduced will contribute further to that end; but more will be required, including programs to assist in the movement of many people out of agriculture and their successful establishment elsewhere. There must also be a greater awareness of the need and a keen desire by farmers and others to make the necessary adjustments. The task of building a better agriculture in the Atlantic Provinces is challenging, but is not beyond the capabilities of farmers and the institutions serving them.

APPENDIX A

The Resource Base

In this appendix the main physical characteristics of the Atlantic Area - climate, topography and soil - are discussed. The effect of these on the agriculture of the region will be considered.

In this connection the soils capability classification of agriculture as outlined in The Canada Land Inventory will be helpful to an understanding of the soils of the Maritime Provinces[1]. The soils of Newfoundland have not yet been classified but even there a knowledge of the classification may contribute to an appreciation of the soil as described in that province.

The mineral soils are grouped into seven classes according to their suitability for agriculture. The capability classification, which takes climate and soil characteristics into consideration, is divided into two general categories: class and subclass. The class identifies the general suitability of land for agricultural use. The subclass identifies the land with similar kinds of limitations. There are thirteen subclasses: adverse climate, undesirable soils structure and/or low permeability, erosion, low fertility, inundation by streams or lakes, moisture limitation, salinity, stoniness, consolidation bedrock, adverse soil characteristics, topography, excess water, and cumulative minor adverse characteristics.

A short description of the seven soil capability classes follows:

Class 1 - Soils in this class are almost ideal with no significant limitations for agriculture. The soils are usually level, deep, well drained, have a good water-holding capacity and are fairly high in natural fertility.

Class 2 - Soils in this class have moderate limitations that reduce the range of crops or require moderate conservation practice.

Class 3 - Soils in this class have moderately severe limitations that reduce the range of crops or require special conservation practices.

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[1]The following published material has been used in the preparation of this section: Report of the Newfoundland Royal Commission on Agriculture, 1955. The Canada Land Inventory ARDA Report No. 2. Department of Forestry, Ottawa, 1965; Soils of the Appalachian Region, D.B. Cann and J.F.G. Millette; Agricultural Institute Review March-April 1960. Types of Farming in Canada, S.C. Hudson, R.A. Stutt, Wm. Van Vliet and J.L. Forsyth, Canada Department of Agriculture, Ottawa, 1949. Canada Year Book 1963-64. Soil Survey of Prince Edward Island, G.B. Whiteside, Canada Department of Agriculture, Ottawa and Prince Edward Island Department of Agriculture, Charlottetown, 1950. Soil Survey of Cape Breton Island, D.B. Cann, J. MacDougall and J.D. Hilchey, Canada Department of Agriculture, Ottawa, and Nova Scotia Department of Agriculture, Halifax 1963. Soil Survey of Fredericton - Gagetown area, New Brunswick, P.C. Stobbe 1940; and South Eastern New Brunswick, H. Aalund and R.E. Wicklund, Canada Department of Agriculture, Ottawa, and New Brunswick Department of Agriculture, Fredericton, 1949.

Class 4 - Soils in this class have severe limitations that reduce the range of crops or require special conservation practices or both.

Class 5 - Soils in this class have very severe limitations that restrict their capability to producing perennial forage crops; improvement practices are feasible.

Class 6 - Soils in this class are capable only of producing perennial forage crops and improvement practices are not feasible.

Class 7 - Soils in this class have no capability for arable culture or permanent pasture.

Newfoundland[2]

Newfoundland has a total area of 156,185 square miles. The Coast of Labrador occupies 112,826 square miles; the Island of Newfoundland makes up the remainder with 43,359 square miles. The Labrador surface consists of barren rocks, swamps and lakes with no apparent potential for agriculture. The Island of Newfoundland is part of the Appalachian Region, which includes the provinces of New Brunswick, Nova Scotia and Prince Edward Island. This whole area was subjected to Pleistocene glaciation which changed the topography and left bare rock and and deposits of glacial drift. The soils are generally thin, poorly drained and low in natural fertility.

The topography of Newfoundland is rugged, with elevations that may reach 2,500 feet on the west coast. The Island consists of a huge plateau sloping from west to east, northeast to southeast, and dissected by deep valleys, high ridges which rise over a hundred feet and fall abruptly to the sea on all sides of the Island except the northeast coast. On that coast there are many islands, peninsulas, and numerous bays which provide excellent small harbours.

Three-fifths of the total surface area consists of rock outcrops, barren-lands and bog-lands. The barrens range from bare rock to a thin layer of soil barely enough to support small bushes and wild grasses. The bog-land includes large areas of muck and peat which have potential agricultural use. Most of the remaining two-fifths of the land surface is covered by forests which lie along the main rivers of the Humber, the Exploits, the Gander and the Terra Nova.

Drainage is a major problem in developing bog areas that have an agricultural potential. Most of the mineral soils also have drainage problems brought about mainly through the effects of glaciations where high ridges were left blocking natural drainage. Also of importance in contributing to the drainage problem is the fact that a compact substratum which restricts drainage is quite common in these soils. The soils are of the podzol group, developed from glacial drift, recent alluvium, and marine sediments. These soils are found mainly in the valleys of the Harry, Codroy, Robinson, Exploits and Gander rivers. Generally these soils are stony, leached, acid, low in fertility,

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[2]Material derived from: Report of the Newfoundland Royal Commission on Agriculture, 1955. Soils of the Appalachian Regions by D.B. Cann and J.F.G. Millette. Types of Farming in Canada, 1949, S.C. Hudson, R.A. Stutt, Wm. Van Vliet, J.L. Forsyth. Canada Year Book, 1963-64.

poorly drained, and altogether present a major problem in land use. The western part of the province between St. George, the Cormack area, along the Exploits, Peter and Gander river valleys is considered to be the most suitable area for agriculture.

Climate: Newfoundland is surrounded by water, which has a tremendous effect upon the climate. If it were not for the cold Labrador current which sweeps down the east and west coasts the climate would be considerably milder. The effects of the cold water cause the springs to be late and cool, and summers short and cool. The winters are relatively mild with the mean January temperature around 20°F. The mean July temperature is about 57°F (table 1). As would be expected, the lowest temperatures are to be found in the northern parts of the Island. The mean frost-free days average about 130 on the coast and about 120 in the interior and northern parts.

Rainfall is evenly distributed throughout the year with about 30 inches on the northwest coast, to 60 inches on the south coast. Rainfall is ample during the growing season. The climate has a tremendous influence on the kind of agriculture practised.

The cool and moist summers are ideal for growing such crops as cabbage, potatoes, turnips, hay and pasture. Some difficulty may be encountered in making hay. However, a considerable amount of hay is cut green for silage which reduces the hay curing problem to some extent.

Vegetation: It is estimated that about one-third of Newfoundland is covered by forest. The main trees are coniferous, with some hardwood. Most of the hardwood is located on the west coast. Bogs, lakes and ponds, and barrens make up the remaining two-thirds. Fires have destroyed much of the forest, leaving the soil with insufficient humus and organic matter for successful agriculture. The forest areas in Newfoundland indicate reasonably accurately the potential agricultural land. Wild blueberries grow in abundance on the burnt-over areas and on extensive areas of the barrens.

Soils: Generally the agricultural land areas in Newfoundland are small and widely scattered. The soils belong to the podzol group. They are characterized by high acidity, low natural fertility, high stone content and shallow depth. The stony, uneven surface and small agricultural areas together make farming operations quite expensive. However, good crops of vegetables, hay and pastures are produced on land that is well drained, fertilized and limed.

Peat soils are a potential source of agricultural land. These soils, when drained, limed, and fertilized produce good crops of vegetables, and pasture. Experimental work in connection with peat soils is being carried on.

Altogether, in Newfoundland, there are probably less than 60,000 acres of agricultural land in production, with a potential of probably 100,000 more if all areas were fully developed. In addition, approximately 2,000,000 acres of peat are available for reclamation and agricultural use[3].

[3]Information on acreages in agricultural use, present and potential, was provided by H.W.R. Chancey, Director, Experimental Farm Research Branch, Canada Department of Agriculture, St. John's West, Newfoundland.

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Prince Edward Island[4]

Prince Edward Island is the smallest province in Canada, lying off the east coast of New Brunswick and the north of Nova Scotia. The Island has an area of 2,184 square miles or 1.4 million acres, varies in width from four to forty miles, and is 140 miles long. The island is part of the Appalachian Region, which includes the lowlands of the Gulf of St. Lawrence, Nova Scotia, New Brunswick and Newfoundland. The island has the appearance of a huge plateau, not rising more than 450 feet at the highest point above sea level. About three-quarters of the island does not rise higher than 150 feet above sea level. Deep bays and the Hillsboro River almost trisect the island.

The surface relief is generally that of a level to moderately undulating plain which in turn lends itself to easy cultivation.

The rock formation is predominantly sandstone, characterized by the usually red color causing the overlying till to be reddish. Glacial till is the most common deposit found on the surface of the island. Fluvio-glacial deposits, marine deposits, Aeolian deposits and organic deposits are important in the overall surface formation.

Drainage: The natural drainage system of Prince Edward Island consists of a network of streams and rivers that drain directly into sea. Generally the soils are well drained, though Prince county, especially the western part, is not as well served by natural drainage as the other two counties of Queens and Kings.

Climate: Prince Edward Island has a moderate climate with the occasional extreme low during the winter. Data on climatic factors are shown in table 1. The mean annual rainfall is about 43 inches, fairly evenly distributed throughout the year. The heaviest rainfall usually occurs during the period from September to November. The Island enjoys a frost-free period ranging from mid May to mid October and averaging 155 frost-free days. The mean temperature for July is about 67°F., and for January 19°F., with an annual mean temperature of around 43°F. The rainfall, length of growing season and temperature is sufficient to produce a wide variety of crops. However, spring is often delayed because of the cold air from the north and the chilling effect of the ice that is carried down the St. Lawrence and Northumberland Strait.

Vegetation: The climate of Prince Edward Island has favoured a forest type of vegetation. The forest can generally be described as broad leaved. This is one character difference in forest type from the other Atlantic Provinces, where the forest cover is mainly coniferous. The original forest cover of Prince Edward Island consisted of fine stands of oak, maple, birch, pine and other species. The present vegetation consists of mostly second growth trees and many species of shrubs and grasses.

Soils: Prince Edward Island soils have developed mainly on glacial till and cover about 95 per cent of the Island. G.B. Whiteside in the Soil Survey of Prince Edward Island, divided the Island into two general textural groups: medium textured soils and moderately heavy textured soils. The medium group

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[4]Material derived from: Soil Survey of Prince Edward Island by G.B. Whiteside. Soils of the Appalachian Regions by D.B. Gann and J.F.G. Millette. Canada Year Book 1963-64.

of soils occupy about 85 per cent of the total area. These soils are developed on sandy loam and sand clay loam parent material. The coarse-textured soils have all developed on sandy, gravelly parent materials and are well to excessively drained.

Soil Capability Classes

Class 1 - There are no Prince Edward Island soils in this class.

Class 2 - Alberry loam and Charlottetown fine sandy loam with 0 to 9 per cent slopes are in this class (tables 2 and 3). They are low in natural fertility and are susceptible to erosion, both of which can be corrected by good management. These soils represent about 713,780 acres or 52.1 per cent of the Island. They are found in the three counties: Queens with about 40 per cent, Kings with about 39 per cent and the remainder in Prince. Most of the acreage is in agriculture.

Class 3 - The Haliburton, Kildare, Queens and O'Leary series of sandy loam with 0 to 9 per cent slopes belong to this class. These soils are low in natural fertility and low in water-holding capacity, but cultivated crops grow well on these soils with good management.

The pownal fine sandy loam to silt loam soils are well drained to imperfectly drained on almost level land. High yields of fodder and forage crops can be produced on these soils. Drainage is usually adequate but there are short periods of saturation in soils bordering marsh-land areas.

The Alberry and Charlottetown fine sandy loam soils with 9 to 15 per cent slopes are more difficult to maintain because of the erosion hazard. These soils require careful cropping and cultural practices. Approximately 116,255 acres or 8.5 per cent of the province's soils are in this class.

Class 4 - The Alberry, Charlottetown fine sandy loam and Culloden series of sandy loam with slopes from 9 to 15 per cent belong to this class. Part of the acreage of the above series could also be included with class 3. Some of this land comes very close to meeting the class 3 requirements. However, the steep slopes for most of it places it in class 4. These series represent 259,655 acres or 19.0 per cent of soils on the Island.

The Egmont series of loam clay are mainly under forest. These soils are poorly drained and low in productivity. They account for 59,180 acres or 4.3 per cent of the soils.

Part of the Dunstaffnage series is included with class 4. It is estimated that about 13,546 acres or 40 per cent of the soils of the Dunstaffnage series is in class 4. The total estimated acreage for class 4 soils is about 332,381 acres or 24.3 per cent of the province.

Class 5 - The Armadale complex, some Alberry, Charlottetown and Culloden are included in this class. The soils are of fine sandy to sandy loam with slopes ranging from 6 to 25 per cent. The land in this class is generally of steep rolling hills and is subject to severe erosion. The soils are rapidly permeable, another factor that limits their agricultural use to pasture. The Armadale complex is poorly drained

soils on almost level land. Most of the land is under forest. Future agricultural use depends on the feasibility of artificial drainage. In the above series there are about 70,880 acres or 5.2 per cent of soils in the province.

Part of the Dunstaffnage series of about 20,319 acres or 1.5 per cent of the Island soils are in class 5.

The total estimated acreage for class 5 is about 91,199 acres or 6.7 per cent of the soils in the province.

Class 6 - There are no soils in class 6 in Prince Edward Island.

Class 7 - Some of the soils in the Armadale complex, Charlottetown, Alberry, Culloden series are in class 7. The Dune Sand and Salt marsh are all in this class. Altogether they account for about 104,585 acres or 7.7 per cent of the soils in the provinces. Soils in this class are not suitable for agricultural use mainly because of their steep slopes, but they are also rapidly permeable or very poorly drained and have other adverse characteristics. Most of the acreage in this class is under forest.

In addition to the soil capability classes there are about 9,790 acres or 0.7 per cent of organic soils in the Island.

Nova Scotia

Nova Scotia is a peninsula 381 miles in length and varying in width from 50 to 105 miles, an area of 21,425 square miles. The province is connected to New Brunswick by the Isthmus of Chignecto, a narrow strip of land about 15 miles across. The following bodies of water almost surround the province: the Bay of Fundy, the Atlantic Ocean, the Gulf of St. Lawrence and Northumberland Strait.

Nova Scotia, like the other Atlantic Provinces, is part of the Appalachian Region which was covered by a great glacier during the Pleistocene period leaving the entire surface rearranged with glacial deposits from which the present soils have developed.

Cape Breton Island, the northeastern part of the province, is 3,975 square miles in area and is separated from the mainland by the Strait of Canso, a distance of about one mile. A permanent causeway now stretches across the strait. The Island is almost bisected from northeast to southwest by the Bras d'Or Lakes. The two general physio-graphic divisions of the Island are the lowland and the upland plateaus. The lowland surface developed mostly in softer carboniferous rocks and in undulating level to gentle rolling topography. The elevation of the lowland area ranges from sea level to about 500 feet. Most of the agricultural land is in the lowland. The upland plateau is formed from harder rocks, igneous and metamorphic rocks, ranging in elevation from sea level at Louisburg to more than 1,700 feet at Cape North. Most of this plateau is rough, stony, dissected by many streams and mostly unsuitable for agriculture. The many rivers and streams provide adequate drainage for the Island.

The mainland of Nova Scotia is generally of low relief. Ridges not exceeding 1,000 feet in altitude extend through the centre of the province.

The Cobequid Mountains upland area runs east and west to the south of the Bay of Fundy. Between these and the Bay of Fundy lies what is known as the Annapolis-Cornwallis Valley, an area occupying about 245,981 acres. An area along the Northumberland Strait, including the counties of Pictou, Cumberland and Colchester in mid province, along with the Valley are the main agricultural areas.

Drainage on the mainland of Nova Scotia is generally adequate. The drainage system for the Annapolis Valley is all exterior with drainage of the north and south slopes directing to the Annapolis and Cornwallis rivers that eventually empty into the Bay of Fundy. Drainage in the northeastern part of the province is generally adequate, with many rivers and streams. Other areas of the province have generally good drainage but because of the rough stony surface and steep slopes are unsuitable for agriculture.

Climate: The climate of Nova Scotia is humid temperate. The spring season is usually late, due to the cold Labrador current of the North Atlantic. The summers are cool and the winters are relatively mild. The fall season is usually quite pleasant. The average rainfall varies from 40 to 55 inches (table 1). The rainfall is usually adequate and spread reasonably evenly throughout the year. The mean annual January temperature is about 24°F. The last day of freezing in the spring varies from May 7 at Yarmouth on the south shore to May 29 at Sydney. The first date of freezing in the fall ranges from October 6 to 14.

Vegetation: On Cape Breton Island there are about 2,700 square miles of productive forest land. Approximately 65 per cent of the productive forest area is covered with softwood and the remainder with a mixture of soft and hardwood. Conifers dominate most of the forest area. Spruce, balsam and pine are the main conifers. The main species of hardwoods are maple and yellow birch.

On the mainland of Nova Scotia the forest growth consists of a mixture of conifers and deciduous trees. The lowland produces coniferous trees; the upland produces deciduous trees depending on the character of the soil, drainage and elevation. Today most of the lowland is in agriculture. The main trees are second growth red and white spruce, white birch, red maple and fir. A mixture of black spruce, tamarack, poplar and alder are usually found in depressions.

Soils: The upland surface of the province is undulating to gently rolling, with a thin layer of fairly coarse textured, stony glacial drift. The upland area consists of about 8.5 million acres. The soils are of the podzol group, strongly leached, acid, and low in natural fertility; range from sandy loam to loam. Depending upon the subsoil, the soils vary from dark brown to yellowish brown and sometimes reddish brown. Most of the upland plateau is unsuitable for agriculture mainly because of the steep slopes, thin layer of soil, and stoniness.

The lowland surface is developed from softer rocks with level to rolling topography. The soils are reddish in colour. The lowland soils cover about 4.5 million acres, on which most of the present agriculture is maintained. Nova Scotia soils are high in acidity and low in natural fertility. These are two important factors limiting crop production.

Soil Capability Classes

The acreage of soil capability classes ranging from 2 to 4 by counties in Nova Scotia are shown in table 4. There are no class 1 soils in the province. There is a total of 3,839,858 acres in classes 2 to 4. Soils in classes 2 to 4 all are capable of agricultural production. At the present time much of the land in these classes is under forest. Class 5 acreage has been estimated for all counties except six, hence there is no total acreage given for the province as a whole for that class. The five counties of Colchester, Cumberland, Hants, Kings and Pictou contain about 83 per cent of the soils in class 2. Classes 3 and 4 are more uniformly distributed throughout the province.

Marshlands

Marshland soils in Nova Scotia amount to over 43,360 acres. These soils are found mainly along tidal rivers flowing into the Bay of Fundy.

Drainage, even on the dyked marshland soils, is imperfect. However, drainage on well managed dyked land is adequate for the production of some crops, especially hay and grain after the excess salts have been leached. The undyked marshland soils are of little agricultural use because of their salinity and water saturation. These soils are fluvio-marine in origin, being formed from materials from eroded upland soils and rock formations which have been deposited near the river mouths.

The main bodies of marshland soils in the province are in five counties: Colchester with 6,512 acres, Cumberland with 14,080 acres, Hants with 7,561 acres, Kings with 10,243 acres and Annapolis with 4,965 acres. In addition to the above there is a small acreage of marshland in Yarmouth and Digby counties, but these have not been used to any extent.

New Brunswick

New Brunswick has a total area of 28,254 square miles. The Bay of Chaleur on the north of the province cuts inland about 100 miles, the Gulf of St. Lawrence and Northumberland Strait on the east, the Bay of Fundy on the south, and Passamaquoddy Bay on the southwest are the main bodies of coastal water. New Brunswick adjoins the province of Quebec on the north and northwest, the province of Nova Scotia on the southeast by the Isthmus of Chignecto, a marrow strip of land about 15 miles wide, and the United States on the west.

New Brunswick is part of the Appalachian Region, and (in turn) part of the Great Atlantic Coastal Plain of North America. It too was exposed to a great glacier that spread over the Atlantic Provinces during the Pleistocene period rearranging material, modifying the topography and leaving glacial deposits from which the present soils have developed.

The province consists of several physiographic divisions, characterized by the land surface, drainage, stoniness, depth of soil, slope, elevation, and other characteristics. The surface of the province is mostly undulating.

The Gulf of St. Lawrence Plain is flat, with elevations ranging from 300 to 600 feet. It includes the Miramichi watershed area, with around three million acres of shallow, brown, sandy till and about four million acres of deep, reddish brown clay loam till. Poor drainage and high acidity are characteristic of these soils.

The New Brunswick Highland is rugged, with an elevation ranging from 600 to 1,600 feet. Rock outcrops are common. The soils are stony, brown, loam to sandy loam till. Forests cover most of this area, which occupies about four million acres.

The Chaleur Upland is a large plateau, deeply dissected, and ranges in elevation from 800 to 1,500 feet with some peaks reaching over 2,000 feet. The surface is rugged, the soils are stony, acid, and shallow, and are restricted for agricultural use because of these characteristics. The Chaleur Uplands occupies about 2.5 million acres.

The Western Rolling Upland ranges in elevation between 400 and 800 feet and includes about 3.5 million acres. The topography is reasonably smooth with deep grey-brown to light-brown gravelly till. The most productive soils in New Brunswick are found in this area and include the northern and western counties of Carleton, Madawaska, Victoria and York.

Drainage: Drainage is adequate in many areas of New Brunswick, but not in all. The many tributaries to the St. John and Restigouche rivers provide good natural drainage. The Restigouche river runs eastward and empties into the Bay of Chaleur. The St. John river runs in a southward direction across the whole province, to the Bay of Fundy. There are many other rivers and valleys that provide necessary drainage. Drainage is generally good in the Western Rolling Upland area, where some of the best agricultural land in the province is to be found. In the Alluvial Plains and Terraces areas drainage is fairly adequate. There is some flooding in the low lying areas. The Gulf of St. Lawrence Plain, which occupies about seven million acres, does not have good natural drainage because of the effects of glacial aftermath that impede the natural flow. In other parts of the province, inadequate drainage, rugged topography, stoniness and acidity, restrict soils for agricultural use.

Climate: The climate of New Brunswick is the continental type but it is affected by the moderating influence of the sea. Temperatures are more severe in the interior than on the coast. The mean January temperatures for Chatham and Grand Falls are 12.7°F, and 8.7°F , respectively (table 1). The mean January temperatures for Moncton and Saint John are 16.1°F and 19.8°F , respectively. The mean July temperature is about 65°F for the province, with the highest temperatures in the interior. The cold waters of the Labrador current are mainly responsible for the late spring season. The total annual precipitation ranges from 40 to 50 inches with the heaviest amount along the coast. The rainfall is fairly evenly distributed throughout the year, and is generally adequate during the growing season. The cool moist climate and acid soils favour potato growing. Snowfall is usually heavy, especially in the northern part of the province. Frost-free days range from 100 to 180 with the largest number in the southern coastal areas.

Vegetation: Forests cover the greater part of the province. The interior is especially heavily forested. The forests consist mainly of coniferous and deciduous species with the coniferous species representing about three quarters.

The many varieties of trees include pine, spruce, balsam-fir, hemlock, cedar and larch among the conifers and maple, birch, elm, ash, oak, poplar and alder among the deciduous tree. Fires have destroyed large areas of forest. Shrub vegetation has to a large extent replaced the once fine timber stands destroyed by fire, especially on the gravelly plains. The low bush blueberry is quite common in these areas and some commercial use is being made of them.

Soils: The main agricultural areas in New Brunswick are the St. John River Valley and the Northwestern part of the province. The parent material from which the present soils have developed has a great influence on the physical and chemical characteristics and fertility of the soil. The most productive soils in the province are the deep brownish gravelly till found mostly in the Northwestern region. The till has a loam to silt loam and light clay loam texture. The Fredericton-Gagetown area has parent material derived mainly from Middle Carboniferous rocks that contain very little soluble basis and in turn the soils developed from this material are highly acid and low in fertility. The soils vary in colour from grey to a reddish brown. The gravel base soils in the area provide good orchard land.

The Northumberland Strait region is a potential tobacco growing area, with deep deposits of fine sand.

Soil Capability Classes

Soil capability classes have not been determined for the whole province of New Brunswick. Land area amounting to about one-third (or 4,382,985 acres) lying between 46 degrees latitude and south to the Bay of Fundy is the only area at the present time classified according to the soil capability classes. The area may also be described as the general area located below the imaginary line between Fredericton and Moncton and south to the Bay of Fundy. There are no number 1 soils in this area. Acreages of soils classes from 2 to 5 for this area are shown in table 5.

There are 533,340 acres of land classes 2 and 3 with only moderate to moderately severe limitations for agricultural production and 1,051,681 acres in class 4 with more severe limitations. Altogether 36 per cent of the southern third of New Brunswick would be suitable for agriculture. At the present time much of this land is under forest. Soil class 5 accounts for 1,138,709 acres. Its limitations of steep slopes, stony land and low natural fertility prevent it from being suitable for agriculture. The remaining 1,659,258 acres are almost all in class 7: because of severe limitations they are not suitable for agricultural production.

The vast interior of New Brunswick is heavily forested. The area is subject to extremes in climate, the surface is rocky with steep slopes and has other undesirable characteristics which make it unfavourable for agriculture. The area is a productive forest-growing region and should be left in forest.

The northeastern part of the province, along the coast, is only suitable for part-time farmers. The northwestern part of the province has some of the most productive soils in Eastern Canada. They are deep brownish gravelly till. The texture of the soil varies from loam to silt loam and clay loam. These soils have good drainage and good water holding capacity. This is the main potato growing area in the province. D.B. Cann and J.F.G. Millette in their

report on Soils in the Appalachian Region estimate that half a million acres of very good land is available for agriculture when needed.

Potential Agricultural Land

A considerable amount of potential agricultural land in the Maritime Provinces is of agricultural value. The following discussion will adhere mainly to the soil capability classes, the amount of land now in agriculture and the amount of land that can be used for agriculture.

In 1961, 69 per cent of the total land area of Prince Edward Island was in agriculture, compared with 85 per cent in 1931 (table 6). The percentage distribution of area in farms for Kings, Queens and Prince counties in 1961 was 59,76 and 70, respectively. There were 231,045 fewer acres in farms in 1961 than in 1931.

In Prince Edward Island, the class 2 soils represent 713,780 acres or 52 per cent of the total land area (table 3). Classes 3 and 4 account for 435,090 acres. The total area of land suitable for agriculture is thus 1,148,870 acres. The area of improved land in 1961 was 579,558 acres (table 6). The difference between these two figures, 569,212 acres, shows the area suitable for agricultural purposes which is not now in use (table 9). In addition to the mineral soils, there are 9,790 acres of organic soils that have not been classified.

In Nova Scotia there are approximately 2,483,647 acres of land with moderately severe limitations for crops production and 1,356,211 acres with more severe limitations (table 4). Altogether there are 3,839,858 acres, which include soil classes 2 to 4, that from the standpoint of topography, climate and soil characteristics are suitable for agricultural use. Most of this land is presently covered with forest. Class 5 soils have still more severe agricultural limitations. Total acreage has not been calculated for this class which represents a small percentage of the total land area.

About 70 per cent of the class 2 soils in Nova Scotia are in agriculture. About 83 per cent of these soils are in five counties: Cumberland, Colchester, Pictou, Hants and Kings. The distribution of classes 2 to 4 and most of class 5 is shown by acres and percentage of acres in each class by counties in table 4. Class 3 soils are more uniformly distributed throughout the province. One-third of class 4 soils are in Cumberland county.

A percentage of breakdown of classes 2,3,4 and 5 soils now in agriculture is available only for Kings and Annapolis counties. In Kings county 75 per cent of class 2, 50 per cent of class 3, and 30 per cent of class 4 soils are in agriculture. In Annapolis county 69 per cent of class 2, 65 per cent of class 3, 46 per cent of class 4, and 21 per cent of class 5 soils are in agriculture. Eighty per cent of the county, most of which is class 7 soils, is unsuitable for agriculture.

In Cape Breton Island, the northeastern part of the province, there are 666,777 acres of land in classes 2 to 4 which has been included with the Nova Scotia total. Of this amount 495,727 acres or 74 per cent is class 3.

In 1961 there were 2,230,395 acres or 17 per cent of the total land in farms in the province as compared with 4,302,031 acres or 32 per cent in 1931 (table 7). This means that 2,071,636 acres were taken out of agriculture. A considerable amount of this area is not good agricultural land and should be left in forest.

In summary it has been noted that the area of land in soil classes 2 to 4 inclusive, totals 3,839,858 acres in Nova Scotia. Relating this area to census data (table 7) which indicates 497,521 acres of improved land in farms, it is evident that there remains an area of about 3,342,337 acres suitable for agricultural development.

Future agricultural expansion in Nova Scotia will take place mainly in six counties: Antigonish, Pictou, Colchester, Cumberland, Hants and Kings.

In New Brunswick, soil capability classes have only been calculated for the area from the 46th degree latitude south to the Bay of Fundy. The area includes all of Albert, Kings, St. John and Charlotte counties, the southern half of Queens, Sunbury and York counties, and about one-fifth of Westmorland county that touches the Bay of Fundy. An acreage breakdown for classes 2 to 5 for the above counties is shown in table 5.

In this part of the province there are 533,340 acres of classes 2 and 3 soils that have moderately severe limitations and 1,051,681 acres in class 4 with more severe limitations. Altogether 1,585,021 acres of land are capable of producing agricultural crops as far as topography, climate and soil characteristics are concerned. In addition to these there are 1,138,709 acres in class 5 which are capable of producing perennial forage crops but the topography is such that improvement practices are extremely difficult.

The most productive soils in New Brunswick are in the western part of the province and include Carleton, Madawaska, Victoria and York Counties. This is the main potato producing area of the province. These soils have not yet been classified according to the Canada land-use soils capability classes. However, they are described by D.B. Cann and J.F.G. Millette in an article on Soils of the Appalachian Region that appeared in the Agricultural Institute Review, March-April 1960. They describe the region as the Western Rolling Upland which consists of about 3.5 million acres among which are some of the best soils in Eastern Canada. They estimate that more than 0.5 million acres of the best land remain untouched. In 1961 there were 673 thousand acres in agriculture in this region.

The interior of the province is covered with dense forest and cannot be considered as potential agricultural land mainly because of the rugged terrain, droughtiness and competition from lumbering.

The Eastern part of the province, facing Northumberland Strait, and including Westmorland, Kent, Northumberland and Gloucester counties, embraces a considerable amount of part-time farming. Fishing and lumbering are major sources of income for many farmers. The region is part of the St. Lawrence plain and covers a land area of about seven million acres. About three million acres in the Miramichi watershed have shallow sandy till soils with poor water holding capacity. The remaining four million acres have generally deep, heavy clay loam till. Most of the region is in forest and should remain so mainly because of the problems of land use, which are related to the texture of the

soil, impeded drainage and economic considerations. In 1961 there were 660,186 acres in agriculture in this part of the province, mainly along the coast. The percentage of farm land to the total land area for counties in the area is as follows: Westmorland, 27 per cent, Kent, 16 per cent; Northumberland, 4 per cent; and Gloucester, 10 per cent.

While the information presented above is useful for an understanding of New Brunswick agriculture, it does not permit an estimate of the land area suitable for agricultural purposes. Such an estimate can be obtained by assuming that the area of improved land represents the same proportion of the total area in classes 2 to 4 inclusive as in Nova Scotia: 13.3 per cent[5]. On such a basis, with 734,000 acres of improved land (table 8), the total area of land suitable for agricultural use would be roughly 5,520,000 acres. Deducting the improved land already in farms, the balance of 4,786,000 would represent the area not now in use.

In summary, the total land area in land capability classes 2 to 4 which is considered as suitable for agriculture in the Maritime Provinces is about 10,508,728 acres (table 9). Of this amount 1,811,079 acres was improved land as indicated by the 1961 census. The balance, 8,697,549 acres, represents the area not now in use. By percentages, Prince Edward Island accounts for 6.6 per cent of this area; Nova Scotia, 38.4 per cent, and New Brunswick 55.0 per cent.

For Newfoundland, information on land capability classes is not yet available. However, as indicated earlier in this section, the area of agricultural land presently in use totals 60,000 acres; and there is a potential of probably 100,000 more acres if all areas were fully developed. In addition, about 2,000,000 acres of peat are available for reclamation and agricultural use.

Effect on Management Practices and Types of Farming

The resource base has an important influence on management practices. Climate and soil play a major role in directing the type of farming in any area and hence to a large extent determine the management practices that should be followed by a farmer on a given type of farm.

At this point it would be reasonably correct to say that we can do little about the weather. The precipitation in the Maritimes is heavy, which causes severe leaching and quite often delays seeding and harvesting. These factors must be taken into consideration in the choice of crops to be grown, and management practices must be adjusted accordingly.

Soils in the Maritimes are low in natural fertility and are highly acid. These conditions can be overcome through good management by the application of agricultural lime and a systematic use of fertilizers.

In the Maritime Provinces there are about 25 types of farming. However, the main development in agricultural production has occurred with apples, potatoes, dairy, livestock and forest products.

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[5]Milligan, J.E. Soil Resources of Nova Scotia Agronomy Services, Nova Scotia Department of Agriculture and Marketing, Truro, N.S.

The main commercial apple producing area is in the Annapolis Valley of Nova Scotia where around three million bushels are harvested annually. Dairy cattle, livestock and vegetables are also important in this area.

The commercial potato growing areas are in Prince Edward Island and in Carleton, Victoria, and Madawaska counties in New Brunswick.

The main dairy areas are the St. John - Sussex area in New Brunswick, and the Truro and Sydney areas in Nova Scotia. Dairying, in combination with other livestock enterprises, is the main source of farm income in Westmorland county in New Brunswick and Cumberland, Pictou, Halifax and Hants counties in Nova Scotia. Dairying in combination with potatoes or livestock or both is an important source of farm income in Prince Edward Island.

Forest products provide a major source of income for many farmers, especially part-time farmers and part-time fishermen in Nova Scotia and New Brunswick.

The importance of farm commodities based on farm cash receipts for the five year period 1961-65 is shown in table 10. The various farm enterprises either on an individual basis or in combination require different management practices.

In Prince Edward Island the major commodities in order of importance, based on total farm cash receipts, were potatoes with 35.8 per cent, cattle with 17.9 per cent, dairy products with 17.7 per cent and hogs with 14.1 per cent.

In Nova Scotia the major commodities in order of importance were dairy products with 26.0 per cent, poultry and eggs with 23.6 per cent, cattle with 16.1 per cent and fruit with 8.7 per cent.

In New Brunswick the major commodities in order of importance were potatoes with 29.4 per cent, dairy products with 25.1 per cent, poultry and eggs with 11.7 per cent and cattle with 14.2 per cent.

TABLE 1

Temperature and Precipitation Data for Typical Stations, Atlantic Provinces a

	Temperatures b				Av. Dates of Freezing		Precipitation	
	Mean Jan.	Mean July	Highest on Record	Lowest on Record	Last in Spring	First in Autumn	Total (All) Forms	Snowfall
							in.	in.
Newfoundland								
Belle Isle	11.0	48.6	73	-31	June 19	Sept. 24	33.19	98.8
Gander	18.6	61.6	96	-15	June 1	Oct. 3	39.50	119.2
St. Andrew's	22.9	59.7	81	-11	June 11	Sept. 28	42.47	54.8
St. John's	24.0	60.0	93	-21	June 2	Oct. 10	53.09	114.1
Prince Edward Island								
Charlottetown	18.8	66.6	98	-27	May 16	Oct. 14	43.13	112.7
Nova Scotia								
Annapolis Royal	24.4	65.3	91	-13	May 20	Oct. 6	41.35	68.0
Halifax	24.4	65.0	99	-21	May 13	Oct. 12	54.26	54.1
Sydney	22.7	65.0	98	-25	May 29	Oct. 13	50.61	96.6
Yarmouth	27.0	61.6	86	-12	May 7	Oct. 14	47.08	83.1
New Brunswick								
Chatham	12.7	66.5	102	-43	May 21	Sept. 28	36.71	88.5
Grand Falls	8.7	64.7	98	-46	May 28	Sept. 20	38.42	106.3
Moncton	16.1	65.8	99	-33	June 1	Sept. 14	40.97	108.4
Saint John	19.8	61.8	93	-22	May 4	Oct. 16	47.39	80.0

a Canada Year Book, 1966

b Mean January and July temperature data based on 30-year period from 1921 to 1950.

TABLE 2

Acres of Land Types in Prince Edward Island by Counties a

Series or land type	Textural Class	Province		Prince County		Queens County		Kings County	
		acres	%	acres	%	acres	%	acres	%
Alberry series	fine sandy loam	318,310	23.3	66,435	14.2	129,175	26.5	122,700	29.9
Charlottetown series	" " "	486,070	35.6	152,830	32.6	241,450	49.5	91,800	22.4
Culloden series	" " "	192,965	14.1	12,350	2.6	71,615	14.7	109,000	26.6
Haliburton series	" " "	27,340	2.0	27,340	5.8	-	-	-	-
Pownal series	" " "	4,900	0.3	-	-	4,900	1.0	-	-
Armadale complex	sandy loam-loam	141,760	10.4	57,850	12.3	15,250	3.0	68,660	16.7
O'Leary series	clay loam	62,605	4.6	62,605	13.4	-	-	-	-
Egmont series	" "	59,180	4.4	59,180	12.6	-	-	-	-
Queens series	" "	3,200	0.2	-	-	3,200	0.6	-	-
Dunstaffnage series	sandy loam	33,865	2.5	1,335	0.3	18,300	3.7	14,230	3.4
Kildare series	" "	18,210	1.3	18,210	3.9	-	-	-	-
Peat		9,790	0.7	6,440	1.3	1,400	0.2	1,950	0.5
Salt Marsh		2,775	0.2	1,275	0.3	1,100	0.2	400	0.1
Dune sand		7,020	0.5	3,420	0.7	2,000	0.4	1,600	0.4
	Total	1,367,990		469,260		488,390		410,340	

a Soil Survey of Prince Edward Island, 1965 by G.B. Whiteside.

TABLE 3

Acreages in Various Soil Capability Classes in Prince Edward Island a

Soil classes	Soil series	Acres	Per cent
Class 2	Alberry	270,410	19.7
	Charlottetown	443,370	32.4
		713,780	52.1
Class 3	Haliburton	27,340	2.0
	Pownal	4,900	0.4
	Queens	3,200	0.2
	Kildare	18,210	1.3
	O'Leary	62,605	4.6
		116,255	8.5
Class 3 & Class 4	Alberry	41,400	3.2
	Charlottetown	40,600	2.8
	Culloden	177,655	13.0
		259,655	19.0
Class 4	Egmont	59,180	4.3
Class 4 & Class 5	Dunstaffnage	33,865	2.5
Class 5	Armadale Complex (In part) Also some Alberry Charlottetown, Dunstaffnage & Culloden Included in classes mentioned above.	70,880	5.2
Class 7	Armadale	70,880	5.2
	Alberry	6,500	0.5
	Charlottetown	2,100	0.2
	Culloden	15,310	1.1
	Dune Sand	7,020	0.2
	Salt Marsh	2,775	0.5
		104,585	7.7
Organic soils not classified		9,790	0.7

a Soil Survey of Prince Edward Island by G.B. Whiteside; acreage estimates provided for this study by A. Leahey, Research Coordinator (Pedology), Canada Department of Agriculture, Ottawa.

TABLE 4

Acreages in Various Soil Capability Classes, by Counties, in Nova Scotia a

County	Class 2		Class 3		Class 4		Classes 2 to 4	
	Acreage	Per cent of total	Acreage	Per cent of total	Acreage	Per cent of total	Acreage	Per cent of total
Annapolis	2,096	0.5	63,153	3.1	44,395	3.3	109,644	2.9
Antigonish	6,697	1.5	176,941	8.7	23,754	1.8	207,392	5.4
Cape Breton	20,410	4.6	152,004	7.4	19,489	1.4	191,903	5.0
Colchester	67,874	15.4	104,061	5.1	86,618	6.4	258,553	6.8
Cumberland	94,367	21.4	126,117	6.2	407,661	30.0	628,145	16.4
Digby	2,640	0.6	111,533	5.5	63,222	4.7	177,395	4.6
Guysborough	5,970	1.4	152,099	7.4	11,189	0.8	169,258	4.1
Halifax	6,910	1.6	189,308	9.3	34,942	2.6	231,160	6.0
Hants	103,838	23.5	192,029	9.4	103,679	7.6	399,546	10.4
Inverness	17,473	4.0	215,157	10.5	61,710	4.6	294,340	7.7
Kings	50,814	11.4	101,527	5.0	101,033	7.4	253,374	6.6
Lunenburg	650	0.1	114,227	5.6	100,504	7.4	215,381	5.6
Pictou	51,853	11.7	76,357	3.7	130,633	9.6	258,843	6.8
Queens	30	-	40,703	2.0	59,710	4.4	100,443	2.6
Richmond	5,773	1.3	67,520	3.3	21,167	1.6	94,460	2.5
Shelburne	-	-	9,510	0.5	1,102	0.1	10,612	.3
Victoria	4,304	1.0	61,046	3.0	24,024	1.8	89,374	2.4
Yarmouth	-	-	88,656	4.3	61,379	4.5	150,035	3.9
Total	441,699	100.0	2,041,948	100.0	1,356,211	100.0	3,839,858	100.0

a Information provided by J.E. Milligan, Assistant Director Agronomy Services, Department of Agriculture and Marketing, Truro, N.S., 1966.

TABLE 5

Acreages in Various Soil Capability Classes 2 to 5 for Selected Counties in New Brunswick a

County	Portion of County Classified	Class 2	Class 3	Class 4	Class 5	Total 2 to 5
			- acres -			
Albert	all	2,625	54,194	65,754	111,095	233,668
Kings	all	12,833	97,298	212,149	253,668	575,948
St. John	all	1,534	3,630	57,005	83,018	145,187
Charlotte	all	nil	45,813	149,625	169,625	365,063
Queens	half	11,564	39,660	138,825	127,002	317,051
Sunbury	half	9,239	75,341	91,323	85,994	261,897
York	half	7,145	101,353	267,466	206,005	581,969
Westmorland	one-fifth	1,325	69,786	69,534	102,302	242,947
Total		46,265	487,075	1,051,681	1,138,709	2,723,730

a Compiled by L.E. Philpotts and R. Lafrance, Economics Branch, Canada Department of Agriculture, from the Canada Land Inventory Maps.

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TABLE 6

Trends in Land Use in Prince Edward Island
1931-1961 a

Item	Unit	1931	1941	1951	1961	1961 as a % of 1931
Cropland	ac.	497,114	470,351	426,210	391,112	79
Improved pasture	ac.	242,195	237,062	197,937	167,913	69
Other Improved Land	ac.	26,463	29,987	21,648	20,533	78
Total Improved Land	ac.	765,772	737,400	645,795	579,558	76
Woodland	ac.	339,076	315,780	346,191	296,759	88
Other Unimproved Land	ac.	86,354	115,688	103,318	83,840	97
Total Farm Area	ac.	1,191,202	1,168,868	1,095,304	960,157	81
Total land area in farms	%	85.2	83.6	78.4	68.7	81
Number of farms	no.	12,865	12,230	10,137	7,335	57
Average per farm						
Cropland	ac.	38.6	38.4	42.0	53.3	138
Improved Land	ac.	59.5	60.3	63.7	79.0	133
Total farm area	ac.	92.6	95.6	108.0	130.9	141

a Censuses of Canada, Agriculture by Province, 1961 - Vol. V, Part 1 - Table No. 2.

TABLE 7

Trends in Land Use in Nova Scotia
1931-1961 a

Item	Unit	1931	1941	1951	1961	1961 as a % of 1931
Cropland	ac.	623,714	575,934	477,459	329,114	53
Improved pasture	ac.	168,303	175,236	155,108	127,468	76
Other Improved Land	ac.	52,615	61,233	29,408	40,939	78
Total Improved Land	ac.	844,632	812,403	661,975	497,521	59
Woodland	ac.	2,502,773	2,075,245	1,845,648	1,362,869	54
Other Unimproved land	ac.	954,626	928,998	666,068	370,005	39
Total farm area	ac.	4,302,031	3,816,646	3,173,691	2,230,395	52
Total land area in farms	%	32.4	28.7	23.9	16.8	52
Number of farms	no.	39,444	32,977	23,515	12,518	32
Average per Farm						
Cropland	ac.	15.8	17.5	20.3	26.3	166
Improved Land	ac.	21.4	24.6	28.2	39.7	186
Total farm area	ac.	109.1	115.7	135.0	178.2	163

a Censuses of Canada, Agriculture by Province, 1961 - Vol. V, Part 1 - Table No. 2.

TABLE 8

Trends in Land Use in New Brunswick 1931-1961 a

	Unit	1931	1941	1951	1961	1961 as a % of 1931
Cropland	ac.	968,339	865,914	711,647	482,548	50
Improved Pasture	ac.	292,687	296,776	243,872	200,047	68
Other Improved Land	ac.	69,206	72,741	50,858	51,512	74
Total Improved Land	ac.	1,330,202	1,235,431	1,006,377	734,107	55
Woodland	ac.	2,432,570	2,210,412	2,044,103	1,230,861	50
Other Unimproved land	ac.	388,794	518,266	419,754	234,707	60
Total Farm Area	ac.	4,151,596	3,964,109	3,470,234	2,199,675	53
Total Land Area in Farms	%	23.6	22.5	19.7	12.5	53
No. of Farms	no.	34,025	31,889	26,431	11,786	35
Average per Farm Cropland	ac.	34.0	27.2	26.9	40.9	120
Improved Land	ac.	39.1	38.7	38.1	62.3	159
Total Farm Area	ac.	122.0	124.3	131.3	186.6	153

a Censuses of Canada, Agriculture by Province, 1961 - Vol. V, Part 1, table 2.

TABLE 9

Estimated Area of Land Suitable for Agricultural Use, Maritime Provinces

	Soil Classes 2 to 4		Land in Agricultural Use		Land not in Agriculture Use	
	acres	%	acres	%	acres	%
P.E.I.	1,148,870a	10.9	579,558c	32.0	569,212	6.6
N.S.	3,839,858a	36.6	497,521c	27.5	3,342,337	38.4
N.B.	5,520,000b	52.5	734,000c	40.5	4,786,000	55.0
Total	10,508,728	100.0	1,811,079c	100.0	8,697,549	100.0

a Canada Land Inventory Soil Capability Classes.
b Calculated: See Text.
c Improved Land in Farms, 1961 Census of Canada, Agriculture.

TABLE 10

The Importance of Farm Commodities Based on Farm Cash Receipts, Maritime Provinces, Five-Year Average, 1961-1965 a

Commodity	Prince Edward Island	Nova Scotia	New Brunswick
	- per cent -		
Oats	0.4	0.1	0.7
Potatoes	35.8	2.7	29.4
Fruits	1.3	8.7	3.0
Vegetables	3.1	3.0	1.6
Other Crops	1.6	2.5	2.0
Total Crops	42.2	17.0	36.7
Dairy Products	17.7	26.0	25.1
Poultry & Eggs	5.6	23.6	11.7
Cattle	17.9	16.1	14.2
Hogs	14.1	7.9	6.5
Sheep	0.5	0.8	0.6
Other Livestock	0.8	3.2	0.9
Total Livestock	56.6	77.6	59.0
Forest & Maple products	1.1	5.3	3.8
Deficiency Payment	0.1	0.1	0.5
Total	100.0	100.0	100.0

a Farm Cash Receipts, Cat. No. 21-001, Dominion Bureau of Statistics.

APPENDIX B

TABLE B1

Trends in the Agricultural Labour Force, 15 Years and Over, Canada and the Atlantic Region, 1931-1961 a

Year	Canada	Nfld.	P.E.I.	N.S.	N.B.	Atlantic Region
			- thousands of persons -			
1931	1,128	-	18	44	46	108
1941	1,075	-	17	37	41	95
1951	826	4	13	24	27	66
1961	649	2	9	12	13	36
			- percentage change in agriculture -			
1931-1941	-4	-	-6	-16	-11	-12
1941-1951	-23	-	-24	-35	-34	-29
1951-1961	-21	-50	-31	-50	-52	-46
			- (number in agriculture as percentage of total in all occupations) -			
1931	29	-	56	24	33	31
1941	26	-	55	20	29	26
1951	16	-	38	11	16	13
1961	10	2	26	5	7	6

a 1961 Census of Canada, Labour Force Bull. SL-1, 18-3-1966, table 8.
1951 Census of Canada, Vol. IV, table 2.
NWT not included.

TABLE B2

Regional Trends in the Canadian Agricultural Labour Force, 14 Years and Over, Annual Averages, 1946-1965a

Year	Canada	Atlantic Provinces	Canada	Atlantic Provinces
	- thousands -		- percentage change -	
1946	1,186	93	-	-
1947	1,122	86	-5	-8
1948	1,096	82	-2	-5
1949	1,077	81	-2	-1
1950	1,018	78	-5	-4
1951	939	62	-8	-21
1952	891	58	-5	-6
1953	858	56	-4	-3
1954	878	50	+2	-11
1955	819	49	-7	-2
1956	777	49	-5	-
1957	748	53	-4	+8
1958	718	55	-4	+4
1959	700	56	-3	+2
1960	683	55	-2	-2
1961	681	55	-	-
1962	660	44	-3	-20
1963	649	34	-2	-23
1964	630	38	-3	+12
1965	594	34	-6	-11

a The Labour Force, Dominion Bureau of Statistics, Cat. No. 71-001.

TABLE B3

Labour Force, 15 Years and Over, by Occupation, in Canada and the Atlantic Provinces, 1951-1961a

Occupation		1951		1961	
		Canada	Atlantic Provinces	Canada	Atlantic Provinces
Agriculture	No.	826,093	66,496	648,910	36,042
	%	15.7	12.6	10.0	6.4
Forestry	No.	100,854	28,977	78,874	18,577
	%	1.9	5.5	1.2	3.3
Fishing & Trapping	No.	51,023	35,466	34,267	21,466
	%	1.0	6.7	.5	3.8
Mining	No.	64,669	15,093	64,021	10,504
	%	1.2	2.8	1.0	1.9
Manufacturing	No.	1,301,674	81,076	1,404,624	77,771
	%	24.7	15.3	21.8	13.9
Construction	No.	350,896	35,653	431,093	38,203
	%	6.6	6.7	6.7	6.8
Services & Other	No.	2,581,430	267,047	3,796,367	359,069
	%	48.9	50.4	58.8	63.9
Total Labour Force	No.	5,276,639	529,808	6,458,156	561,632
	%	100.0	100.0	100.0	100.0

a Labour Force Bull. 1961 Census of Canada, SL-1, 18-3-1966, table 8.
1951 Census of Canada, Vol. IV, table 2.

TABLE B4

Number of Farm Operators and Age Distribution, Canada, Atlantic Provinces, 1921-1961a

Year	Canada	Newfoundland	Prince Edward Island	Nova Scotia	New Brunswick
	(thousands of persons)				
1921	684	-	13	46	36
1931	671	-	12	38	33
1941	674	-	11	32	31
1951	621	4	10	23	26
1961	481	2	7	13	12
	(percentage distribution by age group)				
Under 35					
1921	25.7	-	19.8	13.8	19.4
1961	16.8	10.0	14.1	8.7	10.0
35-59					
1921	57.5	-	52.9	55.1	56.1
1961	62.7	65.9	57.6	59.4	62.1
60 & Over					
1921	16.8	-	27.3	31.1	24.5
1961	20.5	24.1	28.3	31.9	27.9

a 1961 Census of Canada, Vol. V - Part 1.

TABLE B5

Farm Cash Receipts from Farming Operations, Prince Edward Island, 1946-1966

Commodity	Five-Year Averages				Individual Years					
	1946 1950	1951 1955	1956 1960	1961 1965	1961	1962	1963	1964	1965	1966
	- thousands of dollars -									
Oats	328	310	172	112	129	116	104	106	106	106
Potatoes	4,742	7,425	9,314	10,357	5,972	6,148	8,015	12,685	18,965	11,978
Fruits	-	146	300	381	401	336	357	393	417	326
Vegetables	366	381	389	885	460	698	1,037	1,141	1,087	1,092
Other crops	534	361	346	478	233	270	352	666	868	667
Total crops	5,969	8,624	10,520	12,212	7,195	7,568	9,865	14,991	21,443	14,169
Cattle & calves	2,745	3,908	4,460	5,183	4,692	5,806	4,588	5,065	5,763	6,959
Hogs	3,812	4,622	3,435	4,063	3,768	3,493	3,587	4,090	5,378	6,725
Sheep & lambs	194	235	180	138	149	146	125	139	130	120
Dairy Products	3,261	4,132	4,771	5,123	4,984	5,079	4,831	5,274	5,447	5,330
Poultry	913	1,161	845	373	519	425	322	294	304	297
Eggs	1,733	1,990	1,503	1,236	1,225	1,191	1,358	1,220	1,187	1,253
Other Livestock & Products	447	310	265	246	258	243	228	249	250	306
Total Livestock & Products	13,104	16,358	15,459	16,361	15,595	16,383	15,039	16,331	18,459	20,990
Forest & maple	101	288	296	304	301	303	304	306	308	311
Dairy suppl.	-	-	-	-	-	-	-	-	323	924
Def. payments	-	-	8	28	20	30	15	26	49	17
Cash from farm op'ns	19,245	25,269	26,284	28,907	23,111	24,784	25,299	31,664	40,629	36,411
Suppl. payments	-	-	-	143	390	-	-	-	-	150
Total cash receipts[a]	19,245	25,269	26,284	29,050	23,501	24,284	25,299	31,664	40,629	36,561

a Farm Cash Receipts, Dominion Bureau of Statistics Cat. No. 21-001. Revised August 1966.

TABLE B6

Farm Cash Receipts from Farming Operations, Nova Scotia, 1946-1966 a

Commodity	Five-Year Averages				Individual Years					
	1946 1950	1951 1955	1956 1960	1961 1965	1961	1962	1963	1964	1965	1966
	- thousands of dollars -									
Oats	65	70	53	43	48	44	39	42	42	39
Potatoes	984	2,180	1,722	1,307	1,137	1,130	1,164	1,480	1,626	1,814
Fruits	3,099	2,113	2,457	4,146	4,098	3,688	4,012	3,909	5,021	4,792
Vegetables	643	1,141	1,414	1,416	1,210	1,172	1,649	1,567	1,484	1,759
Other crops	540	612	777	1,188	909	1,094	1,217	1,337	1,384	1,625
Total crops	5,331	6,116	6,422	8,100	7,402	7,128	8,081	8,335	9,557	10,029
Cattle & calves	5,691	6,652	7,124	7,668	7,542	8,463	7,460	7,432	7,441	7,778
Hogs	2,436	2,791	2,154	3,772	3,112	3,545	3,646	3,722	4,834	5,449
Sheep & lambs	574	509	435	354	360	361	357	326	364	280
Dairy products	9,733	11,784	12,913	12,357	12,763	12,330	11,745	12,337	12,610	13,424
Poultry	1,815	3,729	3,474	4,223	3,726	3,998	4,547	4,259	4,583	5,508
Eggs	3,466	6,369	7,287	7,005	7,506	6,991	7,507	5,945	7,076	8,335
Other Livestock & Products	474	727	854	1,510	1,221	1,359	1,701	1,610	1,659	1,867
Total Livestock & Products	24,189	32,561	34,242	36,889	36,230	37,047	36,963	35,631	38,567	42,641
Forest & maple products	3,933	3,379	2,880	2,521	2,630	2,569	2,526	2,458	2,424	2,474
Dairy Suppl.	-	-	-	-	-	-	-	-	91	385
Def. payments	-	-	27	40	48	48	35	31	37	27
Cash from farm op'ns	33,453	42,056	43,571	47,550	46,310	46,792	47,399	46,735	51,487	55,556
Suppl. payments	-	-	-	18	-	-	-	-	-	-
Total cash receipts	33,453	42,056	43,571	47,568	46,310	46,792	47,399	46,735	51,487	55,556

a Farm Cash Receipts, Dominion Bureau of Statistics Cat. No. 21-001. Revised August 1966.

TABLE B7

Farm Cash Receipts from Farming Operations, New Brunswick, 1946-1966 a

Commodity	Five-Year Averages				Individual Years					
	1946 1950	1951 1955	1956 1960	1961 1965	1961	1962	1963	1964	1965	1966
	- thousands of dollars -									
Oats	515	558	430	337	372	370	337	300	306	302
Potatoes	8,257	7,870	10,538	13,370	7,504	8,321	9,862	15,377	25,788	16,441
Fruits	687	891	1,166	1,381	1,404	1,246	1,425	1,514	1,317	2,007
Vegetables	342	417	531	750	700	634	896	912	607	1,217
Other crops	945	659	800	895	697	605	841	980	1,352	1,069
Total crops	10,746	10,395	13,465	16,733	10,677	11,176	13,361	19,083	29,370	21,036
Cattle & calves	5,373	5,175	5,488	6,469	5,890	6,806	5,690	6,514	7,444	7,931
Hogs	3,604	3,561	2,717	2,943	3,061	2,879	2,803	2,851	3,123	3,445
Sheep & lambs	356	327	353	290	337	316	303	240	256	218
Dairy products	9,415	11,078	11,742	11,439	11,757	11,478	11,075	11,453	11,432	11,454
Poultry	1,387	3,046	2,226	1,707	1,668	1,409	1,584	1,570	2,302	3,161
Eggs	2,131	2,905	3,050	3,605	3,270	3,527	3,895	3,679	3,654	3,943
Other Livestock & Products	648	523	463	415	396	424	413	423	421	497
Total Livestock & Products	22,915	26,615	26,039	26,869	26,379	26,839	25,763	26,730	28,632	30,649
Forest & maple products	5,126	4,869	3,048	1,726	2,089	1,898	1,709	1,533	1,402	1,400
Dairy suppl.	-	-	-	-	-	-	-	-	248	669
Def. payments	-	-	22	234	79	1,000	34	26	30	28
Cash from farm op'ns	38,787	41,879	42,575	45,562	39,224	40,913	40,901	47,458	60,397	53,782
Suppl. payments	-	-	-	50	-	-	-	-	-	691
Total cash receipts	38,787	41,879	42,575	45,612	39,224	40,913	40,901	47,458	60,397	54,473

a Farm Cash Receipts, Dominion Bureau of Statistics, Cat. No. 21-001. Revised August, 1966.

TABLE B8

Production of Livestock and Livestock Products, Prince Edward Island, 1946-1966

		1946 1950	1951 1955	1956 1960	1961 1965	1961	1962	1963	1964	1965	1966
						- thousands -					
Hens & Chickens a	no.	661	599	475	319	329	320	330	319	295	-
Turkeys a	no.	12	14	13	6	10	8	4	6	4	-
Total Poultry a	no.	700	641	505	332	348	335	341	332	305	-
Eggs a	doz.	5,626	5,997	5,249	4,062	4,156	3,975	4,158	4,079	3,944	-
Milk b	lbs.	1,793,370	210,987	227,328	227,197	227,713	230,176	214,150	230,418	233,527	225,014
Hogs c	no.	70	66	56	59	52	49	59	65	72	-
Sheep & Lambs c	no.	20	20	15	10	12	11	10	8	8	-
Wool (Shorn) c	lbs.	131	129	105	69	86	84	66	58	53	-
Cattle c	no.	87	105	110	117	114	113	117	120	121	-
Horses c	no.	23	18	11	6	8	7	6	5	5	-

a Production of Poultry and Eggs, Dominion Bureau of Statistics, Cat. No. 23-202.
b Dairy Statistics, Dominion Bureau of Statistics, Cat. No. 23-201.
c Animal Products Statistics, Dominion Bureau of Statistics, Cat. No. 23-203.

TABLE B9

Production of Livestock and Livestock Products, Nova Scotia, 1946-1966

		1946 1950	1951 1955	1956 1960	1961 1965	1961	1962	1963	1964	1965	1966
						- thousands -					
Hens & Chickens a	no.	1,068	1,418	1,563	1,863	1,755	1,830	1,810	1,800	2,119	-
Turkeys a	no.	23	28	42	45	30	45	42	48	60	-
Total Poultry a	no.	1,099	1,454	1,609	1,910	1,788	1,879	1,854	1,850	2,181	-
Eggs a	doz.	10,696	14,811	18,380	18,453	18,513	17,718	19,305	18,278	18,450	-
Milk b	lbs.	434,214	418,897	417,396	361,160	384,595	378,286	348,086	347,985	346,848	345,964
Hogs c	no.	54	47	43	57	52	53	55	64	62	-
Sheep & Lambs c	no.	66	63	45	29	35	33	29	26	24	-
Wool (Shorn) c	lbs.	367	313	254	172	217	189	162	150	143	-
Cattle c	no.	169	176	159	153	158	155	153	152	145	-
Horses c	no.	30	22	13	7	9	8	7	7	6	-

a Production of Poultry and Eggs, Dominion Bureau of Statistics, Cat. No. 23-202.
b Dairy Statistics, Dominion Bureau of Statistics, Cat. No. 23-201.
c Animal Products Statistics, Dominion Bureau of Statistics, Cat. No. 23-203.

TABLE B10

Production of Livestock and Livestock Products, New Brunswick, 1946-1966

		1946 1950	1951 1955	1956 1960	1961 1965	1961	1962	1963	1964	1965	1966
						- thousands -					
Hens & Chickens a	no.	866	751	745	856	780	787	875	865	975	-
Turkeys a	no.	25	43	42	23	40	26	14	25	12	-
Total Poultry a	no.	902	802	792	882	823	816	891	892	989	-
Eggs a	doz.	7,492	7,491	7,838	9,145	8,373	9,154	9,294	9,713	9,189	-
Milk b	lbs.	456,454	454,565	437,924	376,012	408,440	391,402	367,200	363,512	349,504	331,730
Hogs c	no.	81	70	54	44	47	46	45	45	39	-
Sheep & Lambs c	no.	39	37	37	22	28	26	20	18	16	-
Wool (Shorn) c	lbs.	230	200	215	143	188	169	138	112	106	-
Cattle c	no.	157	160	154	137	144	139	138	139	127	-
Horses c	no.	37	25	14	7	9	8	7	7	6	-

a Production of Poultry and Eggs, Dominion Bureau of Statistics, Cat. No. 23-202.
b Dairy Statistics, Dominion Bureau of Statistics, Cat. No. 23-201.
c Animal Products Statistics, Dominion Bureau of Statistics, Cat. No. 23-203.

TABLE B11

Trends in Land Use in Newfoundland, 1951-1961 a

Item	1951	1961
Cropland	20,271	12,919
Improved Pastures	5,885	5,097
Other Improved Land	2,825	3,439
Total Land Improved	28,981	20,455
Woodland	37,394	19,802
Other Unimproved Land	18,665	14,304
Total Farm Area	85,040	54,561
No. of Farms	3,626	1,752
Average per Farm		
Cropland	5.6	7.4
Improved Land	8.0	11.7
Woodland	10.3	11.3
Total Area	23.4	31.1

a Source: Census of Canada - Agriculture - 1961, Vol. 5, Part I - table no. 2

TABLE B12

Trends in Land Use in Prince Edward Island, 1931-61 a

Item	Unit	1931	1941	1951	1961	1961 as a percent of 1931
Cropland	ac.	497,114	470,351	426,210	391,112	79
Improved pasture	ac.	242,195	237,062	197,937	167,913	69
Other improved land	ac.	26,463	29,987	21,648	20,533	78
Total land improved	ac.	765,772	737,400	645,795	579,558	76
Woodland	ac.	339,076	315,780	346,191	296,759	88
Other unimproved land	ac.	86,354	115,688	103,318	83,840	97
Total farm area	ac.	1,191,202	1,168,868	1,095,304	960,157	81
No. of farms	no.	12,865	12,230	10,137	7,335	57.0
Average per farm						
Cropland	ac.	38.6	38.4	42.0	53.5	138
Improved land	ac.	59.5	60.3	63.7	79.0	133
Total farm area	ac.	92.6	95.6	108.0	130.9	141

a Source: Census of Canada, Agriculture by Provinces, 1961 - Vol. V - Part 2, table no. 2.

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TABLE B13

Trends in Land Use in Nova Scotia, 1931-1961 a

Item	Unit	1931	1941	1951	1961	1961 as a percent of 1931
Cropland	ac.	623,714	575,934	477,459	329,114	53
Improved pasture	ac.	168,303	175,236	155,108	127,468	76
Other improved land	ac.	52,615	61,233	29,408	40,939	78
Total improved land	ac.	844,632	812,403	661,975	497,521	59
Woodland	ac.	2,502,773	2,075,245	1,845,648	1,362,869	54
Other unimproved land	ac.	954,626	928,998	666,068	370,005	39
Total farm area	ac.	4,302,031	3,816,646	3,173,691	2,230,395	52
No. of farms	no.	39,444	32,977	23,513	12,518	32
Average per farm						
Cropland	ac.	15.8	17.5	20.3	26.3	166
Improved land	ac.	21.4	24.6	28.2	39.7	186
Total farm area	ac.	109.1	115.7	135.0	178.2	163

a Source: Censuses of Canada, Agriculture by Province, 1961 - Vol. V - Part 1, table no. 2.

TABLE B14

Trends in Land Use in New Brunswick, 1931-1961 a

Item	Unit	1931	1941	1951	1961	1961 as a % of 1931
Cropland	ac.	968,339	865,914	711,647	482,548	50
Improved pasture	ac.	292,687	296,776	243,872	200,047	68
Other improved land	ac.	69,206	72,741	50,858	51,512	74
Total improved land	ac.	1,330,232	1,235,431	1,006,377	734,107	55
Woodland	ac.	2,432,570	2,210,412	2,044,103	1,230,861	51
Other unimproved land	ac.	388,794	518,266	419,754	234,707	60
Total farm area	ac.	4,151,596	3,964,109	3,470,234	2,199,675	53
No. of farms	no.	34,025	31,889	26,431	11,786	35
Average per farm						
Cropland	ac.	28.4	27.2	26.9	40.9	144
Improved land	ac.	39.1	38.7	38.1	62.3	159
Total farm area	ac.	121.7	124.3	131.3	186.6	153

a Source: Census of Canada, Agriculture by Province, 1961 - Vol. V - Part 1, table no. 2.

TABLE B15

Trends in Crop Acreage in Newfoundland, 1951-1961 a

Crop	1951	1961
	- acres -	
Grains	143	123
Hay	15,378	9,208
Root Crops	863	742
Potatoes	2,505	1,975
Other Field Crops	-	-
Green Peas	-	-
Other Vegetables	851	560
Tree Fruits	12	10
Small Fruits	10	39
Other Crops	509	262
Total Crops	20,271	12,919

a Source: Census of Canada - Agriculture by Province,
1961 - Vol. V - Part I - tables 4, 5, 16, 17.
1951 - Vol. VI - Part I, tables 17, 20.

TABLE B16

Trends in Crop Acreage in Prince Edward Island, 1931-1961 a

Crop	1931	1941	1951	1961	1961 as a % of 1931
		- acres -			
Grains	195,605	186,584	181,629	155,507	80
Hay	235,022	228,220	203,783	178,555	76
Root Crops	8,231	10,868	7,549	3,527	43
Potatoes	53,815	40,330	29,607	46,173	86
Other field crops	1,982	1,652	1,747	4,390	221
Green peas	-	1	5	403	-
Other vegetables	69	75	421	771	1,117
Tree fruits	2,272	184	303	187	8
Small fruits	73	79	307	1,469	2,012
Other crops	45	2,358	859	130	289
All crops	497,114	470,351	426,210	391,112	79

a Source: Censuses of Canada, Agriculture by Province,
1961 - Vol. V - Part I, tables no. 4, 5, 16, 17.
1951 - Vol. VI - Part I, tables no. 17, 20.
1941 - Vol. VIII - Part I, tables no. 31, 49.
1931 - Vol. VIII - tables no. 24, 19.

TABLE B17

Trends in Crop Acreage in Nova Scotia, 1931-1961 a

Crop	1931	1941	1951	1961	1961 as a % of 1931
		- acres -			
Grains	104,512	90,466	77,499	49,421	47
Hay	420,816	401,096	344,629	233,884	56
Root crops	8,481	8,605	4,336	2,309	27
Potatoes	22,664	18,590	11,331	8,138	36
Other field crops	18,012	9,534	11,320	10,465	58
Green peas	42	354	801	921	2,193
Other vegetables	1,023	1,639	2,058	2,579	252
Tree fruits	46,937	37,812	21,048	13,156	28
Small fruits	941	951	1,343	7,965	846
Other crops	286	6,887	3,094	276	96
All crops	623,714	575,934	477,459	329,114	53

a Source: Censuses of Canada, Agriculture by Province,
1961 - Vol. V - Part 1 - tables no. 4, 5, 16, 17.
1951 - Vol. VI - Part 1 - tables no. 17, 20.
1941 - Vol. VIII - Part 1 - tables no. 31, 49.
1931 - Vol. VIII - tables no. 24, 19.

TABLE B18

Trends in Crop Acreage in New Brunswick, 1931-1961 a

Crop	1931	1941	1951	1961	1961 as a percent of 1931
		- acres -			
Grains	280,662	231,451	206,718	119,881	43
Hay	593,247	562,088	441,329	287,070	48
Root crops	9,111	9,991	4,120	1,831	20
Potatoes	60,260	44,092	38,123	54,165	90
Other field crops	14,690	7,361	11,091	9,804	67
Green peas	27	48	78	2,211	8,189
Other vegetables	590	940	1,187	1,232	209
Tree fuits	8,670	2,423	3,149	2,376	27
Small fruits	824	631	1,231	3,695	45
Other crops	258	6,889	4,621	283	110
All crops	968,339	865,914	711,647	482,548	50

a Source: Census of Canada, Agriculture by Provinces,
1961 - Vol. V - Part 1 - tables no. 4, 5, 16, 17.
1951 - Vol. VI - Part 1 - tables no. 17, 20.
1941 - Vol. VIII - Part 1 - tables no. 31, 49.
1931 - Vol. VIII - tables no. 24, 19.

TABLE B19

Potato Acreage, Production and Value for Selected Years in Prince Edward Island - 1931-1965 b

Years	Area	Production	Value of Production
	acres	000 cwt.	000 dollars
1931	53,815	4,884	1,221
1941	40,330	3,223	4,083
1951	29,607	3,552	12,610
1961	46,173	7,623	6,937
5 year average			
1951-55	38,000	5,984	10,715
1956-60	44,400	7,555	12,013
1961-65	42,400	7,745	13,584 a

a 4 year average

b Source: Censuses of Canada - Agriculture by Provinces, 1961 - Vol. V - Part 1, table no. 4. Crop and Seasonal Price Summaries, 1951-65 - Part 1 - Part II. Canada Department of Agriculture.

TABLE B20

Potato Acreage, Production and Value for Selected Years in Nova Scotia, 1931-1965 b

Years	Area	Production	Value of Production
	acres	000 cwt.	000 dollars
1931	22,664	1,946	973
1941	18,540	1,897	2,498
1951	11,131	1,220	4,576
1961	8,138	1,053	1,727
5 year average			
1951-55	11,800	1,545	3,847
1956-60	9,300	1,284	2,736
1961-65	7,100	962	2,035 a

a 4 year average 1961-64

b Source: Census of Canada - Agriculture by Provinces - 1961 - Vol. V - Part 1, table no. 4. Crop and Seasonal Price Summaries, 1951-65 - Part 1 - Part II. Canada Department of Agriculture.

TABLE B21

Potato Acreage, Production and Value of Selected Years in New Brunswick, 1931-1965 b

Years	Area	Production	Value of Production
	acres	000 cwt.	000 dollars
1931	60,260	6,341	1,585
1941	44,092	5,292	7,321
1951	38,123	5,715	19,050
1961	54,165	10,162	9,044
5 year average			
1951-55	44,400	7,216	12,386
1956-60	46,600	8,540	12,999
1961-65	53,600	10,680	17,664 a

a 4 year average 1961-64

b Source: Censuses of Canada - Agriculture by Provinces - 1961 - Vol. V - Part 1, table no. 4. Crop and Seasonal Price Summaries, 1951-65 - Part 1 - Part II. Canada Department of Agriculture.

TABLE B22

Value of Agricultural Products Sold, Newfoundland, 1951-1961 a

Item	1951	1961
	- dollars -	
Cattle	511,761	489,100
Pigs	88,343	107,810
Sheep and wool	83,975 b	67,510
Horses	-	5,700
Poultry and eggs	299,428	1,409,510
Dairy products	951,694	951,830
Fur bearing animals	48,260	394,140
Total livestock and livestock products	1,983,461	3,425,600
Other Agricultural products	932,882	1,172,880
Total sales	2,916,343	4,598,480

a Census of Canada, Agriculture, 1951 - Vol. VI - Part 1 - table 28. 1961 - Vol. V - Part 1 - table 20.

b Horses included.

TABLE B23

Livestock Numbers on Farms in Prince Edward Island, 1931-1966

Item	1931 a	1941 a	1951 a	1961 a	1966 b
			- numbers -		
All cattle	100,487	94,377	97,924	121,059	123,000
Dairy cows	44,580	46,404	38,909	39,589	37,000
Pigs	40,586	48,205	46,676	54,873	73,000
Sheep	78,478	44,269	34,386	23,926	15,000
Hens & Chickens	873,949	807,352	978,019	509,277	355,000
Turkeys	10,917	14,683	16,003	11,541	5,000
Horses	29,956	28,045	21,349	7,867	4,300

a Censuses of Canada, Agriculture, 1931-1961.
b Dominion Bureau of Statistics, Agriculture Division.

TABLE B24

Livestock Numbers on Farms in Nova Scotia, 1931-1966

Item	1931 a	1941 a	1951 a	1961 a	1966 b
			- numbers -		
Cattle	221,001	204,894	166,202	163,690	146,000
Dairy cows	108,145	108,130	78,970	64,047	54,000
Pigs	43,865	44,303	48,216	46,856	68,000
Sheep	196,344	138,209	95,396	64,654	40,000
Hens & Chickens	1,244,718	1,113,218	1,630,305	2,184,995	2,478,000
Turkeys	11,182	14,504	30,714	44,439	38,000
Horses	43,074	36,172	25,975	8,917	5,600

a Censuses of Canada, Agriculture, 1931-1961.
b Dominion Bureau of Statistics, Agriculture Division

TABLE B25

Livestock Numbers on Farms in New Brunswick, 1931-1966

Item	1931 a	1941 a	1951 a	1961 a	1966 a
		- numbers -			
Cattle	213,450	206,993	161,897	160,159	135,000
Dairy cows	100,481	114,764	82,362	67,306	51,000
Pigs	85,012	68,018	78,393	47,126	38,000
Sheep	143,677	92,556	55,223	53,896	29,000
Hens & Chickens	1,281,671	1,101,921	1,230,565	1,039,718	1,200,000
Turkeys	34,322	33,370	41,532	38,832	58,000
Horses	51,157	45,164	31,019	9,317	5,600

a Census of Canada, Agriculture, 1931-61
b Dominion Bureau of Statistics, Agriculture Division.

TABLE B26

Livestock Numbers on Farms in Newfoundland, 1951-1961 a

Item	1951	1961
	- number -	
All cattle	7,944	7,320
Dairy cows	4,062	2,760
Pigs	1,712	1,554
Sheep	17,519	15,320
Hens & Chickens	73,714	227,929
Turkeys	1,553	2,468
Horses	2,874	1,152

a Census of Canada, Agriculture, Dominion Bureau of Statistics.