DOMINION OF CANADA
DEPARTMENT OF AGRICULTURE
DOMINION EXPERIMENTAL FARMS

EXPERIMENTAL STATION

SWIFT CURRENT, SASK.

REPORT OF THE SUPERINTENDENT

J. G. TAGGART, B.S.A.

FOR THE YEAR 1927

Fourteen-foot seed drill drawn by six horses. Drills 35 to 40 acres per day.

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TABLE OF CONTENTS

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NOTES ON THE SEASON

The spring of 1927 opened somewhat later than usual. Disking was started on April 26 and ploughing on April 28. From the latter date until May 10 frequent showers prevented any work on the land except ploughing. From May 10 until May 17 the weather was fine and a considerable amount of seeding was done. From May 17 until the end of the month some rain fell every day with heavy rains on some days. This protracted period of wet weather seriously delayed seeding operations with a result that a considerable part of the wheat and practically all the oats, barley and flax were seeded in June. While the May rainfall of 5·5 inches constituted a record amount for that month, the June rainfall was low and July about normal. During these months, however, all crops made very rapid progress and gave every indication of being able to overcome the handicap of a late start, but on the 8th of August there was a sharp drop in the temperature resulting in serious frost damage to grain crops over a wide area in central and southern Saskatchewan. Following the frost, temperatures were fairly high, and frequent showers occurred. These weather conditions promoted the spread of stem rust which in many localities did more serious damage than had been done by frost.

Harvesting was late; straw was heavy; the crops were generally expensive to handle, while yields and grades of wheat were much lower than had been expected from the appearance of the crop in July.

Frequent rains delayed both harvesting and threshing. Much wheat was graded tough, as a result of the practical impossibility of getting the wheat dry in the stook. When the first heavy snowfall came on November 6, about 20 per cent of the threshing in southwestern Saskatchewan remained to be done. Some threshing was done after the first snowstorm, but due to continued cold weather and a constantly increasing depth of snow, all attempts to finish threshing were abandoned.

Some favourable aspects of the season were that with abundant early rains, hay crops and pasture were exceptionally good. The greater part of the oat crop escaped serious damage, consequently there is an abundance of both grain and fodder for the feeding of work horses as well as other live stock.

DATES OF FARM OPERATIONS, 1927

—	Began	Finished
Work on land (first and last dates)	April 26	Nov. 4
Seeding wheat	May 10	June 8
Seeding oats	June 4	June 15
Seeding sunflowers	June 10	June 10
Seeding corn	June 11	June 13
Seeding fall rye	Aug. 25	Aug. 27
Spring ploughing	April 28	June 6
Ploughing summer-fallow	June 13	July 9
Cutting hay	June 17	July 28
Cutting fall rye	Aug. 2	Aug. 6
Cutting wheat	Aug. 29	Sept. 17
Cutting oats	Sept. 5	Sept. 19
Cutting corn	Aug. 10	Aug. 11
Cutting sunflowers	Sept. 26	Sept. 26
Operating Combine	Sept. 27	Nov. 4
Threshing	Aug. 19	Oct. 15
Fall ploughing	Oct. 3	Oct. 8

METEOROLOGICAL RECORD FOR SWIFT CURRENT, SASK., 1927

Month	Temperature			Precipitation	Evaporation	Sunshine	Wind
	High	Low	Mean	10 inches snow = 1 inch rain			Total miles
	°F	°F	°F	inches	inches	hours	
January	46	−33	8·5	0·13	.....	92·7	.....
February	42	−43	9·7	1·05	.....	124·3	.....
March	54	−13	26·2	1·39	.....	186·3	.....
April	75	8	38·6	1·19	.....	187·0	.....
May	78	26	45·6	5·50	2·37	109·5	4,947
June	89	33	58·6	1·20	5·61	233·6	4,541
July	88	37	63·3	2·83	6·11	300·9	4,204
August	88	29	60·0	2·82	4·82	266·2	3,342
September	90	22	51·2	1·61	4·82	171·1	5,644
October	80	17	45·0	1·21	1·82	135·7	5,126
November	50	−18	14·0	0·72	.....	57·5	.....
December	39	−36	−2·7	0·36	.....	67·1	.....
Totals	.....	.....	.....	20·01	25·55	1,931·9	27,804

ANIMAL HUSBANDRY

No new projects have been established in the Animal Husbandry Division. Breeding herds have been maintained and improved. Some breeding stock has been sold to farmers, but no experimental work with live stock has been undertaken.

HORSES

The efficiency of work-horses has been maintained by the purchase of two young horses to take the places of old animals. The work-horses now number 18, of which 16 are fit for regular work, while two old mares are able to do only light work. There have been no losses and no sickness of any consequence among the horses during the past year.

On account of very poor crops of both hay and feed grains in 1926 it was found difficult this year to keep the horses in good condition during the summer. In the 1927 season, however, excellent crops of both hay and oats were produced and there is an abundance of feed for next year's work.

On account of the heavy snowfall and extremely cold weather in November and December it was impossible to allow the horses to pasture in the stubble fields, as is usually done. This winter the horses are being stabled at night and turned out during the day. The only rough feed used is oat straw; a light ration of crushed oats and barley is also being fed.

CATTLE

Holsteins.—The Holstein herd now numbers eleven, consisting of six cows, four heifers and one bull. During the year two bull calves and two heifer calves have been sold to farmers to improve their breeding herds. One grade cow was also sold.

The following table presents in summary form information on feed costs and return values for milk produced by the Holstein herd:—

DAIRY CATTLE—PRODUCTION AND FEED RECORD

Cow	Number of lactation period	Days in milk	Milk produced	Cost of feed and pasture	Value of milk	Profit over feed
			lb.	$ cts.	$ cts.	$ cts.
Lyons Segis Butter Girl (68058)	4th	347	13,059·4	110 53	195 90	85 37
Diamond A 2 (Grade)	6th	271	8,244·5	69 06	123 66	54 60
*Biddy "E" (Grade)	2nd	230	7,971·0	68 93	119 56	50 63
*Biddy "F" (Grade)	1st	273	7,617·2	76 27	114 27	38 00
Biddy "C" (Grade)	5th	228	7,353·4	72 97	110 31	37 34
Korndyke Francy May (115102)	1st	242	5,170·5	66 45	77 55	11 10
Korndyke Francy Bos (132258)	1st	260	4,922·0	64 82	73 83	9 01
Averages		265	7,762·6	75 58	116 44	40 86

*Lactation period not yet completed.

In the above computations the following values have been used: Meal (consisting of oats, barley, rye, feed wheat, bran and oil cake), $1.75 per hundred pounds; hay, $15 per ton; ensilage, $3.50 per ton; pasture, $10 per season. No allowance is made for labour, housing, bull service, or depreciation on animals. These items are variable depending upon the cost of the building, the number and value of cows and several other factors. Where a farmer is engaged in the dairy business with the buildings and equipment usually considered necessary for a well-organized dairy enterprise, the cost of these items might amount to anywhere from $20 to $50 per cow per year. When the dairy enterprise is carried as a small side-line with a very small investment in buildings, when production is obtained mostly from pasture and rough feed, and when the work is done as part of the farm chores, then all cost items are low and any revenue obtained from the cows is largely profit.

Shorthorn Herd.—The Shorthorn herd is maintained chiefly for two purposes, namely, to supply breeding stock to farmers, and to obtain information on the cost of keeping beef cattle under farm conditions.

During the year two bulls have been sold to farmers to be added to their herds and five animals were sold for beef.

As to the cost of maintaining this herd, our records demonstrate that when beef cattle are kept on arable land under conditions similar to those usually recommended for dairy cattle, the cost is much higher than any possible revenue produced. If, however, pure-bred cattle can be sold at much higher prices than commercial stock, then this method of producing them may be justified. Commercial beef cattle must be produced on cheap grazing land and when feeding is necessary, it must be done with cheap feed and at a low labour cost.

On account of a shortage of feed, no steer feeding was done in the winter of 1927.

SWINE

No important development has taken place in the herd of Tamworth swine. The herd consists of from four to six breeding sows and one boar. A ready sale has been found for all surplus breeding stock of good type. All off-type or poorly-developed individuals have been sold for pork.

During the year two young sows and six young boars have been sold for breeding purposes. The sows were bred before being sold. This has proven a very cheap and satisfactory way for a farmer to quickly establish a small herd of pure-bred swine.

At present the Station herd consists of three sows, one boar and ten young pigs.

FIELD HUSBANDRY

The two factors which exerted the greatest influence on the results of the Field Husbandry work this year were the heavy rainfall of May and the severe frost on August 8. As a consequence of the May rains, the hay crops were exceptionally good. The frost damage was confined largely to the wheat crop. Moreover, the incidence of the frost was so variable from field to field, that in many cases the yield data are valueless for purposes of comparing one treatment with another.

SEVEN-YEAR ROTATION—9-ACRE FIELDS

Summary of yields, Value and Profit and Loss, per acre

Rotation year	Crop	Yield per acre		Value of crop	Cost of production	Profit or loss per acre	
		1927	Average five years			1927	Average five years
		bush.	tons	$ cts.	$ cts.	$ cts.	$ cts.
1	Corn	.....	4·04	.....	9 39	−9 39	2 55
			bush.				
2	Wheat (grass seeded)	21·6	22·96	23 76	11 37	12 39	15 33
		tons	tons				
3	Hay	1·2	1·17	12 00	8 10	3 90	3 43
4	Hay (replaced by fall rye)	1·4	0·68	8 40	6 90	1 50	1 97
4a	Fallow (following rye)	.....	.....	.....	.....	.....	.....
		bush.	bush.				
5	Wheat	22·3	21·95	24 53	17 21	7 32	11 03
6	Fallow	.....	.....	.....	.....	.....	.....
7	Fall rye	34·0	27·69	27 20	18 95	8 25	4 79
	Totals for rotation	.....	.....	95 89	71 92	23 97	39 10
	Average per acre	.....	.....	13 70	10 27	3 43	5 58

The corn in this rotation was entirely destroyed by frost on August 8. Owing to the abnormal rains in the early spring, the hay made a good growth. Fall rye was an excellent crop. The wheat fields, which were seeded late, were damaged by rust. The comparative elevation of the fields enabled the wheat to partly escape the frost with little damage.

The five-year average yield of wheat after corn in this rotation is 22·96 bushels, while the average yield after fallow is 21·95. It should be noted that the "fallow" in this rotation does not cover an entire season. A cutting of hay is first taken from the field. As soon as the hay can be removed the land is ploughed and worked down. It is usually as late as the middle of July before the ploughing can be done which means that this field is, in the matter of moisture supply, very little better than fall ploughing.

THREE-YEAR ROTATION—FALLOW: WHEAT: WHEAT

Summary of Yields, Value and Profit and Loss, per acre

Rotation Year	Crop	Yield par acre		Value of Crop 1927	Cost of Production 1927	Profit or loss per acre	
		1927	Average four years			1927	Average four years
		bush.	bush.	$ cts.	$ cts.	$ cts.	$ cts.
1	Fallow	.....	.....	.....	.....	.....	.....
2	Wheat	21·54	24·68	23 69	14 75	8 94	15 73
3	Wheat	12·58	15·53	13 84	13 32	0 52	7 10
	Totals for rotation	.....	.....	37 53	28 07	9 46	22 83
	Average per acre	.....	.....	12 51	9 36	3 15	7 61

This is the standard rotation in this district, although the two-year rotation of wheat and summer-fallow has been substituted in some cases. The comparatively low yield of wheat following wheat was due largely to frost damage.

TWO-YEAR ROTATION—FALLOW: WHEAT

Summary of yields, Value and Profit and Loss, per acre

Rotation Year	Crop	Yield per acre		Value of Crop 1927	Cost of Production 1927	Profit or loss per acre	
		1927	Average five years			1927	Average five years
		bush.	bush.	$ cts.	$ cts.	$ cts.	$ cts.
1	Fallow						
2	Wheat	21·0	20·68	23 10	18 33	4 77	10 67
	Totals for rotation			23 10	18 33	4 77	10 67
	Average per acre			11 55	9 16	2 38	5 33

The above crop was damaged by both frost and rust. The wheat graded No. 3 Northern.

SUMMER-FALLOW TREATMENTS FOR WHEAT PRODUCTION

Field	Crop	Fallow Treatment	Yield per acre	
			1927	Average four years
			bush.	bush.
1	Wheat	Fall ploughed, cultivated during fallow year	20·00	20·00
2	"	Fall disked, cultivated during fallow year	22·22	23·24
3	"	Cultivated only during fallow year	23·70	23·10
4	"	Cultivated till July 15, ploughed	18·12	23·15
5	"	Ploughed June 15, cultivated	24·00	23·81
6	"	Sweet clover ploughed June 15, cultivated	20·00	22·84

All treatments were damaged by rust. The four-year average yield of fall-ploughed summer-fallow is lower than that of any other fallow treatment.

SUMMER-FALLOW TREATMENTS FOR WHEAT PRODUCTION

No.	Treatment	Yield per acre	
		1927	Average Three-year
		bush.	bush.
1	Fall ploughed, cultivated in fallow year	43·67	28·22
2	Fall disked, cultivated in fallow year	43·60	28·46
3	Cultivated as required to July 15; ploughed and left untilled	42·15	27·85
4	Ploughed June 10, 6 inches, cultivated as required	42·70	27·96
5	Cultivated only during fallow year	43·74	28·78
6	Sweet clover ploughed under June 10; treated as No. 4	42·84	28·94
7	Spring burned, disked, ploughed June 10, cultivated as required	38·88	29·16
8	Disked early, ploughed June 10, cultivated as required	42·07	29·29
9	Ploughed June 10, 4 inches, cultivated as required	40·90	29·16
10	Ploughed June 10, 8 inches, cultivated as required	41·39	29·59
11	Ploughed June 10, 6 inches, subsoiled 4 inches, cultivated as required	40·41	28·53
12	Ploughed May 15, cultivated as required	39·30	28·43
13	Cultivated only, both stubble and fallow crops	38·81	26·67

While the average yields indicate only slight differences in the values of the different fallow treatments, some differences in the effectiveness of the method in controlling weeds should be noted. On all plots which receive work of any kind in the fall or early spring weed control is less difficult, and if ploughing is to be done it can be done later in the summer with the same effect on weeds. Plots which are not ploughed must be watched carefully to see that weeds do not get much of a start prior to cultivation. If weeds are permitted to reach a height of six inches or more, it is very hard to clean them out with the cultivator or disk. Any method of summer-fallowing which keeps weeds in check is satisfactory, provided it is not too expensive and does not increase other troubles such as soil drifting or insect or disease damage. As a general rule no great saving in labour is effected by elimination of ploughing. Other work must be increased in order to achieve the same result as if ploughing is done.

The method which so far seems most satisfactory is early working with disk or cultivator followed by later ploughing.

YIELDS OF WHEAT FOLLOWING DIFFERENT STUBBLE TREATMENTS

Field	Crop	Stubble Treatment	Yield per acre	
			1927	Average five years
			bush.	bush.
1	Wheat	Fall ploughed, spring-harrowed; seeded; harrowed	21·6	19·1
2	"	Fall disked, spring-ploughed, harrowed, seeded, harrowed	23·6	20·6
3	"	Spring-ploughed, harrowed, seeded, harrowed	24·3	21·3
4	"	(Previous crop cut by Combine) spring-burned, seeded	25·5	19·5
5	"	(Previous crop cut by Combine) spring-burned, disked, seeded	23·5	20·1
6	"	Spring-burned, disked, seeded, harrowed	19·6	19·6
7	"	Spring-burned, ploughed, harrowed, seeded, harrowed	20·0	21·3
8	"	Spring-disked, seeded, harrowed	17·3	17·3

This work is conducted on field areas. Results while not exactly the same harmonize in general with results of plot work. Weed control appears to be the factor of chief importance in preparing land for a second crop of wheat.

STUBBLE TREATMENTS FOR WHEAT PRODUCTION

No.	Plot treatment	Yield per acre	
		Year 1927	Four-year average
		bush.	bush.
1	Fall ploughed, spring harrowed, seeded, harrowed	31·52	23·62
2	Fall disked, spring ploughed, harrowed, seeded, harrowed	33·93	24·33
3	Spring ploughed 4", harrowed, seeded, harrowed	34·29	23·88
4	Spring burned, disked, seeded, harrowed	31·73	23·92
5	Spring burned, spring ploughed 4", harrowed, seeded, harrowed	35·83	23·37
6	Spring disked, seeded, harrowed	33·95	23·31
7	Spring burned, seeded, harrowed	35·34	22·53
8	Sown in stubble, harrowed	22·50	16·55
9	Spring burned, ploughed 7", harrowed	37·21	24·13
10	Spring burned, ploughed 4", subsoiled 6", harrowed, seeded, harrowed	34·29	24·64
11	Fall burned, spring ploughed 4", harrowed, seeded, harrowed	39·23	25·79
12	Fall burned, spring disked, seeded, harrowed	41·73	26·50
13	Spring burned, cultivated, harrowed, seeded, harrowed	31·45	22·72

This year again the only method of seeding the second crop of wheat which is markedly inferior is that in which the land is not worked in any way prior to seeding and no burning is done. Plot 7 which was burned and seeded has produced a yield which is fairly comparable with plots receiving very much more work. It should be noted that in burning the stubble off this plot a thin

layer of straw is first spread all over it, in order to insure complete destruction of stubble and weeds. This is a more efficient burn than can usually be obtained on field areas. However, when trash is burned off with harrows and the land disked or cultivated after weeds have germinated, the effect seems to be equal to other more elaborate treatments. Weed control is the all-important factor, and since different weeds require different methods of control, the preparation of land for a second crop must be determined largely by the nature of the weeds present.

YIELDS OF WHEAT ON PACKED AND UNPACKED LAND

Field	Crop	Treatment	Yield per acre	
			1927	Average five years
1	Wheat....	Fallow ploughed, cultipacked, cult. twice, seeded, packed.....	33·0	29·1
2	"	Fallow ploughed, no packing, cult. twice, seeded, harrowed.....	32·5	28·0
3	"	Fallow ploughed, surface packed, cult. twice, seeded, packed....	26·0	26·1
1	"	Spring-ploughed, cultipacked, seeded, packed.....	29·0	22·2
2	"	Spring-ploughed, no packing, harrowed, seeded, harrowed.....	27·5	20·1
3	"	Spring-ploughed, surface packed, seeded, packed.....	27·5	20·4

The figures seem to indicate an improved yield as a result of using the cultipacker. However, the difference is small and observation of the fields would suggest that the difference is due to location rather than treatment of the soil.

SUMMER-FALLOW SUBSTITUTES

Fallow substitutes	1927 Yield per acre			Six-year average yield per acre		
	Grain	Fodder Green weight	Fodder dry weight	Grain	Fodder Green weight	Fodder dry weight
	bush.	ton	ton	bush	ton	ton
Potatoes—Rows 42 inches by 18 inches.....	61·4	.....	.....	142·1		
Hungarian millet—Double rows.....	.....	Failed		.....	*	*
Sunflowers-Hills 42 inches by 42 inches.....	.....	10·43	2·29	.....	11·62	1·94
Corn—Hills 42 inches by 42 inches.....	.....	2·04	·53	.....	6·91	1·37
Oats—Triple rows.....	66·48	.....	.....	45·08	.....	.....
Oats—Double rows.....	57·41	.....	.....	39·56	.....	.....
Oats—Half bushel per acre.....	78·54	.....	.....	43·84	.....	.....
Wheat—Double rows.....	10·36	.....	.....	10·22	.....	.....
Oats—Two bushels per acre for green feed.....	.....	4·94	1·38	.....	4·88	1·56
Barley—Double rows.....	34·26	.....	.....	21·54	.....	.....

*Sudan grass was grown in rows for the first five years, but repeatedly failed due to slow growth and strong competition by weeds.

Among the fallow substitutes which may be used for ensilage or fodder crops, it will be seen that sunflowers have produced the highest yield per acre of dry matter. At the same time this crop has had the most adverse effect on following wheat yields. Oats have produced a greater tonnage of dry matter than corn, but the corn has permitted a higher yield of wheat in the following year.

In comparing corn and oats as feed crops, there are two chief factors to consider. The corn is much more expensive to grow and handle, but the succeeding yield of wheat is higher. The corn is a reasonably satisfactory fallow substitute, but the oats in rows cannot be classed as such on account of the depression of yield in the following wheat crop.

Observation of the plots on which the various fallow substitutes are grown indicates that it is becoming increasingly difficult to keep them as free from weeds as the fallowed plots.

Wheat Following Fallow and Various Fallow Substitutes

Showing Yields of Fallow Substitutes and the Yields of Wheat following for Years 1923 to 1927

Fallow Substitute	Yields per Acre of Fallow Substitutes and Succeeding Wheat Crop															Five-year Average		
	1922 Fallow Substitute		1923 Wheat	1923 Fallow Substitute		1924 Wheat	1924 Fallow Substitute		1925 Wheat	1925 Fallow Substitute		1926 Wheat	1926 Fallow Substitute		1927 Wheat	Fallow Substitute		Wheat
	Green wt. Tons	Dry wt. Tons	Bush.	Green wt. Tons	Dry wt. Tons	Bush.	Green wt. Tons	Dry wt. Tons	Bush.	Green wt. Tons	Dry wt. Tons	Bush.	Green wt. Tons	Dry wt. Tons	Bush.	Green wt. Tons	Dry wt. Tons	Bush.
Sudan grass—Double rows	3·56	0·95	11·0	4·70	1·18	25·3	2·80	0·70	15·9	Fai	led	14·4	Fai	led	30·7	2·21	0·56	19·4
Sunflowers	12·30	1·84	17·0	16·70	2·26	14·9	10·93	2·67	14·8	10·36	1·87	9·6	7·25	1·24	33·5	11·50	1·97	17·9
Fallow	.....	.....	20·2	.....	.....	36·2	.....	.....	22·5	.....	.....	27·2	.....	.....	36·4	.....	.....	28·5
Corn	9·22	1·56	12·4	9·40	1·68	29·2	8·23	1·42	18·5	5·38	1·40	22·1	8·05	1·36	33·9	8·05	1·48	23·2
Oats sown late for green feed	4·60	1·15	5·2	6·97	2·16	17·5	5·49	1·81	16·4	2·40	0·73	11·7	2·43	0·76	29·2	4·37	1·32	16·0
		bush.			bush.			bush.			bush.			bush.			bush.	
Potatoes	.....	142·0	21·5	.....	261·1	30·4	.....	190·8	19·0	.....	120·5	18·1	.....	77·9	34·9	.....	158·4	22·7
Oats—Triple rows	.....	58·8	8·3	.....	53·2	19·5	.....	43·1	16·1	.....	46·7	10·8	.....	17·6	31·9	.....	43·8	17·3
Oats—Double rows	.....	50·6	9·8	.....	47·5	24·8	.....	29·2	14·5	.....	41·1	10·2	.....	16·0	31·9	.....	40·0	18·2
Oats—Sown ½ bush. per acre	.....	62·4	7·0	.....	60·6	16·4	.....	11·8	12·8	.....	44·0	7·8	.....	8·8	29·7	.....	37·5	14·7
Wheat—Double rows	.....	18·6	8·4	.....	8·3	33·5	.....	26·3	12·8	.....	12·5	13·2	.....	5·4	28·9	.....	14·2	19·3
Barley—Double rows	.....	21·3	12·9	.....	9·3	27·3	.....	28·3	12·2	.....	20·5	11·1	.....	13·0	36·4	.....	18·4	19·9

In the foregoing table are presented both the yields of fallow substitutes and the yields of succeeding wheat crops for the entire time during which this experiment has been conducted at this Station.

Due to the high rainfall in the early part of the 1927 crop season, yields of wheat after fallow substitutes have come closer to yields on fallow than in any other year of the experiment. The five-year averages indicate that wheat on fallow has exceeded wheat after the various substitutes by from 5 to 14 bushels per acre. It will also be noted that in dry years the yields of wheat after substitutes have been low.

To throw further light on the matter of wheat yields in various rotations the following data are presented:—

YIELDS OF WHEAT IN DIFFERENT ROTATIONS

Rotation	Part of area in crop	Four-year average Yield per acre	
		Cropped area	Total area of rotation
		bush.	bush.
Continuous wheat	All	10·9	10·9
Two-year—fallow substitute; wheat	All	15·7	15·7
Two-year—fallow; wheat	Half	28·5	14·2
Three-year—fallow; wheat; wheat	Two-thirds	26·7	17·8

Of the four different methods the three-year rotation of fallow, wheat, wheat, has produced the greatest amount of wheat and at the lowest cost. The method of alternating wheat regularly seeded with wheat in rows has produced less wheat and at a higher cost per bushel. Moreover, this method is more likely to fail in the dry year when a yield of some sort is most urgently needed.

INFLUENCE OF CORN VARIOUSLY SPACED ON YIELDS FOLLOWING WHEAT CROP

Variety	Previous corn crop			Wheat following corn
	Method planted	Spacing or plants per hill	Three-year average yield corn per acre	Three-year average yield per acre
			tons	bush.
N. W. Dent	Rows 42" apart	3" apart in rows	6·69	19·11
"	"	6" "	6·90	19·35
"	"	9" "	7·12	21·67
"	"	12" "	7·23	22·12
"	"	18" "	7·10	22·56
N. D. White Flint	"	3" "	6·13	20·19
"	"	6" "	6·99	20·71
"	"	9" "	6·51	22·31
"	"	12" "	8·34	22·43
"	"	18" "	7·78	23·21
N. W. Dent	Hills 42" x 42"	1 plant per hill	6·98	24·88
"	"	2 "	7·88	24·67
"	"	3 "	7·70	22·78
"	"	4 "	7·30	21·89
"	"	5 "	6·79	20·68
N. D. White Flint	"	1 "	6·00	23·59
"	"	2 "	6·58	21·08
"	"	3 "	7·56	20·17
"	"	4 "	8·31	20·63
"	"	5 "	6·95	19·02

A slight increase in yield of wheat is noted where the crop follows corn planted in hills, as compared with that following corn planted in rows.

Very close planting in rows or thick planting in hills results in less tonnage of corn and a similar decrease in yield of wheat following.

The best spacing to secure maximum yield of corn is 12 inches apart in rows or four plants per hill. Highest yields of wheat are obtained after rows planted 42 inches by 18 inches or in hills of one plant each.

SEQUENCE OF CROPS

Preceding crop	1927 crop	Yield per acre 1927		Average yield per acre for four years	
		Grain	Cured* Fodder	Grain	Cured* Fodder
		bush.	tons lbs.	bush.	tons lbs.
Wheat	Wheat	29·18		16·96	
Fallow	Wheat	38·01		27·43	
Millet	Wheat	29·89		17·59	
Corn	Wheat	37·70		24·75	
Peas	Wheat	36·46		15·32	
Oats	Wheat	28·43		15·33	
Wheat	Oats	62·54		33·33	
Fallow	Oats	76·66		57·84	
Millet	Oats	57·11		31·77	
Corn	Oats	71·32		48·64	
Peas	Oats	63·56		30·91	
Oats	Oats	51·40		28·79	
Wheat	Millet		1 1,383		1 1,996
Fallow	Millet		1 985		2 981
Millet	Millet		0 1,477		1 253
Corn	Millet		1 1,496		2 1,192
Peas	Millet		1 1,660		1 1,751
Oats	Millet		1 141		1 1,668
Wheat	Corn		0 1,841		1 490
Fallow	Corn		0 1,315		1 750
Millet	Corn		0 1,395		1 340
Corn	Corn		0 1,496		1 156
Peas	Corn		0 1,443		1 380
Oats	Corn		0 1,157		0 1,988
Wheat	Peas		1 697		
Fallow	Peas		1 1,978		
Millet	Peas		1 1,843		
Corn	Peas		2 323		
Peas	Peas		2 280		
Oats	Peas		1 1,611		

*Cured weight based on uniform moisture content of 12 per cent.

The object of this experiment is to determine the effect of various crops on the yields of other succeeding crops, in order to determine their place and value in a rotation. This year, favourable moisture conditions have narrowed the difference of yields usually found when comparing crops grown on fallow with those following another crop. The four-year average yields considerably favour the fallow, with corn and wheat next in order of merit. No average yields are given for the field crop peas, which was included in the experiment for the first time this year to replace Hubam annual sweet clover, which had proven unreliable and unsatisfactory for this experiment.

The corn and millet crops this year were damaged by the frost of August 8, which caused them to be harvested unusually early.

RATES AND DATES OF SEEDING FALL RYE

Rate	Date sown	Date of ripening	Height at harvest	Yield of grain per acre	Average for four years
			inch.	bush.	bush.
¾ bushel per acre	July 15	Aug. 5	44	24·46	26·86
1 "	" 15	" 4	44	24·17	25·82
1¼ "	" 15	" 4	44	26·04	21·16
1½ "	" 15	" 4	44	29·38	27·97
1 "	Aug. 1	" 4	53	38·69	32·88
¾ "	" 15	" 5	53	50·88	36·61
1 "	" 15	" 5	54	50·22	36·61
1¼ "	" 15	" 5	54	52 82	37·90
1½ "	" 15	" 5	53	47 09	37·39
¾ "	Sept. 1	" 7	52	41·26	37·00
1 "	" 1	" 5	54	50·21	37·51
1¼ "	" 1	" 5	52	44·93	36·19
1½ "	" 1	" 4	53	52·97	38·53
1 "	" 15	" 9	50	38·26	31·69
1 "	Oct. 1	" 19	44	30·57	28·02

Very early and very late dates of seeding of fall rye have proven less productive than seedings made between August 15 and September 15. The early seedings make an excessive growth in the fall, thereby partly exhausting the moisture supply. Sometimes also these early seedings produce seed stalks, so that part of the stand dies during the winter. Late seedings do not germinate so well and the stand is always thinner and the crop later in maturing.

PLACE IN ROTATION TO SEED FALL RYE

Preceding crop or treatment	Height at harvest	Yield of grain Bushels per acre	
		1927	Four-year average
	inch.		
Seed on fallow	54	50·21	35·62
Seed on ploughed barley stubble	54	39·13	22·55
Seed on ploughed sod	56	30·87	21·98
Seed on wheat stubble	57	37·79	19 76
Seed on fallow	59	48·65	35·59
Seed with oats	56	22·83	17·22
Seed after sunflowers cut	45	28·26	17·86
Seed rye after rye	52	33·40	17·74
Seed on fallow	56	47·69	35·45
Seed after corn cut	44	28·35	23·48
Seed one month after oats sown	59	27·52	20·68
Seed between rows of corn	54	40·02	24·87
Seed between rows of sunflowers	46	36·68	22·93

Fall rye seeded on fallow continues to produce much heavier crops than when seeded after another crop. This difference is apparently not wholly due to a difference in moisture supply. From our dates of seeding experiments, it is observed that late seeding of rye even on fallow does not produce a good crop. It would seem, therefore, that the smaller crop of rye after another crop is partly due to the necessity of delaying the rye seeding until after the removal of the preceding crop. When farmers find it necessary or advisable to seed rye after some other crop, every effort should be made to remove the other crop quickly and seed the rye early.

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DATES OF PLANTING SUNFLOWERS

Date set for planting	Actual date planted	Height at harvest	Stage of maturity when cut	1927 Yield per acre		Five-year average yield per acre	
				Green weight	Dry weight	Green weight	Dry weight
		ins.		tons	tons	tons	tons
May 1	May 15	82	90% bloom	12·28	2·93	14·65	2·74
May 10	May 15	78	80% bloom	12·05	2·60	11·90	2·22
May 20	May 20	74	52% bloom	10·39	2·15	12·24	2·16
May 30	May 30	62	10% bloom	11·52	2·64	10·22	1·89
June 9	June 9	52	Budding	7·73	1·76	7·41	1·25

Due to late spring conditions the earliest possible date of planting sunflowers was on May 15. The five-year average yields indicate that the highest yields are always obtained from planting as soon as is possible in the spring, although in previous years it has been noted that when the soil is damp and cold for a long period many seeds do not germinate, which results in an uneven stand.

SUNFLOWERS IN HILLS AND ROWS AT VARIOUS SPACINGS

Method	Spacing Plants per hill	Height when cut	Thickness of stems at harvest	Green weight per acre	Dry weight per acre	Three-year average Yield per acre	
						Green weight	Dry weight
	inch.	inch.	inch.	tons	tons	tons	tons
Rows 42″ apart	3	73	¾	10·68	2·12	11·33	2·32
	6	94	1	12·79	2·65	9·91	2·29
	9	97	1¼	11·39	2·37	9·98	2·12
	12	96	1½	11·29	2·36	9·38	1·90
	18	95	1¾	11·23	2·51	8·78	1·90
	Plants—						
Hill 42″ x 42″	1	106	1¾	7·31	1·44	7·20	1·34
	2	93	1½	8·14	1·83	7·90	1·56
	3	92	1¼	9·11	2·22	8·14	1·74
	4	91	1	11·17	2·48	8·66	1·86
	5	89	¾	10·64	2·46	9·61	2·08

INFLUENCE OF SUNFLOWERS VARIOUSLY SPACED ON THE YIELD OF THE FOLLOWING CROP OF WHEAT

Previous crop of Russian Giant sunflowers			Wheat following sunflowers
Method planted	Spacing or plants per hill	Three-year average yield of sunflowers per acre	Three-year average yield per acre
	inch.	tons	bush.
Rows 42″ apart	3″ apart in row	11·55	19·06
	6″ "	8·95	20·71
	9″ "	9·51	18·32
	12″ "	8·74	18·91
	18″ "	7·96	17·28
Hills 42″ x 42″	1 plants per hill	7·17	19·01
	2 "	7·82	18·76
	3 "	7·82	19·36
	4 "	8·16	19·43
	6 "	9·26	19·99

Average figures indicate that thickly-planted Sunflowers produce a greater tonnage than those that are spaced at greater distances. Moreover, due to the lighter growth, the crop is more easily handled and apparently the quality of the ensilage is higher.

Yields of wheat after the different methods of planting are very much the same.

Place in Rotation to Seed Grasses and Clovers

Showing Average Yields of Nurse Crops, Hay Crop and Subsequent Wheat Crops for Years 1923 to 1927

Five-year Rotation, showing place of seeding grass or clover					Five-year Average Yield per acre				
1st year	2nd year	3rd year	4th year	5th year	1st year Nurse Crop	2nd year *Hay cured wt.	3rd year Wheat	4th year Wheat	5th year Wheat
Brome and western rye sown with 1st year wheat (check)	Hay	Fallow	Wheat	Fallow	27·8 bush.	1·93 tons	Fallow	26·4 bush.	Fallow
Brome and western rye sown between rows of corn	Hay	Fallow	Wheat	Wheat	5·2 tons	1·30 tons	Fallow	34·8 bush.	17·2 bush.
Brome and western rye sown alone on fallow	Hay	Wheat	Wheat	Fallow	.....	2·44 tons	13·8 bush.	17·3 bush.	Fallow
Brome and western rye sown alone on spring ploughing	Hay	Wheat	Fallow	Wheat	.....	1·96 tons	16·7 bush.	Fallow	25·5 bush.
Brome and western rye sown with 1st year wheat (check)	Hay	Fallow	Wheat	Fallow	30·7 bush.	1·93 tons	Fallow	27·2 bush.	Fallow
Brome and western rye sown in spring on fall rye	Hay	Fallow	Wheat	Fallow	31·2 bush.	1·75 tons†	Fallow	26·4 bush.	Fallow
Brome and western rye sown with 2nd year wheat	Hay	Wheat	Fallow	Wheat	28·7 bush.	1·13 tons	15·7 bush.	Fallow	26·0 bush.
White sweet clover sown with 1st year wheat	Hay	Fallow	Wheat	Fallow	30·7 bush.	2·53 tons	Fallow	31·7 bush.	Fallow
Brome and western rye sown with 1st year wheat (check)	Hay	Fallow	Wheat	Fallow	28·6 bush.	1·83 tons	Fallow	28·3 bush.	Fallow
White sweet clover sown between rows of corn	Hay	Fallow	Wheat	Wheat	4·9 tons	1·78 tons	Fallow	36·6 bush.	13·0 bush.
White sweet clover sown alone on fallow	Hay	Wheat	Wheat	Fallow	.....	1·96 tons	19·3 bush.	19·2 bush.	Fallow
White sweet clover sown alone on spring ploughing	Hay	Wheat	Fallow	Wheat	.....	1·93 tons	17·4 bush.	Fallow	26·2 bush.
Brome and western rye sown with 1st year wheat (check)	Hay	Fallow	Wheat	Fallow	28·0 bush.	1·60 tons	Fallow	27·2 bush.	Fallow
White sweet clover sown in spring on fall rye	Hay	Fallow	Wheat	Fallow	35·6 bush.	1·61 tons†	Fallow	31·3 bush.	Fallow
White sweet clover sown with 2nd year wheat	Hay	Wheat	Fallow	Wheat	16·1 bush.	1·58 tons	20·0 bush.	Fallow	26·4 bush.
Brome and western rye sown with 1st year wheat (check)	Hay	Fallow	Wheat	Fallow	27·5 bush.	1·70 tons	Fallow	25·5 bush.	Fallow

* Cured weight as determined on a uniform basis of 12 p.c. moisture contents.

† This yield includes the weights of heavy volunteer fall rye crops of 1926 and 1927, when the grass and clover were a complete failure.

Owing to wide variations in thickness of stands from year to year and to occasional complete failure of grasses and clovers it is difficult to reach any very definite conclusions as to the best methods of seeding these crops. Close observation of the plots upon which this experiment is conducted has given more information than a study of yield data.

It has been observed that with all methods of seeding the grasses and clovers usually germinate and make fair growth until midsummer. After that time the grass and clover seedings that are seeded with nurse crops often dry up and disappear. This is especially true when the early part of the season has favoured a good growth of the nurse crop and is followed by dry weather. If the first part of the season is dry and the latter part wet, the stand of the nurse crop is relatively thin and the grass or clover is usually better. Dry weather from July 15 to the end of August is often fatal to new seedings of grass and clover. Seedings that are made without a nurse crop usually do well, but this method permits such a heavy growth of weeds that it is not usually advisable to follow it.

The yield of wheat directly after grasses and sweet clover is generally low. If the grass or clover sod is summer-fallowed for a full season before wheat is seeded the clover land produces a somewhat higher yield than the grass land, but not higher than an ordinary fallow on land which has not previously grown clover.

DATES OF SEEDING GRASSES AND LEGUMES

In this experiment sweet clover is seeded alone at a rate of 10 pounds per acre on spring-ploughed wheat stubble on five dates running from May 1 to July 1. A mixture of brome, 6 pounds; western rye grass, 6 pounds; and alfalfa, 5 pounds, is seeded on adjoining plots on the same dates. The following table shows the yields per acre of the two crops seeded on various dates:—

DATES OF SEEDING GRASSES AND LEGUMES—THREE-YEAR AVERAGE YIELD PER ACRE

Date seeded	Yield per acre 1927		Three-year average yield per acre	
	Brome, western rye, alfalfa	Sweet clover	Brome, western rye, alfalfa	Sweet clover
	tons	tons	tons	tons
May 1	1·62	1·15	1·01	1·38
May 15	1·73	1·42	0·98	1·14
May 30	1·35	2·03	0·93	1·73
June 15	2·24	2·14	1·48	1·78
July 1	1·85	Failed	2·16	1·04

NOTE.—All yields are figured to a uniform moisture content of 12%.

With the mixture the lowest yields were obtained from the early seedings and the highest yields from the late seedings, while the reverse seems to be true of the sweet clover. In explanation of the low yield of the July 1 seeding of sweet clover, it should be stated that the July 1, 1926, seeding of sweet clover failed to make a stand, consequently there was no 1927 crop of this seeding.

It has been found that seeding after the middle of June increases the risk of failure, but it has also been observed that the later seedings, when they succeed, produce the larger yields. This is probably due to the fact that the early seedings sometimes make a considerable growth, though not usually enough to cut for hay, in the first year. This growth partly exhausts the moisture supply during the summer and fall, thereby leaving a smaller reserve available in the spring of the year in which the crop is to be cut for hay.

SEVEN-YEAR ROTATION—OLD, WEEDY LAND
Summary of Yields, Value and Profit and Loss, per acre

Rotation year	Crop	Yield per acre		Value of crop 1927	Cost of production 1927	Profit or loss, per acre	
		1927	Average three years			1927	Average three years
		bush. or tons	bush. or tons	$ cts.	$ cts.	$ cts.	$ cts.
1	Corn	.....	1·02	.....	9 40	−9 40	−7 01
2	Wheat (grass seeded)	34·00	21·70	37 40	13 56	23 84	13 91
3	Hay	1·10	1·03	11 00	6 09	4 91	2 92
4	Hay and fallow	0·80	0·26	8 00	3 30	4 70	1 57
5	Wheat	18·50	17·20	20 35	15 78	4 57	4 79
6	Fallow	.....	.....	.....	.....	.....	.....
7	Fall rye	26·00	26·37	20 80	17 50	3 30	3 26
	Totals for rotation	.....	.....	97 55	65 63	31 92	19 44
	Average per acre	.....	.....	13 94	9 38	4 56	2 78

The corn in this rotation, which was a rather poor stand, was completely destroyed by the frost of August 8.

Both hay crops were good. This is the first year in which the second hay crop was free enough from stinkweed to justify growing a crop of hay.

The wheat on field 5 suffered frost damage of at least 30 per cent. Field 2 was practically undamaged.

THREE-YEAR ROTATION—OLD, WEEDY LAND
Summary of Yields, Value and Profit and Loss, per acre

Rotation year	Crop	Yield per acre		Value of crop 1927	Cost of production 1927	Profit per acre	
		1927	Average two years			1927	Average two years
		bush.	bush.	$ cts.	$ cts.	$ cts.	$ cts.
1	Fallow	.....	.....	.....	.....	.....	.....
2	Fall rye	29·20	28·85	23 36	16 20	7 16	6 92
3	Fall rye	16·00	15·87	12 80	11 63	1 17	1 15
	Totals for rotation	.....	.....	36 16	27 83	8 33	8 07
	Average per acre	.....	.....	12 05	9 28	2 78	2 69

This rotation seems most effective in overcoming weeds and wireworms. Although there are usually many weeds present in the crop in early spring, the vigorous growth of the rye chokes them out and very few weeds ever form seeds. The strong root development in early spring enables the rye to endure the attacks of wireworms without any noticeable damage.

STUBBLE TREATMENTS—OLD, WEEDY LAND

Field	Crop	Treatment	Yield per acre	
			1927	Average three years
			bush.	bush.
A–1	Wheat	Spring-ploughed, harrowed, seeded and harrowed	11·00	10·92
A–2	"	Spring-disked, seeded and harrowed	14·50	13·20
A–3	"	Spring-burned (burner) disked, seeded, harrowed	16·75	14·00
A–4	"	Spring-burned (harrow) disked, seeded, harrowed	17·75	14·75
A–5	"	Spring-burned (harrow) disked, cultivated 15 days, seeded, harrowed	6·50	9·00

The crop on field A-5 was very thin and badly infested with stinkweed. The others were fairly clean. The summer-fallow fields in this rotation, being on lower ground, were completely destroyed by frost on August 8.

HARROWING GROWING GRAIN CROPS—OLD WEEDY LAND

Field	Crop	Treatment	Yield per acre	
			1927	Average three years
			bush.	bush.
C-12	Wheat	Cultivated, 1·5 bushels seeded, harrowed before crop is up...	15·28	16·68
C-13	"	Cultivated, 1·5 bushels seeded, harrowed when crop is 4" high.....	19·50	19·50
C-14	"	Cultivated, 1·5 bushels seeded, harrowed immediately.....	11·76	17·00
A-12	"	Spring-ploughed, 1·5 bushels seeded, harrowed before crop is up.....	17·50	12·66
A-13	"	Spring-ploughed, 1·5 bushels seeded, harrowed when crop is 4" high.....	18·00	13·25
A-14	"	Spring-ploughed, 1·5 bushels seeded, harrowed immediately..	9·40	9·05

When the rate of seeding is sufficiently heavy, harrowing the growing grain crop does not thin out the crop to any undue extent. The weeds present in the crops at that time are usually those which grew from seeds located on or near the surface. Apparently a great proportion of those are dragged out by a harrowing that does not destroy many of the deeper-rooted wheat plants. This enables the wheat plants to make a vigorous growth in the early part of the season. If moisture is maintained in the soil, the wheat retains this advantage throughout the season. If the soil is loose, it is probable that harrowing would damage the crop to an appreciable extent and might offset any advantage gained through weed destruction.

THE COMBINE

The harvest season of 1927 was a peculiarly hazardous one for the combine. Large areas of crop had been badly damaged by hail. Rust struck the districts, where combines are most plentiful, in varying degrees. Frost on August 8 damaged the crops over a large portion of the combine territory. On the heavy lands there was a very rank growth of straw which, owing to rust, winds and heavy rains, was badly lodged some time before binder harvesting could be attempted. The above peculiar conditions had the tendency to deter many people from using the combine. Later in the season when the lodged crops had ripened and the difficulty of harvesting with the ordinary ground-driven binder was realized there was a considerable demand for combines and power-binders.

In general the combines worked well in heavy, lodged crops. Crops that were partially destroyed by hail or frost were harvested economically by the combine when otherwise the cost of harvesting and threshing would have amounted to more than the gross return.

THE COMBINE ON THE STATION

The first operation with the combine occurred on September 6, which was seventeen days later than the commencement of binder harvesting on the same field. The crop was very heavy, with a rank growth of straw, which was twisted, tangled and lodged by rain and wind. The quantity of straw prevented any great number of heads from touching the ground; therefore, by taking a considerable amount of straw, the combine was able to get practically all the grain.

The binder occasioned significant losses, chiefly by its inability to tie the tangled masses into a compact sheaf. Some sheaves were not tied, and many others were so insecure that they fell apart either during stooking, while standing in the stock, or in loading the bundle-racks. The combine-harvested portion of the field yielded 36.02 bushels per acre, and the binder-harvested portion yielded 30.3 bushels, a saving of 5.72 bushels per acre for the combine over the binder and separator.

The following table gives actual losses and yields in bushels per acre resulting from each method:—

Binder Test No. 1	Bushels
Grain lost behind knife	1·82
Grain lost at bundle carrier	1·80
Grain lost at stook	0·91
Grain lost on rack	0·42
Grain lost at feeder	0·142
Grain lost in separator	0·104
Total loss	5·196
Net yield	30·300
Gross yield	35·496
Per cent of gross yield lost	14·63%

Combine Test No. 1	
Grain lost behind knife	0·91
Grain lost at rear end	0·22
Total loss	1·13
Net yield	36·02
Gross yield	37·15
Per cent of gross yield lost	3·04%

The second operation occurred on September 27. On this field entirely different conditions prevailed. Owing to the ravages of wireworms and the subsequent growth of stinkweed the crop was short, thin and slow in ripening to the degree where the combine could be used. When the binder was used the crop stood up reasonably well and the binder was able to cut and tie successfully. During the long interval between binder harvesting and combine harvesting wind, rain and sawflies broke down many plants. Owing to the thin stand there was no mutual support, and all the sawfly-cut plants dropped to the ground. The heads of many plants that were bent over by wind and rain were practically touching the ground. The conditions made it impossible for the combine to harvest cleanly, particularly when moving from south to north as the plants all leaned in that direction. Under similar conditions many farmers adopted the expedient of cutting in three directions.

This table gives a comparison of losses under the conditions detailed above:—

Binder Test No. 2	Bushels
Grain lost behind knife	·934
Grain lost at bundle carrier	·110
Grain lost at stook	·030
Grain lost on rack	·060
Grain lost at feeder	·045
Grain lost in separator	·104
Total loss	1·283
Net yield	19·88
Gross yield	21·163
Per cent of gross yield lost	6·060%

Combine Test No. 2	
Grain lost behing knife	3·246
Grain lost at rear end	·170
Total loss	3·416
Net yield	17·36
Gross yield	20·776
Per cent of gross yield lost	16·44%

A portion of field No. 2 was purposely left uncut till November 3, in order to determine the increase in shelling due to standing in the field over a prolonged period. On November 3, the crop was so flattened that it had to be cut three ways, avoiding the south to north cut. In the three other directions the combine picked up practically all the heads and almost all the grain lost was due to actual shelling and not to failure to cut on the part of the combine.

COMBINE TEST NO. 3 (NOVEMBER 3)

	Bushels
Grain lost behind knife	·416
Grain lost at rear end	·220
Total loss	·636
Net yield	20·01
Gross yield	20·646
Per cent of gross yield lost	3·08%

Had this field been cut in four directions the total loss of grain would probably have been higher than in combine test No. 2. There was apparently very little increase in loss due to actual shelling of grain.

GENERAL EXPERIENCES OF COMBINE

Owners in Western Canada.—A total of 770 combines were used in Western Canada in 1927. This was an increase of 596 over the number used in 1926.

Questionnaires were sent from this Station to 700 operators; 248 were returned, which was 32.2 per cent of the total. The following is an arrangement according to width of cut:—

19 machines with 20-foot cut.
68 machines with 16-foot cut.
85 machines with 15-foot cut.
12 machines with 12-foot cut.
61 machines with 10-foot cut.
3 machines with 9-foot cut.

The most popular sizes of machines are those having 15, 16 and 10 foot cuts. The 248 combines harvested a total of 148,415 acres which was distributed as follows:—

Wheat	110,841 acres.
Flax	9,639 acres.
Oats	2,445 acres.
Barley and rye	25,490 acres.

The average acreage for each machine was 598.45 acres and the average acreage per foot of cut was 42.087 acres. If 598.45 be assumed as the average acreage for all combines then a total area of 460,806.5 acres were harvested by combines in 1927.

AVERAGE ACREAGE PER MACHINE ACCORDING TO WIDTH

The 20-foot combines cut an average of 771·4 acres.
The 16-foot combines cut an average of 648·6 acres.
The 15-foot combines cut an average of 599·7 acres.
The 10-foot combines cut an average of 423·4 acres.

The reports received on 9 and 12-foot combines were too few in number to give conclusive figures on their average performance.

Starting dates extended from August 1 in fall rye to October 21 in frozen flax. The average date of commencement was September 10 for combines in all crops, which was also the average date of commencement in wheat. The average starting date for binders was August 28. Dates of finishing ranged from September 1 to December 12, with an average closing date of November 1.

The general snowstorms beginning on November 6 marked the close of combine harvesting for many machines, although several were operated intermittently for over a month longer.

Unfavourable weather was the principal factor interfering with the continued operation of the combine. The days lost on that account varied from none to forty, and averaged 12.7 days. The greatest number of days lost due to bad weather occurred in Southwestern Alberta in the neighbourhood of High River, Claresholm, Macleod, and Cardston. These conditions shaded off gradually toward Southeastern Saskatchewan where harvest conditions on the average were little worse than normal. In the areas of heaviest fall rainfall conditions were intensified by the prevalence of hoar-frost toward the end of the season. Generally it was impossible to operate the combine till 9 a.m. and on many days the machine could not be started before noon. This loss of time was partly recovered by working until the grain began to toughen, which happened about 10 p.m., but on some days was deferred till 12 p.m. Various lighting devices were used on combines and tractors for night operation. As the season advanced, horses were generally replaced by tractors, because farmers were reluctant to waste the time consumed in hitching and unhitching eight to twelve horses.

Harvesting "down" crop with combine. Yield 40 bushels per acre.

THE SWATHER

The most noteworthy development during the season was the introduction of the swather attachment for the combine. The principal object of the swather is to eliminate a portion of the waiting period between binder harvesting and combine harvesting and thus avoid the possibilities of loss due to unfavourable weather. The crop is cut and laid in swaths, each of which contains the straw and heads of a strip 16 to 24 feet wide, depending on the cutting mechanism. The cutting mechanism may be either the combine knife and a table or one or more headers. Swathing can be done at the time binder harvesting commences. If the weather is favourable the swaths can be threshed four to six days later. Threshing is performed by means of the combine equipped with a special pickup device.

When crops are slow to ripen to the degree where the combine can be safely used, or where ripening is uneven, the swather is an undoubted advantage.

A crop that contains a quantity of green weeds, and where it is impossible to get all the crop without cutting a portion of the green weeds, could be better harvested by the swather than by the straight combine. When harvested by the straight combine the broken portions of weed stems, green seeds and pulp from the plants may cause tough or damp grain. The green plants have an opportunity to dry in the swath and therefore cause no further trouble, as the most of them would then be light enough to separate from the grain, but would cause no trouble even if separation did not take place. A crop in which sawfly damage is likely to be serious could be swathed before the damage reached dangerous proportions. In areas where frost is common the swather could be used to advantage, thus extending the area wherein combines can be used.

The two apparent disadvantages of the swather are first that the two operations of swathing and threshing are more expensive than straight combining, although not nearly so expensive as binder and separator harvesting, and secondly that in the case of swaths lying out during a prolonged period of warm, wet weather there would likely be a serious loss by sprouting.

Little actual benefit was derived from the use of the swather in 1927. Owing to the wet season there was little sawfly damage. The rank growth of straw prevented any significant growth of weeds on land where reasonable measures of weed control were used, and where crops were not lodged, it was easy to cut above the weeds. In the greater portion of western Saskatchewan and Alberta, weeds were frozen and dried before the general commencement of combine-harvesting. The unusual rains caused swathed grain to lie in the fields for long periods, so that very little time was gained by harvesting by this method.

Twenty users of the swather submitted reports on its use. Twelve found the swather useful in that it enabled earlier harvesting. The gain in time varied from two to four days and would probably have been greater in a normal season. Two operators reported better grades obtained for swathed grain than for straight combine grain. Five expressed no definite opinion on the swather and three found it of no help during this season. Three combine owners who used straight combines intend buying swathers for 1928.

RUST AND FROST

While 85 per cent of the questionnaires reported damage from rust or frost or both, less than 10 per cent found these factors to be any hindrance to the use of the combine. On the contrary the combine was found to be a decided advantage in the economical harvesting of crops damaged by these agencies and many farmers reported having harvested fields at a profit by the combine where the gross return per acre would not have covered the costs of binder and separator harvesting. The frost damage was particularly patchy. In the same field conditions of damage frequently varied from no injury whatever to complete destruction. The actual run of grain from the spout of the combine was a certain indication of the amount of grain in any area. When this was too low the area was left uncut. In binder and separator harvesting this point was seldom determined until threshing was in progress. Already the farmer had incurred the costs of binding, twine and stooking; and in many cases these costs turned out to be a total loss.

Owners of separators doing custom work required payment on an hourly basis rather than a bushel basis where frost damage was at all heavy, because there was often much straw to thresh and little grain. This made threshing costs high, and as the yield and grade were often low, it happened in some cases that money was lost by harvesting with the binder and separator that could have been saved by leaving the crop alone. Many combine owners did custom work at a fair profit to themselves and the crop owners, in crops that were too much damaged by frost for the profitable operation of the binder and separator.

HAIL

Hail damage was very common in southwestern Saskatchewan and southern Alberta. The reports from southern Alberta state that crops of wheat on which 100 per cent compensation for hail loss had been paid were subsequently harvested by combines and yielded 6 to 15 bushels per acre of wheat grading No. 3 to 5 straight. In one case a swather was used and gave good results. Twenty other cases of hail damage ranging from 50 to 85 per cent were reported. The combine harvested whatever was left at an acre-cost of not more than $2 per acre regardless of the condition of the crop or the yield of grain. A considerable portion of the custom work done was performed in hailed crops.

GRADES OBTAINED FOR COMBINE-HARVESTED GRAIN AS COMPARED WITH BINDER-HARVESTED GRAIN

On one of the fields on the Station harvested partly by the combine and partly by the binder and separator all the grain was graded as No. 3 northern. In the other field the binder-harvested grain was graded No. 3 and the combine grain No. 3 tough.

One hundred and sixty-five operators obtained grades for combine-cut grain similar to those obtained for binder-cut grain; 22 obtained better grades; 48 obtained lower grades; 13 made no comparison of grades.

THE END OF HARVESTING

Winter definitely set in with a series of snowfalls, accompanied by falling temperature, beginning on November 6. One hundred and sixty-eight combines had finished before that date; seventy-six had not finished at that date. Of this number sixteen finished in the snow and several others harvested acreages of twenty to one hundred and sixty acres. The unfinished acreages vary from forty to four hundred and ten acres. The greater portion was custom work in hailed or frozen crops that would not have been cut by binders in any case. Other cases are accounted for by the purchase of combines late in the season or by trying to cover too large an area. The worst cases occurred in southern Alberta where harvest conditions were most unfavourable.

Seventy-six combine operators reported threshing finished in their neighbourhoods on or soon after November 6. One hundred and eighty-one stated that threshing was not finished; of this number seventy-four reported acreages of unthreshed crops in their districts ranging from two per cent of the total to 50 per cent with an average of 24 per cent. In general all points east of a line drawn from Swift Current, Sask. to Provost, Alta., reported threshing as finished; west of that line threshing is unfinished.

THE NEW DISK PLOUGH

Farmers in Kansas are credited with the invention of a plough which combines some of the desirable features of the disk harrow and the disk plough. There is as yet no general name for this implement. It is known by various trade names such as Wheatland disk plough, one-way disk plough, gold digger, disk tiller, cylinder disk plough and Great Plains disk plough. This implement was introduced in Canada in a small way in 1927. One machine was located on this Station by the courtesy of the Regina Branch of the J. I. Case Threshing Machine Company, Racine, Wisconsin.

In recent years, spring ploughing for the second grain crop after summer-fallow has been regarded by many farmers as a slow, labourious task for which there was no adequate recompense in yield of crop. Many farmers, particularly on heavy land, no longer spring plough, but prepare the seedbed for the second-

year crop by disk harrowing or cultivating with the duckfoot cultivator. The latter implement will not do good work where there is even a moderate amount of stubble. The disk harrow pulverizes the soil to such an extent that the loose soil and stubble frequently piles up in front of the seed drill. In some cases, the latter trouble is overcome by seeding first and disking afterwards; but rains have on occasions followed soon after seeding, so that disking was prevented until the germination and growth of the crop made disking inadvisable.

These troubles are largely overcome by the use of the new disk plough. It consists of a series of disks 20 to 24 inches in diameter attached to a frame carried on wheels. The disks are set at an angle of about 30 degrees from the line of travel, and throw the soil in one direction. The width of cut varies from 6 to 10 feet and the rate of travel depends on the power and speed of the tractor and the depth of cut. A 10-foot plough drawn at a rate of two and a half miles per hour can cover 30 acres in a 10-hour day. The soil is left in a lumpy condition which will not drift readily. All the soil between the individual disks is

Eight-foot Wheatland disk plough. Covers 25 acres per day.

cut and as it is all thrown one way there is no succession of ridges such as happens with the disk harrow. There is no complete turning or inversion of the soil such as occurs with the common disk plough. The stubble is mixed in with the lumpy soil.

A fifty-acre field of summer-fallow was ploughed by the machine located on the Station. Owing to the wet spring, seeding continued till June 1. Weeds such as stinkweed had made a very vigorous growth during the wet weather and at that date were in blossom. In two days the field was ploughed to a depth of four inches by a seven-and-a-half-foot machine drawn by a tractor rated at 15 horse-power at the drawbar. Had ordinary ploughing been attempted a great number of weed plants would have formed seeds before the finish. This field was subsequently cultivated on two occasions with a duckfoot cultivator and went into the winter in a clean, ridged condition.

Owing to the fact that the soil is not completely inverted and that the stubble is not completely covered the use of this plough may be a factor in spreading sawflies. Where sawflies are not a menace, the plough can be used to good advantage, regardless of the type of soil. By reducing the time and labour cost of preparation for second-year crops it shortens the period of spring work, thus enabling earlier and better summer-fallowing.

THE POWER BINDER

A power binder cutting ten feet and operated by a power take-off from an I.H.C. Farmall tractor was used on the Station this year. The heavy straw common in crops this season, as well as the lodging and tangling occasioned by rust, wind and rain made ordinary binder-harvesting slow and wasteful. In many cases the ground-driven binder was not able to cut a full swath. Frequently when the extra load incident to kicking the sheaf out of the binding mechanism was placed on the already overloaded binder the ground-wheel dragged. This stopped the cutting mechanism and thus left patches of crop uncut. This trouble was aggravated by wet weather which by softening the ground and filling up the spaces between the wheel-lugs reduced traction to a great extent. There was a very heavy sale of power-binders throughout western Saskatchewan and Alberta.

Ten-foot power binder. Cuts 25 to 40 acres per day.

The binder is capable of harvesting twenty to thirty acres a day, depending on the condition of the crop. As the entire mechanism is operated from the tractor by means of the power take-off it can be operated with satisfaction when the ground is too soft for good work with the ground-driven binder. An additional feature is that in the case of a heavy mass of straw "plugging up" the elevators or the binder-attachment the binder and tractor can be stopped and the machine "cranked" clean by means of the power take-off. In the ordinary binder this condition can only be overcome by pulling as much straw as necessary and then cleaning out the remainder by means of the hand-crank.

In the conditions mentioned the power-binder did good work and was usually able to cover a fair acreage per day in almost any condition of crop. In a year of clean standing crops and dry weather its advantage would not be so marked, but by reason of its motive power it would be capable of being used over a longer number of hours per day in favourable weather than the horse-drawn, ground-driven binder.

HORTICULTURE

On the whole, the season was favourable for horticulture. Trees, shrubs, and flowers were particularly benefited by the abundant rains and moderate temperatures of the early part of the season. Frost damage was negligible among the ornamental plantings. In the vegetable garden, much more damage was done by frost, but for the hardy vegetables the season was very favourable.

BEAN VARIETIES

Variety	Yield per 30-foot row 1927		Average three years	
	lb.	oz.	lb.	oz.
Masterpiece O–9337	18	10	11	13
Bountiful	5	13	10	1
Wardwell Kidney Pod O–5203	10	10	9	9
Masterpiece (Sutton)	13	10	9	7
Round Pod Kidney Wax	8	2	8	3
Hodson Long Pod (Rennie)	8	1	8	2
Pencil Pod Black Wax	8	8	7	4
Refugee	13	8	7	2
Stringless Green Pod (Burpee)	10	12	6	13
Hodson Long Pod O–2743	5	4	5	6
Stringless Green Pod O–5405	9	12	6	8
Yellow Eye (Yellow Pod)	10	8	*	
Wardwell Wax	9	0	*	
Interloper Chall. Black Wax O–6861	8	8	*	
White Pole No. 1 O–5964	7	10	*	
Davis White Wax O–2544	14	1	*	
Princess of Artois	9	7	*	
The Prince	2	8	*	

* Grown less than three years.

Eighteen varieties were planted out on May 4. The seeding season was cold and wet. Germination was delayed with the result that the plants did not appear above ground till June 7. Many seeds rotted in the ground, so that germination varied from 60-90 per cent. Blister beetles were a serious source of menace during the season.

BEANS—DISTANCE OF PLANTING

Variety	Distance sown apart in rows	Yield per 30-foot row, 1927		Average yield, three years	
	ins.	lb.	oz.	lb.	oz.
Round Pod Kidney Wax	2	16	6	12	13
Round Pod Kidney Wax	4	12	5	11	0
Round Pod Kidney Wax	6	10	1	8	8
Stringless Green Pod	2	16	6	13	0
Stringless Green Pod	4	9	9	8	11
Stringless Green Pod	6	6	4	7	15

The highest yields during the past three years have consistently been obtained from the thickest planting. There was no material variation in either the quality or size of pods of the crop grown this year.

BEET VARIETIES

There are seven varieties in this test—and of these Detroit Dark Red and Black Red Ball were the best of the round types and the Improved Dark Red the best of the long types.

BEETS—DATES OF SEEDING

The earliest sowings result in obtaining beet roots correspondingly earlier, though occasionally uneven germination occurs. For winter storage purposes May 10-May 20 has been the best time to sow beet seed.

BEETS—DIFFERENT DATES OF SEEDING

Five Sowings at Ten-day Intervals

Variety	Ten days between each sowing	Yield per 30-foot row, 1927		Average three years	
		lb.	oz.	lb.	oz.
Detroit Dark Red	1st sowing	77	0	33	11
	2nd sowing	55	0	34	0
	3rd sowing	58	0	36	0
	4th sowing	52	0	41	0
	5th sowing	21	0	27	0

BORECOLE OR KALE—VARIETY EXPERIMENT

Two varieties—Tall Scotch Curled and Dwarf Green Curled—were grown. Both made excellent growth during the season. The Dwarf variety, though not so high yielding as the tall sort, produced leaves that were finer and more tender. Kale or Borecole compares very favourably with such green leaf vegetables as spinach, especially in dry seasons when the latter tends to run to seed rapidly.

BRUSSELS SPROUTS

Two varieties were used—Dwarf and Paris Market. Both these varieties grew large leaves in abundance, but failed to develop edible sprouts.

CABBAGE—VARIETY TEST

Variety	Average weight per head, 1925		Average weight per head, 1926		Average weight per head, 1927		Average three years	
	lb.	oz.	lb.	oz.	lb.	oz.	lb.	oz.
Glory of Enkhuizen	9	13	8	4	14	14	10	15
Succession	9	14	7	3	14	10	10	9
Kildonan	7	1	11	11	10	10	9	12
Brandon Market	3	8	10	0	13	11	9	1
Danish Roundhead	6	4	8	8	9	12	8	2
Summer Ballhead	6	6	9	5	7	11	7	12
Improved Am. Savoy	6	8	7	8	6	13	6	15
Northern Favourite	5	8	7	8	7	4	6	12
Danish Ballhead (short stem)	3	9	6	0	8	10	6	1
Copenhagen Market	6	9	3	13	7	9	5	15
Ex. Amager Danish Ballhead	3	14	7	11	6	4	5	15
Danish Ballhead Harris	4	14	7	8	4	3	5	8
Early Jersey Wakefield	3	14	2	6	6	15	4	6
							Average, 2 years	
Early Winnigstadt	.....		8	3	7	0	7	9
Babyhead	.....		5	4	9	12	7	8
Danish Ballhead S.E.S.	.....		.....		.....		7	3
True Danish Ballhead	.....		.....		.....		7	2
Early Summer	.....		.....		.....		7	0
Danish Ballhead Rennie	.....		.....		.....		6	8
Golden Acre	6	14	.....		5	10	6	4
Early Paris Market	2	14	.....		6	11	4	12
Danish Hollander	.....		.....		8	5	.....	
XXX De Rennie	.....		.....		7	12	.....	
Brunswick (short stem)	.....		.....		5	3	.....	
Kinver Globe	.....		.....		8	5	.....	

The season was excellent for the growing of cabbage. The varieties were started in the greenhouse on March 14, pricked out on April 14 and planted in the open on May 18. The plants made rapid growth and soon after July many of the early varieties showed signs of splitting. The best early varieties this season were Summer Ballhead, Golden Acre and Copenhagen Market; the best medium early were Brandon Market, Succession and Glory of Enkhuizen; and the best late were Kildonan and Danish Ballhead.

CABBAGE—DATES OF SEEDING

The earliest possible date of seeding was April 30. The experiment was begun at this time and continued until five sowings had been made at intervals of ten days each. All of the first four sowings of Copenhagen Market produced good, firm heads, but much too early for winter storage. The first two sowings of Danish Ballhead produced good heads for storage. The remainder did not develop sufficiently.

CABBAGE—DIFFERENT DATES OF SEEDING FOR WINTER STORAGE

Sown at intervals of Ten-day Periods.

Variety	Ten days between each sowing	Yield per 30-foot row, 1927	Average yield for three years	Remarks for 1927 Crop
		lb.	lb.	
Copenhagen Market	1st sowing	131	64	Almost all split
"	2nd sowing	136	96	Almost all split
"	3rd sowing	122	79	Almost all split
"	4th sowing	100	69	Few fit for storage
"	5th sowing	33	28	Few headed up
Ex. Amager Danish Ballhead	1st sowing	45	31	Small firm heads
" "	2nd sowing	39	53	Small firm heads
" "	3rd showing	42	48	Loose heads
" "	4th sowing	14	25	Few headed up
" "	5th sowing	Loose leaves.	11	None headed up

CARROTS—VARIETY TEST

Six varieties in test. Best short variety, Oxheart; best half-long variety, Early Scarlet. Long carrots are not recommended for growing under dry conditions. Such types usually become rough and prongy and are difficult to harvest.

CARROTS—DATES OF SEEDING

Variety	Date sown	Average Yield per 30-foot row, 1925		Average Yield per 30-foot row, 1926		Average Yield per 30-foot row, 1927		Average three years	
		lb.	oz.	lb.	oz.	lb.	oz.	lb.	oz.
Chantenay	April 30	43	0	17	8	55	0	38	8
	May 10	31	4	20	4	51	0	34	12
	May 20	18	12	22	8	42	8	27	14
	May 30	17	8	27	0	54	0	32	13
	June 9	18	12	13	8	25	0	19	1

Carrots planted on April 30 and May 10 germinated well and were the first ready for table use, but if allowed to continue growing till fall, develop into coarse and split roots. Sowings of May 20 and 30 produced large roots free from splitting, but the best for storage use were obtained from the latest sowing.

CAULIFLOWER—VARIETY TEST

Four varieties were sown in the greenhouse on March 23, pricked out on April 14 and planted out on May 19. The comparatively cool season of unusual rainfall seemed to favour development of good size closely-formed heads. Early Snowball is the variety recommended.

CELERY—VARIETY TEST

Thirteen varieties were sown in flats in the greenhouse on March 17. These germinated from March 23 to March 28. The germination per cent was only fair. Plants were pricked out on April 4 and planted in prepared trenches on June 10. A commercial strain of Golden Self Blanching was badly attacked by a form of rust; others were only slightly affected. A commercial strain of Golden Self Blanching and Paris Golden Yellow were also badly affected by a form of rot. Several other varieties were similarly attacked, but in a lesser degree. Wonderful showed less susceptibility to both diseases above mentioned, no trace of either being observed, and in addition has the merit of producing good-sized heads of good average weight. White Plume is a variety that blanches well and is well recommended.

CELERY—VARIETY TEST

Variety	Source of Seed	Height of Plant	Height of Blanch	Average weight per head	
				1927	Three years
		ins.	ins.	lb. oz.	lb. oz.
Garrs Easy Blanching	Graham	23	16	1 8	1 4
Paris Golden Yellow	Steele Briggs	24	16	1 11	1 4
Golden Self Blanching	C. E. F.	21	14	1 4	1 0
White Plume	Graham	23	17	1 2	0 15
Paris Golden Yellow	Dupuy & Ferguson	24	14	1 6	0 15
Golden Self Blanching	MacDonald	20	12	1 0	0 14
					Average, two years
Emperor	Schell	25	15	1 3	1 4
Wonderful	Ferry	21	15	1 10	1 4
Fordhook New Emperor	Vaughan	27	17	1 9	1 4
Golden Plume	Graham	23	14	1 4	1 2
Easy Blanching	Stokes	23	16	1 2	
Fordhook Emperor	Schell	21	13	1 4	
Paris Golden Yellow O.S.	Dupuy & Ferguson	22	15	1 0	
Evans Triumph	Dupuy & Ferguson	21	14	1 0	

CELERY—BLANCHING EXPERIMENT

Variety	Method of Blanching	Ready for use	Height of Plant	Height of Blanch	Average weight per head, 1927	Average three years
			inch	inch	lb. oz.	lb. oz.
Golden Self Blanching—						
Grown on level bed 6 ft. square. Plants spaced 6 x 6	Self	Sept. 19	23	14	1 1	0 11
Grown on level, 15 ft. single row. Plants 6" apart in row	Earth blanched.	Sept. 19	21	14	1 11	1 5
Grown on level, single row	Board blanched	Sept. 19	19	9	1 13	1 1
Grown on level, double row, 6" apart. Plants 6" apart in row.	Building paper	Sept. 19	17	10	1 1	0 13
Grown in trench 6" deep, single row	Earth blanched.	Sept. 1	20	12	1 0	1 3
Grown in trench, double row	Earth blanched.	Sept. 1	20	12	1 0	0 10

Earth-blanched celery was the first ready for table use. The greatest amount of blanching was obtained from trench-grown and earth-covered plants. Rust and rot appeared on most of the trench-grown plants, but none

was observed where other methods of growing were used. On the other hand, trench-grown and earth-blanched plants produced the most tender stems, while that grown above ground was tough and stringy.

CORN—VARIETY TEST

Eight varieties were included in the test. Sixty-day Golden was considered one of the most satisfactory varieties in both earliness and flavour. Other good varieties are Pickaninny, Banting, and Alpha. Golden Bantam and Burbank Sweet are too late in maturing.

CORN—SUCKERING EXPERIMENT

The test was conducted with early Malcolm and Golden Bantam. No difference in size of ears or yield of cobs was gained by removal of suckers.

LETTUCE—VARIETY TEST

Variety	Source of seed	Weight of ten average heads		Remarks
		lb.	oz.	
Grand Rapids O-8287	C.E.F	17	0	Large curled leaf.
Early Paris Market—O-8414	C.E.F	11	8	Ran to seed quickly.
Grand Rapids	MacKenzie	16	4	Large curled leaf.
New York	MacKenzie	23	3	Dark green; lasts well.
Black seeded Simpson	Vaughan	29	14	Ran quickly to seed.
Giant crystal head	Vaughan	19	6	Not inclined to run to seed.
Vaughan, All season	Vaughan	12	3	A smooth-leaved type.
Black curled Simpson	Ewing	19	8	Leaves curled; lasts well.
Iceberg	Ewing	17	12	Very fine heart lettuce.
Early cruled Simpson	Harris	21	0	Quickly ran to seed.
Black seeded Simpson	Harris	22	2	Leaf lettuce; ran to seed quickly.
Grand Rapids	Burpee	23	6	Curled leaf; ran to seed quickly.
Wheeler Tom Thumb	Burpee	7	2	Small, nice shape.
Improved Hanson	Dupuy & Ferguson	17	2	Heart lettuce; not inclined to run to seed.
Salamander	MacDonald	7	11	Good leaf lettuce.
Paris White Cos	MacKenzie	19	9	Very fine leaf lettuce.
Wonderful	Will	26	0	Leaves very dark; a good lettuce.

ONIONS—TEST OF VARIETIES

Grown from seed sown in the open

Variety	Source of seed	Size	Average weight per 30-foot row		Remarks
			lbs.	oz.	
Japanese or Ebenezer	Schell	Fair	17	1	Nice shape, large, firm.
Red Wethersfield	Will	Large	18	1	Large, good cropper, few thick necks.
Long Red Wethersfield	Graham	Large	20	0	Few thick necks, good shape.
Yellow Globe Danvers	Graham	Medium	19	7	Excellent onion, large, no thick necks.
Silver King	Graham	Medium	9	3	Nice shape, clear white skin.
Giant Prizetaker	Graham	Large	24	11	Extra large, fine shape, good cropper.
Extra flat Red Wethersfield	Graham	Large	14	8	Good shape, few thick necks.
Ailsa Craig	Graham	Large	22	9	Splendid onion; no thick necks.
Long Red Wethersfield-O-8415	C.E.F	Large	18	8	Large; few thick necks.
Yellow Danvers—O-8693	C.E.F	Small	7	8	Small; nice shape.
Southport Yellow Globe	McKenzie	Medium	13	6	Good shape; no thick necks.
Extra Selected Long Red Wethersfield	McDonald	Medium	10	8	Large; many thick necks.
Onions grown from sets					
Yellow Selected Sets	Steele, Briggs		5	0	Not so good as red; uneven shape; more thick necks.
Red Selected Sets	Steele, Briggs		5	8	Bulbs nicely shaped; few thick necks.

PARSNIP—DATES OF SEEDING

Variety	Ten days between each sowing	Weight per 30-foot row 1927		Average for three years	
		lb.	oz.	lb.	oz.
Hollow Crown	April 30	32	3	17	3
"	May 10	26	9	15	2
"	May 20	28	2	17	14
"	May 30	17	6	14	7
"	June 9	7	3	8	9

Excellent yields of good sized and well-shaped parsnips were obtained from the first three sowings. The fourth sowing produced just medium-sized roots. Those from the last sowing were too small and not suitable for use.

PEA VARIETIES

Variety	Yield per 30-foot row 1927		Average yield for four years	
	lb.	oz.	lb.	oz.
Gradus X American Wonder	12	10	9	11
English Wonder	11	1	9	2
Gregory Surprise X English Wonder	13	2	9	0
Stratagem	17	1	8	8
Thomas Laxton	6	13	6	3

PEAS—DISTANCE OF PLANTING

Variety	Distance between plants in row	Length of pod	Number of peas in pod	Average weight per 30-foot row 1927		Average three years	
	inch.	inch.		lb.	oz.	lb.	oz.
Thomas Laxton	3	3	7	4	5	6	6
Thomas Laxton	2	3	7	4	12	6	1
Thomas Laxton	1	2½	5	7	13	8	10
Stratagem	3	4½	8	9	12	7	10
Stratagem	2	4½	8	11	5	10	0
Stratagem	1	4½	8	15	8	12	6
English Wonder	3	3	6	10	1	10	1
English Wonder	2	3	6	13	10	12	1
English Wonder	1	3	6	13	9	11	14

POTATOES—DATES OF PLANTING

Variety	Date planted	Ready for use	Per cent not marketable	Yield per 30-foot row of 13 hills	
				lb.	oz.
Irish Cobbler	April 30	Sept. 3	10	38	0
Irish Cobbler	May 15	Sept. 3	10	40	0
Irish Cobbler	May 20	Sept. 3	5	45	8
Early Ohio	April 30	Sept. 3	5	40	0
Early Ohio	May 15	Sept. 3	5	37	8
Early Ohio	May 20	Sept. 3	5	33	0

No material difference in yield or time of maturity of potatoes planted at different dates occurred this year, largely due to the fact that the period covering the three dates of seeding was cold and backward and tubers remained dormant till early in June.

POTATOES SPROUTED VS. NOT SPROUTED

Variety	Date planted	Date ready for use	Per cent not marketable	Yield per 30-foot row of 13 hills	
				lb.	oz.
Irish Cobbler (sprouted)	May 10	July 20	4	33	14
Irish Cobbler (not sprouted)	May 10	Aug. 15	6	17	5
Early Ohio (sprouted)	May 10	July 20	6	30	2
Early Ohio (not sprouted)	May 10	Aug. 15	10	15	4

Irish Cobbler and Early Ohio potatoes were set to sprout below greenhouse benches in subdued light on March 14. Very short green sprouts were developed by May 10, when the tubers were planted out. Care is exercised to prevent any long, tender, white sprouts to develop during the sprouting period, as these usually get damaged before or during time of planting. Very little scab appeared on the tubers from sprouted seed as compared with those from unsprouted seed.

POTATO VARIETIES

Variety	Bushels per acre 1927	Average five years
Epicure	369	364
Ash Leaf Kidney	331	347
American Wonder	219	334
Houghton Rose	282	328
Burnaby Mammoth	311	328
Extra Early Eureka	331	318
Carter Favourite	331	316
Wee MacGregor	273	312
Irish Cobbler	315	311
Duchess of Norfolk	265	286
Country Gentleman	186	262
King Edward	165	261
Early Ohio	224	232
Duke of York	68	197
Snyder Early	282	241*
Gold Coin	257	223*
Netted Gem	228	191*
Blue Cup	149	139*
Mitchell Selected	269	269†

*Two years. †One year.

Up to August 8 the season was one of the most favourable for the growing of potatoes. Then, all the foliage was damaged by frost and little further development of tubers took place from that time till harvest. Epicure has been a consistently high-yielding early variety that offers strong competition to the Irish Cobbler. In shape and colour of skin it closely resembles the Irish Cobbler, but possesses shallower eyes. The Duke of York variety, though not very high-yielding, is very suitable where early potatoes are required. The eyes are very shallow, shape is very smooth, and the skin yields very readily on scrubbing. Other good varieties suitable to the district are, Ashleaf Kidney, Snyder Early, Extra Early Eureka and Carter Favourite.

RADISH—VARIETY TEST

Variety	Source of seed	Yield of bunches of 12 per 30-foot row	Remarks
Icicle	Dupuy & Ferguson	43	A splendid radish; long, white, of good shape.
Chartier	Ewing	7	A rather late, coarse, deep-rooting variety.
French Breakfast	James Bros	18	Mild; rather uneven in shape.
Scarlet White Tip	MacDonald	14	Good variety; very mild flavour, good shape.
Scarlet White Tip	Graham	32½	Good variety; very mild flavour, good shape.
XXX Scarlet Oval	Rennie	18	Medium size; inclined to go hollow early.
Twenty Day	Vaughan	24	Mild, large, of good shape.
Scarlet Turnip White Tipped	MacDonald	16	Rather strong flavour; nice shape.
Saxa	Rice	29½	Of good shape and size; very mild.

SQUASH-PUMPKIN VARIETY TEST

Five varieties of squash—Golden Hubbard, Long White Bush Marrow, Table Queen, Kitchenette, and Des Moines and the following varieties of pumpkin—Sweet or Sugar, Mammoth or Jumbo, Large Cheese, Small Sugar. Of the squash, Long White Bush Marrow gave the most promise, likewise the Sweet and Small Sugar varieties in the pumpkin class.

The vines were all injured by frost on August 8.

TOMATO VARIETIES

Variety	Date planted out	First ripe fruit	Yield fruit per 30-foot row of 16 plants							
			1927				Average three years			
			Ripe		Green		Ripe		Green	
			lb.	oz.	lb.	oz.	lb.	oz.	lb.	oz.
Alacrity X Hipper—O–9725	June 6	Aug. 17	36	13	5	11	19	8	27	9
Pink No. 2—O–9730	" 6	" 15	27	12	1	1	18	14	21	3
Alacrity X Earlibell—O–9729	" 6	" 13	32	7	1	2	16	5	26	0
Burbank (Bruce)	" 6	" 16	32	11	4	1	15	3	30	0
Bonny Best	" 6	" 13	34	11	2	1	15	3	27	5
Alacrity—O–9720	" 6	" 25	25	7	5	14	14	1	28	0
Bolgiano	" 6	" 30	16	7	2	6	14	0	25	10
Chalk Early Jewel	" 6	" 13	37	5	6	4	13	7	26	4
Manyfold	" 6	" 23	27	15	5	8	13	6	21	8
First and Best	" 6	" 15	29	3	5	0	13	5	27	12
Monumental	" 6	" 17	25	5	2	10	12	2	15	11
John Baer	" 6	" 13	19	11	6	0	8	5	23	5
							Yield 2 years			
Abbotsford Argo, No. 24	" 12	" 26	.....		.....		24	13	10	10
Bonny Best (Field type)	" 6	" 13	27	8	5	6	17	2	21	8
The Burbank	" 6	" 15	31	12	5	12	16	13	17	14
Danish Export	" 11	" 24	.....		.....		15	13	27	12
Wayahead	" 6	" 19	17	5	4	3	15	11	25	9
Early Prolific	" 6	" 19	28	14	5	9	14	14	17	12
Pink No. 1—O–9731	" 6	" 15	32	4	3	3	14	0	9	1
Princess Mary	" 6	" 21	40	1	88	0				
Jewel	" 6	" 20	34	8	6	8				
Early Atlantic Prize	" 6	" 15	33	2	14	8				
L.G.B.B. 11392	" 6	" 17	30	4	7	2				
Earliana	" 6	" 20	24	5	6	0				
Bloomsdale	" 6	" 30	22	10	12	0				
A.B.B. 11390	" 6	" 22	16	4	3	1				
Red Rock	" 6	" 25	16	1	6	11				

Seeds of twenty-four varieties or strains were planted in flats on the 16th of March. The varieties L.G.B.B. 11392 and A.B.B. 11390 were not sown till the 28th of March. Plants were pricked out on the 11th and 12th April. The highest yielding variety this year was Princess Mary. The fruit of this variety was large, of good shape with very little tendency to cracking. Other good varieties were Pink No. 1, Pink No. 2, Chalk Early Jewel, and Bonny Best.

FRUITS AND ORNAMENTALS

TREES FOR WIND-BREAKS

The abundance of spring rains served to force the growth of poplars, elms, maple, ash, spruce, Scotch pine, and jack pine to a remarkable extent. Many of the poplars planted as cuttings in 1923 have now reached a height of 15 to 20 feet. Some caragana hedges have assumed permanent proportions and are being kept trimmed.

In some places where trees are well developed, some thinning is being done in order that the remaining trees may have a larger area from which to draw moisture. Planting trees 8 feet apart each way under dry conditions seems advisable. This method allows access with horse-drawn cultivator to keep down weeds for a longer period of time than is permissible by closer spacing. Under dry conditions trees are much more satisfactorily grown when the soil about them is kept strictly free from weeds. Weeds are a great factor in depleting soil moisture that would otherwise support the tree.

ORNAMENTAL SHRUBS

Variety	Winter killing	Began to bloom	Bloom over
Ginnalian Maple	Nil	June 22...	July 1
Siberian Pea Tree	Nil	" 8...	June 21
Woody Caragana	Nil	" 8...	" 21
Dwarf Caragana	Nil	" 12...	" 27
Common Lilac	Nil	" 8...	" 28
Josika Lilac	Nil	" 8...	" 28
Villosa Lilac	Nil	" 24...	July 10
Halimodendron	Some dead	July 4...	" 20
Van Houtte Spiraea	Slight	June 8...	June 16
Sorbus-leaved Spiraea	Slight	" 28...	Sept. 1
Spiraea arguta	Slight	" 8...	June 26
Tartarian Honeysuckle	Nil	" 8...	" 26
Albert Regel Honeysuckle	Nil	" 15...	" 29
Japanese Rose	Slight	" 27...	Frost
Rosa rubrifolia	Nil	" 26...	Aug. 20
Russian Olive	Slight		
Shrubby Cinquefoil	Nil	" 15...	Sept. 7
Missouri Currant	Nil	" 8...	June 20
Siberian Dogwood	Nil	" 15...	" 28

TREE FRUITS

A number of the apple and plum trees planted in 1926 were killed during the following winter. Many hardy varieties still remain and these will largely form the basis of future tests.

BUSH FRUITS

Twenty varieties of currants, eight varieties of raspberries and four varieties of gooseberries were planted in the spring of 1926. Raspberries and goose-

berries were given a winter protection of straw mulch and came through with practically no loss. Raspberry canes were laid over and earth covered, but many of these did not survive.

None of the currant bushes have yet developed sufficiently to enable comparison of yield and quality of fruit.

Protecting small fruits with straw during winter.

PERENNIALS

The perennial borders have now become well established. Those planted out in 1925 and many set out in 1926 made a splendid showing this year. Close planting is avoided in the perennial border in order not to deplete the soil moisture excessively, since no artificial means of watering are employed. Special attention is paid to the drought hardiness of plants as well as winter hardiness. Among the most promising are, *Dianthus, Pyrethrum, Delphinium, Aquilegia, Linum sibiricum, Gaillardia, Achillea, Arabis alpinus* and Perennial Candytuft.

TULIPS—VARIETY TEST

Over fifty varieties have been tested each year for the past five years. Each spring has always brought forth an abundance of tulips. Tulips seem very adaptable to Southwestern Saskatchewan conditions. Each fall the tulip beds are forked to a depth of nine inches and the bulbs are planted in these beds 6 inches deep and 6 inches apart each way. After the first severe frost 6 inches of well-rotted manure is spread over the beds. This ensures keeping the bulbs dormant until spring opens up, when the manure is then lightly raked off.

The best showing was obtained from the early single varieties. These are short-stemmed and endure the rigours of strong winds much better than the late Darwin varieties, which grow large, fine blooms on long stems. The possible wind damage to Darwins can, however, in a measure be overcome by planting in a sheltered location.

ANNUALS

Ninety-six varieties, including many strains, were planted in test rows and about the grounds. The hardiest varieties were sown in the open on May 11 and the half-hardy kinds were started in flats in the greenhouse on March 31. A succession of bloom appeared throughout the season. Some of the less-hardy varieties such as *Portulaca, Cosmea, Convolvulus,* Marigold, Nasturtium, Sunflowers, and Zinnia were injured by frost on August 8. Under dry conditions, and where it is not convenient to water an annual flower bed, good results may be obtained by sowing seed in beds that have previously been fallowed. This method also assists materially in preventing excessive growth of weeds.

SWEET PEAS—TEST OF VARIETIES

Over sixty varieties were planted on the 27th April in previously prepared hills. The hills were first dug 12 inches deep and 6 inches of well-rotted manure placed in the bottom. This was covered with 6 inches of top soil, the remaining subsoil being deposited around the prepared area to form a rim, thus forming a "saucer-shaped" hill. The seeds are scattered in the low portion of the hills. Blooms began to appear on the 11th of July and continued freely till the 19th of September, when they were killed by frost.

CEREALS

As indicated in previous reports, cereal work at this Station follows two different lines. First, we have under test in triplicated fiftieth-acre plots a considerable number of more or less well established varieties of winter and spring wheat, oats, barley, peas, rye, and flax. Secondly, a large number of selections, hybrids, and relatively new varieties of wheat, oats and barley are under comparison and study in rod row plots. These rows are replicated nine times and checked at each fifth plot. Complete data on all observable characters of crops grown in these rows are recorded. In nursery rows of similar plan, efforts are being made to purify and improve varieties.

The following tables present the results from the larger test plots. No data from the rod row tests or nursery rows are published as yet.

COMMON SPRING WHEAT—TEST OF VARIETIES AND STRAINS, 1927

1/50-acre Plots—Triplicated. Sown on fallow, May 10.

Variety	Date ripe	Stem rust	Height at harvest	Yield per acre	Weight per measured bushel at separator
			inch.	bush.	lb.
Ceres	Aug. 25	Trace	40	43·4	59·3
Reliance	Sept. 2	Considerable	39	43·1	58·6
Red Bobs Supreme	Aug. 26	Bad	36	39·7	57·1
Marquis	Aug. 27	Considerable	39	39·2	58·8
Garnet	Aug. 17	"	34	39·1	59·3
Renfrsw	Sept. 2	Bad	41	38·1	57·3
Kitchener	Aug. 30	Considerable	42	37·4	59.0
Red Fife—0–17	Aug. 31	Bad	39	36·7	55·1
Reward	Aug. 18	Trace	36	34·4	62·3
Early Red Fife	Aug. 30	Considerable	39	32·2	56·8
Producer	Aug. 26	Bad	36	32·0	57·1
Ruby	Aug. 20	Bad	36	29·3	60·5

SPRING WHEAT—VARIETIES AND STRAINS

Comparative yields for a number of years

Variety	Yield of grain, bushels per acre								Comparative yield in per cent of M. for same years
	1922	1923	1924	1925	1926	1927	Average for years grown	Average for Marquis for same years	
Ceres	.....	.....	.....	.....	.....	43·46	43·46	39·30	110·6
Reliance	.....	.....	.....	.....	.....	43·11	43·11	39·30	109·7
Kitchener	38·00	22·60	19·92	27·98	33·04	37·41	29·82	28·61	104·2
Garnet	.....	.....	.....	26·53	31·11	39·08	32·24	31·18	103·4
Producer	.....	.....	.....	26·44	37·49	32·06	31·99	31·18	102·6
Supreme	32·00	26·00	18·25	26·79	32·63	39·71	29·23	28·61	102·2
Kubanka	37·33	26·00	19·78	24·51	33·18	34·14	29·15	28·61	101·9
Marquis	32·00	27·50	18·55	23·33	31·03	39·30	28·61	28·61	100·0
Mindum	.....	.....	.....	.....	.....	39·08	39·08	39·30	99·4
Renfrew	.....	.....	.....	.....	.....	38·18	38·18	39·30	97·1
Reward	.....	.....	.....	22·01	29·52	34·43	28·65	30·18	94·9
Early Red Fife	30·66	22·30	18·57	27·21	28·46	32·21	26·56	28·61	92·8
Ruby	31·33	25·70	19·52	23·59	29·78	29·30	26·53	28·61	92·7
Red Fife	28·40	22·18	21·17	.....	.....	36·79	27·13	29·33	92·5

DURUM WHEAT—TEST OF VARIETIES AND STRAINS

1/50-acre plots.—Triplicated. Sown on fallow, May 10

Variety	Date ripe	Stem rust	Height at harvest	Yield per acre	Weight per measured bushel at separator
			inch.	bush.	lb.
Mindum	Sept. 1	Trace	45	39·0	61·7
Kubanka	Sept. 1	Considerable	45	34·1	60·8

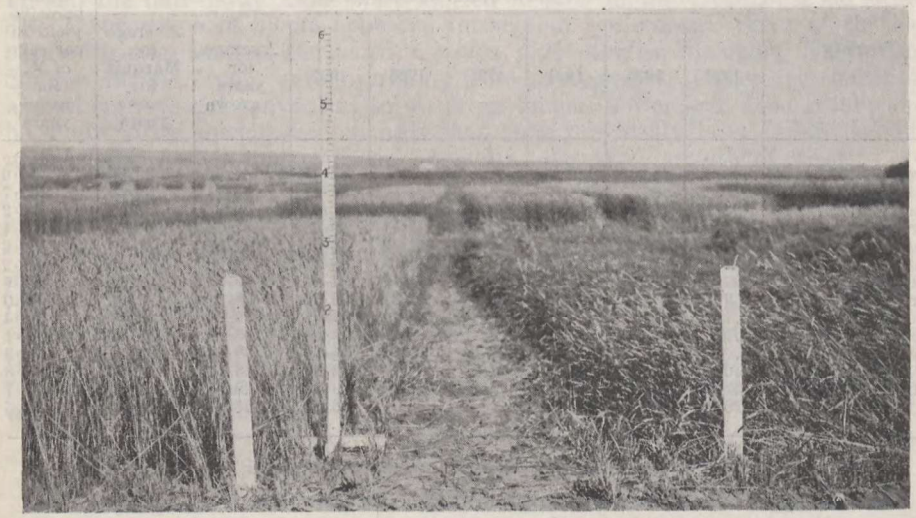
SPRING WHEAT VARIETY TESTS

Ceres and Reliance were grown this year for the first time. Both these varieties originated at the North Dakota Station at Fargo. Ceres is the result of a cross between Marquis and Kota, and Reliance comes from a cross between Marquis and Kanred, a winter wheat.

Rust infestation was very heavy this year and some varieties that have produced high yields of good quality grain in previous years, when little rust occurred, suffered considerably. Producer wheat is an outstanding example of this.

Reward wheat originated from a cross between Marquis and Prelude at the Central Experimental Farm at Ottawa in 1912. This variety has not equalled Marquis in yield, but over a period of three years' test has yielded only 5 per cent less than Marquis. Observations indicate that heavier seeding of Reward wheat may result in increase of yield, since the kernels of this variety are very large and plump. Besides yielding grain of excellent quality, the variety matures about one week earlier than Marquis, and grows very strong, stiff straw. Many varieties, including Marquis, lodged considerably this year, but Reward was one of the very few that remained erect.

Kitchener and Supreme are two varieties that have been consistently high yielders of grain.



Reward wheat on left—note strength of straw.

OATS—TEST OF VARIETIES AND STRAINS

Grown on fall-ploughed oat stubble—1/100 acre plots—triplicated. Sown May 12.

Variety	Date ripe	Height at harvest	Yield of grain per acre	Weight per measured bushel at separator
		inch.	bush.	lb.
Gold Rain	Aug. 24	43	86·0	39·0
Banner	" 23	42	82·6	39·0
Leader	" 24	41	79·9	36·6
Longfellow	" 23	41	79·1	37·5
Gerlach	" 26	43	78·9	37·3
Markton	" 17	38	78·2	34·5
O.A.C. No. 72	" 27	44	77·4	37·6
Victory	" 24	41	74·0	38·4
Cole	" 12	36	72·5	33·0
Daubeney	" 11	36	71·0	34·8
Abundance	" 26	41	63·5	40·0
Laurel	" 21	36	59·5	50·3
Liberty	" 24	40	49·3	47·6
Alaska	" 12	33	52·9	38·3

OATS—TEST OF VARIETIES AND STRAINS

1-100 acre plots—Triplicated. Sown on fallow, May 12.

Variety	Date ripe	Height at harvest	Yield grain per acre	Weight per measured bushel at separator
		inch.	bush.	lb.
Victory	Aug. 18...	42	99·7	40·8
Cole	" 16...	36	98·2	34·0
Leader	" 21...	41	94·1	37·3
Gerlach	" 21...	44	91·6	38·0
Banner	" 22...	41	89·2	38·1
O.A.C. No. 72	" 24...	45	88·2	37·0
Gold Rain	" 22...	43	86·9	39·6
Longfellow	" 21...	42	85·5	37·8
Daubeney	" 10...	35	80·1	36·3
Abundance	" 20...	42	74·9	43·3
Markton	" 20...	37	73·0	36·5
Laurel	" 22...	37	71·5	49·6
Alaska	" 16...	36	67·1	38·0
Liberty	" 25...	40	49·9	42·3

The season was one of the most favoured for oats that the Swift Current district has experienced for a number of years. The merits of the varieties are greatly influenced by crop rotation conditions and the rainfall of the crop growing season as indicated by the tables. Gerlach and Victory have been yielding well over a period of five years on fallow, but give place to Banner and Cole under less favourable moisture conditions. The Laurel and Liberty are hulless varieties.

OATS—TEST OF VARIETIES AND STRAINS

Comparative yields for a number of years. Grown on fall-ploughed oat stubble.

Variety	Yield of Grain, bushels per acre					Comparative yield in per cent of Banner for same years
	1925	1926	1927	Average for years grown	Average for Banner for same years	
Banner	52·2	13·7	82·6	49·5	49·5	100·0
Cole	46·3	27·9	72·5	48·9	49·5	98·8
Leader	47·4	13·5	79·9	46·9	49·5	94·8
Victory	51·4	15·4	73·9	46·9	49·5	94·8
Markton	.....	.....	78·2	78·2	82·6	94·7
Daubeney	43·3	22·8	71·0	45·7	49·5	92·3
Gold Rain	39·2	8·6	86·0	44·6	49·5	90·1
Longfellow	36·3	16·7	79·1	44·0	49·5	88·9
O. A. C. No. 72	38·9	12·2	77·4	42·8	49·5	86·6
Gerlach	38·7	10·0	78·9	42·5	49·5	85·9
Abundance	41·5	9·6	63·5	38·2	49·5	77·1
Laurel	31·2	7·6	59·5	32·8	49·5	66·2
Liberty	25·9	18·6	49·3	31·3	49·5	63·1
Alaska	14·0	15·2	52·9	27·4	49·5	55·3

OATS—VARIETIES AND STRAINS

Comparative yields for a number of years. Grown on fallow.

Variety	Yield of Grain, bushels per acre								Comparative yields in per cent of Banner for same years
	1922	1923	1924	1925	1926	1927	Average for years grown	Average for Banner for same years	
Gerlach	.....	68·5	51·8	61·7	53·4	91·6	65·4	60·0	109·0
Victory	.....	55·0	59·5	56·5	44·6	99·7	63·1	60·0	105·2
Gold Rain	70·6	53·5	52·3	63·4	51·4	86·9	63·0	62·5	100·8
Banner	74·8	60·3	33·8	65·2	51·6	89·2	62·5	62·5	100·0
O. A. C. No. 72	71·6	58·8	43·3	58·6	50·2	88·2	61·8	62·5	98·9
Leader	63·5	63·9	.....	63·0	50·9	94·1	67·1	68·2	98·4
Longfellow	.....	.....	32·2	52·1	55·4	85·5	56·3	59·9	94·0
Cole	.....	.....	45·0	44·4	35·9	98·2	55·9	59·9	93·3
Abundance	.....	44·3	42·7	55·9	59·4	74·9	55·4	60·0	92·3
Daubeney	68·0	50·4	42·2	48·0	37·0	80·1	54·3	62·5	86·9
Markton	.....	.....	.....	.....	.....	73·0	73·0	89·2	81·8
Alaska	55·1	47·1	39·3	41·5	.....	67·1	50·0	64·7	77·3
Laurel	.....	.....	.....	36·7	47·0	71·5	51·7	68·7	75·2
Liberty	48·0	42·5	.....	19·6	33·3	49·9	38·7	68·2	56·7

BARLEY—TEST OF VARIETIES AND STRAINS

1/100-acre Plots—Triplicated—Sown on fallow, May 12.

Variety	Date ripe	Height at harvest	Yield of grain per acre
		inch	bush.
Gold	Aug. 24	31	77·4
Bearer	" 25	36	75·7
Bark's	" 26	32	73·4
Hannchen	" 23	34	69·6
Charlottetown 80	" 24	33	68·9
Chinese O–60	" 17	42	66·8
O. A. C. No. 21	" 19	41	64·6
Duckbill	" 23	34	64·6
O. A. C. No. 21, Sask. No. 228	" 19	42	61·8
Albert	" 12	36	57·4
Feeder	" 13	43	57·4
Trebi	" 19	33	57·1
Guymayle	" 13	32	57·1
Junior O–471	" 13	27	51·0

BARLEY—TEST OF VARIETIES AND STRAINS

Grown on fall-ploughed barley stubble. 1/100 acre Plots—Triplicated—Sown May 12.

Variety	Date ripe	Height at harvest	Yield of grain per acre
		inch	bush.
O. A. C. No. 21, Sask. No. 228	Aug. 16	40	55·7
O. A. C. No. 21	" 16	42	54·0
Feeder	" 12	42	52·9
Chinese O–60	" 16	42	52·4
Albert	" 11	37	49·3
Trebi	" 17	33	48·4
Charlottetown No. 80	" 18	33	48·1
Duckbill	" 18	34	46·5
Guymayle	" 11	28	46·5
Hannchen	" 18	34	46·2
Gold	" 17	30	46·2
Bearer	" 17	35	43·4
Junior	" 11	25	42·9
Bark's	" 17	32	34·7

BARLEY—TEST OF VARIETIES AND STRAINS

Comparative yields for a number of years. Grown on fallow.

Variety	Yields of Grain, bushels per acre							Comparative yields in per cent of O.A.C.21 for same years
	1922	1924	1925	1926	1927	Average for years grown	Average of O.A.C.21 for same years	
Hannchen	62·5	23·7	44·5	46·8	69·6	49·9	42·8	116·6
Gold	.....	.....	.....	34·2	77·4	55·8	49·3	113·2
Trebi	63·3	33·4	36·9	45·7	57·1	47·3	42·8	110·5
Charlottetown 80	.....	31·6	39·3	33·7	68·9	43·4	41·3	105·1
Bearer	.....	21·5	39·6	29·5	75·7	41·6	41·3	100·7
O.A. C. No. 21	48·7	32·3	34·3	34·1	64·6	42·8	42·8	100·0
Bark's	61·7	15·1	33·8	19·4	73·4	40·7	42·8	95·1
Duckbill	56·7	17·4	38·2	26·0	64·6	40·6	42·8	94·8
Chinese O–60	48·3	22·6	32·5	29·8	66·8	40·0	42·8	93·4
O.A.C. No. 21, Sask. No. 228	.....	23·4	31·0	37·8	61·8	38·5	41·3	93·2
Junior	.....	20·8	34·8	32·1	51·0	34·7	41·3	84·0
Albert	31·2	15·0	26·1	40·1	57·4	34·0	42·8	79·4
Guymayle	.....	12·2	26·9	34·0	57·1	32·5	41·3	78·7
Feeder	.....	17·1	17·5	26·6	57·4	29·7	41·3	71·9

BARLEY—TEST OF VARIETIES AND STRAINS

Comparative Yields for a number of years. Grown on Ploughed Barley Stubble.

Variety	1924	1925	1926	1927	Average for years grown	Average for O.A.C. 21 for same years	Comparative yields in per cent O.A.C. 21 for same years
	bush.	bush.	bush.	bush.	bush.	bush.	
Trebi	33·4	20·9	22·4	48·4	31·3	28·8	108·7
Hannchen	23·8	33·8	14·6	46·2	29·6	28·8	102·8
O.A.C. No. 21	32·3	16·6	12·3	54·0	28·8	28·8	100·0
Charlottetown 80	31·6	21·8	07·5	48·1	27·2	28·8	94·4
O.A.C. No. 21, Sask. No. 228	23·4	14·6	14·0	55·7	26·9	28·8	93·4
Albert	15·0	20·0	18·0	49·3	25·6	28·8	88·9
Chinese O–60	22·6	13·5	09·7	52·4	24·5	28·8	85·1
Feeder	17·1	16·6	10·6	52·9	24·3	28·8	84·4
Bearer	21·5	21·3	10·2	43·4	24·1	28·8	83·7
Gold	.....	.....	06·9	46·2	26·5	33·1	80·1
Junior O–471	20·8	18·0	08·8	42·9	22·6	28·8	78·5
Duckbill	17·4	18·7	04·5	46·5	21·8	28·8	75·7
Guymayle	22·2	17·8	09·2	46·5	21·4	28·8	74·3
Bark's	15·1	18·0	04·8	34·7	18·1	28·8	62·8

Excellent yields were obtained from all varieties grown on fallow and good yields from those grown on stubble, though there is a considerable difference between the former and the latter. Gold and Hannchen are the best of the two-rowed varieties; both, however, possess very weak straw, especially in seasons of favourable rainfall. Both varieties are of Swedish origin. Trebi is a six-rowed variety that has been grown more extensively in irrigated country. Its consistent high-yielding ability on both fallow and spring-ploughed stubble land in dry or wet seasons makes it desirable where feed barley is chiefly needed.

FALL RYE—TEST OF VARIETIES AND STRAINS
1/50 acre Plots

Variety	1924	1925	1926	1927	Average for years grown
	bush.	bush.	bush.	bush.	bush.
Common	*	25·6	47·7	58·4	43·9
Rosen Sask. No. 299	41·3	26·7	44·9	62·6	43·9
Dakold Sask. No. 295	43·9	23·7	45·9	59·1	43·1
Advance No. 668	42·9	25·8	41·8	60·9	42·8
Dakold No. 959	46·6	21·5	43·1	58·8	42·5
Swedish Sask. 669	44·1	21·1	38·8	56·7	40·2

* Not grown.

There is no great margin of difference in yields of the varieties when compared for a period of three or four years. The Common variety was obtained commercially. It is not always so uniform in size and plumpness of kernel as Rosen and Dakold. Rosen, however, is sometimes subject to winter killing. Seed of the varieties grown has always been secured from isolated plots to avoid crossing or mixing with other varieties.

FLAX—TEST OF VARIETIES AND STRAINS
Comparative yields for a number of years

Variety	Yield Grain, bushels per acre					
	1923	1924	1925	1926	1927	Average for five years
Common	19·3	15·4	14·5	15·0	13·9	15·6
Novelty	16·5	16·7	14·0	14·9	8·3	14·0
Crown	14·8	16·8	12·4	13·7	10·9	13·7
Premost	16·5	14·3	12·7	14·5	8·9	13·3

Flax yields were lower this year than usual, due to slow germination and to frost damage on August 8. No wilt or other disease was in evidence.

WHEAT AND FLAX—COMBINATION CROP
1/50-acre Plots—Triplicated

Crop	Rate seeded per acre		Length of straw		Yield grain per acre		Four-year average	
	Wheat	Flax	Wheat	Flax	Wheat	Flax	Wheat	Flax
	lb.	lb.	ins.	ins.	bush.	bush.	bush.	bush.
Wheat alone	70	.....	37	.....	39·0	.....	28·5	.....
Flax alone	.....	30	.....	23	.....	10·0	.....	9·1
Wheat and flax	50	10	38	18	37·0	0·9	22·0	1·0
Wheat and flax	35	15	39	18	33·7	1·3	20·9	1·4
Wheat and flax	25	20	39	20	31·5	2·5	19·6	1·9

During the past four years no yield of flax has been obtained, when sown with wheat, that would increase the monetary return per acre. During the period that the experiment has been conducted, there has been the comparatively dry season of 1926 and the much more favoured season of 1927, but neither of these extreme conditions materially influenced the yield of flax. In the dry years where the wheat crop was sown light, in order to avoid too much competition for the flax, the crop turned out to be very thin and weedy. In seasons of more favourable moisture conditions, the wheat crop grew so vigorously that it crowded out the flax.

FIELD PEAS—TEST OF VARIETIES AND STRAINS
Comparative Yields for a Number of Years

Variety	Yield in bushels, per acre							Comparative yields in % for Can. Field for same years
	1923	1924	1925	1926	1927	Average for years grown	Average for Can. Field for same years	
Mackay	32·9	.....	.....	26·4	39·0	32·7	23·3	140·3
Carleton	28·3	44·4	31·4	25·3	39·8	33·8	26·2	129·0
Golden Vine (Sask.)	18·5	42·2	26·2	19·6	34·1	28·1	26·2	107·2
Golden Vine	13·0	31·4	29·1	25·8	36·2	27·1	26·2	103·4
Chancellor	19·2	.....	26·2	17·9	31·5	23·7	23·6	100·4
Arthur	.....	41·9	25·1	20·8	26·7	28·6	28·5	100·3
Canadian Field	17·0	36·7	24·5	20·4	32·6	26·2	26·2	100·0

The season was excellent for the production of peas either as fodder or grain. No serious damage was done by the frost of August 8. The yield of peas during the past five years seems to warrant more widespread use of this crop, where feed grain and fodder are needed. The Mackay pea continues to hold its place as the highest-yielding variety.

FORAGE CROPS

CORN—TEST OF VARIETIES AND STRAINS FOR FODDER AND GRAIN PRODUCTION

Thirty varieties or strains were planted for fodder production test. Twenty-one acclimatized selections were planted for grain production test. A number of isolation plots were set out for the purpose of obtaining pure seed or controlled crosses. The frost damage of August 8 was severe enough to prevent any reliable data being obtained as to development, yield and maturity. It was observed, however, that a few home-grown selections had reached the early dough stage when the frost occurred.

SUNFLOWER VARIETIES

The tall varieties are the highest-producing and are also latest maturing. The short, early-maturing varieties, though not appearing to yield as high as the tall kinds, have the advantage of being more easily handled at harvest time. Where silage is required and corn cannot be grown, sunflowers can be depended on to produce a good tonnage. The mennonite variety is a very short variety that could be harvested with an ordinary grain binder, and being early maturing, it can be cut and ensiled just before the busy grain harvest season. Sunflowers require abundance of moisture; consequently, in the drier districts, they should be sown on fallow in order to be reasonably sure of a crop.

YIELD OF SUNFLOWERS—VARIETIES OR STRAINS

Variety	1927 crop			Average for five years	
	Height at harvest	Green weight	Dry weight	Green weight	Dry weight
	inch.	tons	tons	tons	tons
Mammoth Russian	110	13·83	3·30	13·86	2·49
Russian Giant	86	16·23	3·38	12·17	2·29
Manchurian	65	16·13	2·15	12·19	2·07
Ottawa No. 76	71	18·77	2·68	11·96*	2·91*
Black	67	20·72	3·13	11·38	1·91
Mennonite	57	14·83	2·00	10·26	1·84
Manteca	68	17·87	2·49	11·09	1·69
Mixed	67	17·74	2·49	10·36	1·55

* Four-year average.

YIELD OF ANNUAL FODDER CROPS

Sown on fallow. 1/50-acre Plots—Triplicated

Variety	Stand	Yield per acre
		tons
Common spring rye	Normal	2·99
Banner oats	Thick	2·93
Feeder barley	Thick	3·07
Peas (Mackay)	Normal	1·69
Spring rye and peas	Normal	2·75
Banner oats and peas	Thick	2·56
Feeder barley and peas	Thick	3·32
Oats and sunflowers	Thick	2·30
Oats and corn	Thick	2·33
Hog millet	Normal	2·13
Common millet	Thick	2·11
Siberian millet	Thick	1·90
Early Amber sugar cane		*

* Damaged severely by frost Aug. 8. Yields are given on a uniform basis of 12% moisture content.

The five-year average yield of oats for hay has been 2.53 tons, cured weight. The crop was grown on fallow every year excepting 1925, when fall ploughing was used. The yield in that year was only 0.81 ton.

For cattle feeding, the inclusion of peas improves the quality of oat, barley, or rye hay. Feeder barley used for hay, is of considerable value in helping to control wild oats.

Millets are often unsatisfactory hay crops. Their slow growth in the early part of the season permits such weeds as Russian Thistle to become so well established that the millets, even if late growth is good, cannot overcome the early advantage obtained by the weeds. The result is a hay crop of poor quality and one that is difficult to handle.

On the whole, oats seeded on fallow offer as great a degree of assurance of a feed supply of good quality as any crop that can be grown with the use of ordinary implements. Where moisture conditions are very adverse, rye is more productive than oats.

ALFALFA—TEST OF VARIETIES

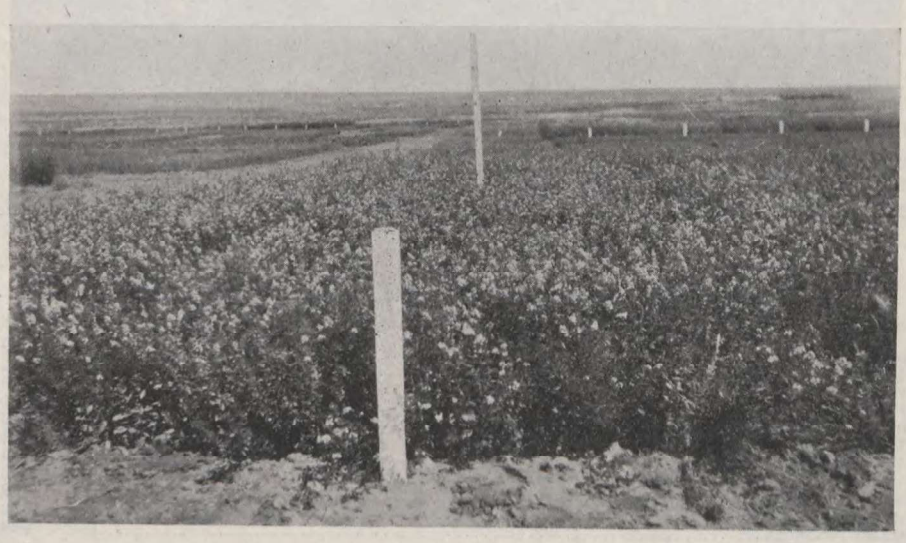
Comparative yields for a number of years. Sown alone on fallow

Variety	First year crop				Second year crop		
	1924	1925	1926	1927	1925	1926	1927
	tons	tons	tons	tons	tons	tons	tons
Grimm Lyman	1·0	0·59	1·27	1·62	0·57	0·32	2·17
Grimm Brooks (Commercial)	0·89	0·45	1·06	1·56	0·70	0·53	1·80
Variegated	0·61	0·20	W.K.	1·51	0·65	W.K.	W.K.
Baltic	*	0·50	0·63	1·70	*	0·37	1·49
Cossack Paramount	1·69	0·46	0·95	1·72	0·97	T.W.	1·65
Cossack Disco	*	0·72	0·82	1·43	*	T.W.	1·55
Turkestan	0·78	0·35	0·91	0·64	0·45	W.K.	1·40
M. Falcato	2·57	*	*	1·56	1·52	*	W.K.

*—Not grown.
T.W.—Thin and weedy.
W.K.—Winter killed.
Yields given on a uniform basis of 12% moisture content.

Alfalfa, like other perennial and biennial hay crops, is influenced largely by season and rainfall. In 1926, with a low rainfall, practically no hay crop was produced. In 1927, where a good stand was available, good crops were produced. Grimm has, on the whole, been the most productive variety. It is also the only variety that has not been winter-killed.

Alfalfa hay, 1927.



Grimm alfalfa in variety test.

SWEET CLOVER—TEST OF VARIETIES

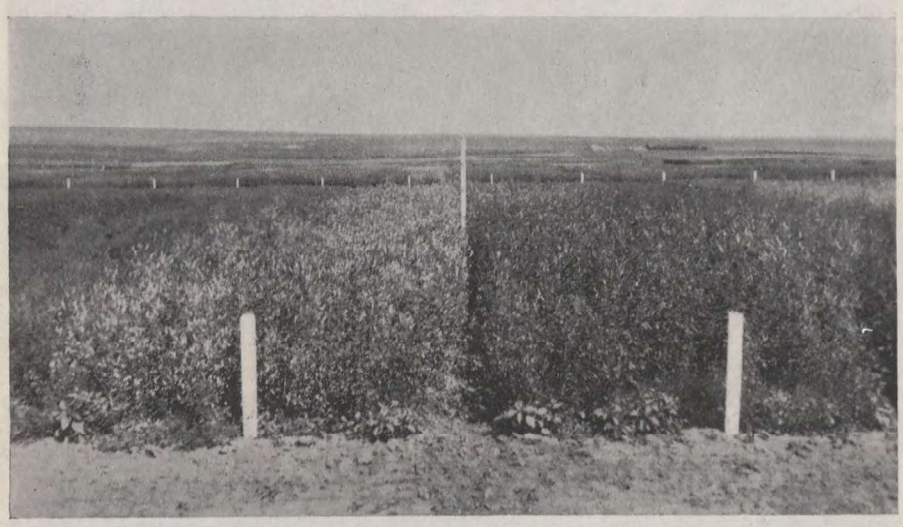
Comparative yields for a number of years. Sown alone on fallow.

Variety	Source of seed	Height at harvest	Stand	Yield for 1927	Average for three years
		ins.		tons	tons
Zouave	U. of Sask.	27	Thick	1·85	1·58
Dwarf	U. of Sask.	15	Normal	1·12	1·51
Common White	Commercial	28	Thick	1·61	1·48
Grundy County	C. E. F.	13	Normal	0·82	* 1·39
Maccor	Man. Agric. College	27	Normal	1·36	1·29
Yellow	Commercial	22	Thick	1·30	1·23
Arctic	U. of Sask.	21	Thick	1·16	1·19

* Two-year average.

Yields given on a uniform basis of 12% moisture content.

No variety of sweet clover has produced any remarkable yield. It has often been noticed that when the moisture content of sweet clover hay is reduced to 12 per cent the apparent yield declines considerably.



Arctic and Common White sweet clover, showing earlier maturity of Arctic.

WESTERN RYE STRAINS

Sown alone on fallow. 1/100-acre Plots—Quadruplicated

Strain	Yield per acre
	tons
Commercial (Check)	3·42
Ottawa No. 7	3·13
Ottawa No. 10	2·75
Ottawa No. 14	2·71
Commercial (Check)	2·69
Ottawa No. 51	3·04
Ottawa No. 65	2·84
Ottawa No. 78	2·93
Commercial (Check)	3·02
Ottawa No. 96	2·62
Ottawa No. 99	3·26
Ottawa No. 124	3·60

NOTE.—Yields given on a uniform basis of 12% moisture content.

Ten strains of western rye secured from the Central Experimental Farm, Ottawa, were drilled with cracked grain on well-prepared fallow. Excellent yields were obtained from all, though the strains varied widely in this respect. A marked difference between strains was also noted from the standpoint of quality such as leafage and fineness of stems.

YIELDS OF VARIOUS GRASSES, LEGUMES AND MIXTURES GROWN WITH A NURSE CROP OF WHEAT
Yields of First and Second Year Hay Crops

(Yields expressed in terms of Cured Hay on uniform basis of 12% moisture content.)

—	Hay crop	1st year hay crop		2nd year hay crop	
		1927 per acre	Five-year average per acre	1927 per acre	Four-year average per acre
1	Brome and western rye	1·27	1·20	2·23	1·34
2	Brome	1·35	1·15	2·49	1·40
3	Western rye	1·45	1·45	2·54	1·52
4	Timothy	1·38	0·71	1·54	0·92
5	Brome and western rye	1·34	1·11	2·14	1·31
6	Kentucky blue	1·32	0·50	.....	0·42
7	W. rye and S. clover	1·53	1·27	2·43	1·26
8	Brome and W. S. clover	1·53	1·17	1·19	1·04
9	Brome and W. rye	1·76	1·45	2·50	1·42
10	Western rye and alfalfa	1·75	1·23	2·43	1·32
11	Grimm alfalfa	1·12	1·34	1·79	0·79
12	Variegated alfalfa	1·39	1·21	1·64	0·66
13	Brome and W. rye	1·33	1·14	2·12	1·16
14	Red clover	0·67	0·25	Nil	Failed
15	Y. S. clover	1·48	1·27	.....	.....
16	W. S. clover	1·30	1·20	.....	.....
17	Brome and W. rye	1·02	1·13	1·99	1·11

As will readily be seen from the table, hay yields in both first and second year crops were much higher than the average. Due to being well established and ready to take advantage of the abundant May rainfall, the second year crop considerably exceeded the first year crop this season.

From 1923 to 1927 we have had three very good hay crops in this experiment, and two very poor ones. Among the grasses grown for hay, the western rye grass has been more certain to make a stand and slightly more productive than the others. The yellow and white sweet clover have produced about the same average yield and both have exceeded alfalfa in its first year. However, the alfalfa, being a perennial, produces crops in subsequent years while the clover provides only one year of hay. The chief defect in all of these crops has been the difficulty of getting good stands when seeded in a dry season and the almost complete failure of the hay crop in seasons when May and June rains have been light.

SUGAR BEETS—TEST OF VARIETIES FOR YIELD AND SUGAR CONTENT

Variety	Yield per acre		Sugar in juice	Coefficient of purity of sugar
	Green weight	Dry weight		
	tons	tons	Per cent	Per cent
Horning	12·54	3·10	18·61	84·10
Dieppe	12·78	3·04	17·37	81·84
Schrieber & Sons	10·89	2·66	17·79	82·26
Home Grown	11·70	2·94	18·48	85·43

This experiment was begun in 1926. The yield of roots for that year was less than 3 tons per acre, and the highest percentage of sugar contained in the juice was 16.89 per cent with a coefficient of purity of 79.39. Both the yield of roots and quality of sugar obtained were considered unsatisfactory. This year whilst the yields of roots are much higher, the percent and purity of sugar content is regarded as only being fair and the size of beets too small to be suitable for factory purposes. The results seem to indicate that sugar beets cannot be made a commercial success under conditions prevailing at Swift Current.

TESTS OF MISCELLANEOUS GRASSES
Sown without nurse crop, on fallow

Grass	Yields in tons per acre first and second crops for three years.					
	1925		1926		1927	
	1st Crop	2nd Crop	1st Crop	2nd Crop	1st Crop	2nd Crop
Timothy—Ohio	1·60	0·59	0·10	0·36	.....	1·36
Timothy—Commercial	1·13	.....	0·49	0·28	1·60	1·36
Timothy—Boon	1·45	0·54	0·33	0·38	1·54	1·14
Red Top	1·25	0·63	Poor catch..	Thin, weedy.....	1·56	Failed in first year.
Canadian blue	1·09	0·81	Poor catch..	Thin, weedy.....	Poor catch..	Failed in first year.
Kentucky blue	0·84	0·39	Poor catch..	0·29	Poor catch..	Failed in first year.
Orchard grass	0·86	0·49	Poor catch..	Thin, weedy.....	Poor catch..	Failed in first year.
Meadow fescue—Commercial	1·43	0·51	0·47	0·73	Poor catch..	0·96
Meadow fescue	.....	.....	Very thin...	.....	0·98	1·29
Perennial rye	Winter killed in first year					
Grazier	1·97	1·49	0·58	0·96	2·35	1·87
Western rye—C.E.F.	2·31	1·38	0·60	0·88	2·29	1·58
Brome—Commercial	2·13	1·39	0·45	0·89	1·86·	1·44
Brome	.....	.....	0·48	.....	1·69	1·59
Tall oat grass	1·55	0·67	Poor catch..	Failed first year..	Poor catch..	Failed in first year.

From the table it will be seen that yields of both first and second year crops of all grains were poor in 1926, while good yields were obtained in 1927, and moderate yields in 1925.

When moitsure conditions are unfavourable, second-year hay crops often outyield first-year crops, while the reverse is usually true when rains are abundant, especially in the early part of the season.

Sometimes hay crops are poor in a wet year, because the preceding year, in which the grasses were sown, was dry, resulting in a thin stand. Most biennial and perennial hay crops require two successive years of favourable rainfall in order to make a satisfactory crop. The first year is required to get the stand established and the second to produce the crop.

FIELD ROOTS—VARIETY TEST FOR YIELD

Variety	1927 crop		
	Percentage stand	Yield per acre	
		Green weight	Dry weight
		tons	tons
Mangels—			
Giant Yellow Oval	91	20·28	1·84
Red Tankard	86	19·86	1·93
Rosted Barres	84	18·96	2·17
Fjerritslev Barres	89	19·38	1·67
Yellow Eckendorffer	84	17·40	1·53
Red Eckendorffer	92	22·62	1·96
Carrots—			
White Intermediate	99	9·72	1·20
Large White Vosges	95	9·54	1·09
Long Orange Belgian	98	7·20	1·04
Danish Champion	99	7·26	·87
White Belgian	100	6·96	·86
Turnips—			
Halewood's Bronze Top	98	12·54	1·47
Hall's Westbury	98	16·26	1·80
Selected Westbury	98	12·66	1·51
Monarch or Elephant	95	9·30	1·12
Invictus Bronze Top	96	11·82	1·33
Hazard's Improved	97	11·88	1·28

ROOTS—VARIETY TEST

The sowing of root seed was delayed to May 31 by inclement weather. The abundant rains of the spring, the comparatively cool growing season and further favourable rains during September and October contributed to an unusually favoured season for the growing of roots. In spite of a favourable season and fair yields, the labour cost of growing roots is so high as to make them unprofitable even in good years. The past years would indicate what might be expected in the future. In 1923 the Mangel variety test are yields ranging from 11 to 17 tons green weight per acre; in 1924, 11 to 12 tons; in 1925, 5 to 14 tons and in 1926, 1 to 5 tons. Turnips and field carrots yielded somewhat less.

Summary of Yields per Acre of Roots

Grown at Swift Current 1923-1927

Seasonal rainfall (Aug. 1 to July 31)....inches		20·36		12·29		15·16		12·97		18·47	
		1923		1924		1925		1926		1927	
Kind of roots	Variety	Green wt.	Dry wt.	Green wt.	Dry wt.	Green wt.	Dry wt.	Green wt.	Dry wt.	Green wt.	Dry wt.
		tons	tons	tons	tons	tons	tons	tons	tons	tons	tons
Carrots	White Intermediate	.....	.....	5·40	0·66	8·28	1·04	1·92	0·17	9·72	1·20
"	Long White Vosges	6·72	0·47	4·94	0·53	6·48	0·72	3·43	0·33	9·54	1·09
"	Long orange Belgian	3·94	0·41	6·62	0·76	7·32	0·83	0·90	0·10	7·20	1·04
"	Danish Champion	3·40	0·52	4·83	0·59	8·83	0·97	1·50	0·15	7·26	0·87
"	White Belgian	4·72	0·35	5·86	0·82	8·04	1·06	.....	.....	6·96	0·86
Mangels	Giant Yellow Oval	17·56	1·29	6·32	1·04	8·16	.....	3·96	0·50	20·28	1·84
"	Red Tankard	14·24	0·98	9·08	1·06	9·24	.....	1·80	0·21	19·86	1·93
"	Rosted Barres	.....	.....	5·06	0·70	14·76	.....	3·96	0·49	18·96	2·17
"	Fjerritslev Barres	.....	.....	4·37	0·55	14·04	.....	5·04	0·56	19·38	1·67
"	Yellow Eckendorffer	.....	.....	6·55	0·93	11·76	.....	4·20	0·47	17·40	1·53
"	Red Eckendorffer	.....	.....	4·83	0·53	12·72	.....	4·20	0·46	22·62	1·96
Turnips	Halewood's Bronze Top	6·40	0·49	11·04	1·55	11·88	.....	3·00	0·36	12·54	1·47
"	Hall's Westbury	16·00	1·40	10·00	1·26	11·16	.....	2·64	0·34	16·26	1·80
"	Selected Westbury	16·32	1·26	9·77	1·34	11·28	.....	.....	.....	12·66	1·51
"	Monarch or Elephant	14·52	1·39	11·27	1·73	10·44	.....	3·48	0·45	9·30	1·12
"	Invictus Bronze Top	12·88	0·74	8·62	1·16	14·28	.....	4·08	0·58	11·82	1·33
"	Hazard's Improved	10·16	0·82	9·66	1·39	12·36	.....	3·12	0·39	11·88	1·28
"	Selected Purple Top	13·40	0·52	8·97	1·23	11·16	.....	3·12	0·42	.....	.....

POULTRY

The flock of Barred Rock poultry has been maintained at about the same numbers as during the preceding year.

During the hatching season four incubators, with a total capacity of 960 eggs, were used. A total of 1,897 eggs were set and 950 chicks were hatched. Of this number 150 were sold as day-old chicks and the balance reared on the Station. As a consequence of the prolonged period of cold wet weather in May, considerable difficulty and some losses of young chicks were experienced.

In the early fall 150 pullets were selected for the laying pens and 20 of the best cockerels were selected for breeding purposes. The balance of the young stock was marketed as dressed poultry.

The following tables show the egg production of some of the best of the 1926 pullets, as well as the early production of the 1927 pullets. On account of the earliness and severity of the winter, the 1927 pullets have not shown as high production in the early months as did those of the previous year:—

EGG PRODUCTION OF PULLETS IN THE YEAR 1926-27

Pullet	Date		Number of eggs per pullet
	1926	1927	
K 17	Sept. 13 to	Sept. 12	253
K 42	Oct. 23 "	Oct. 22	247
K 44	Oct. 27 "	Oct. 26	236
K 8	Sept. 7 "	Sept. 6	236
K 22	Sept. 19 "	Sept. 18	234
K 15	Sept. 12 "	Sept. 11	233
K 23	Sept. 21 "	Sept. 20	231
K 36	Oct. 12 "	Oct. 11	228
K 21	Sept. 17 "	Sept. 16	212
K 37	Oct. 12 "	Oct. 12	212
K 30	Sept. 25 "	Sept. 24	209
K 19	Sept. 14 "	Sept. 13	202
K 12	Sept. 9 "	Sept. 8	192
K 26	Sept. 21 "	Sept. 20	191
K 25	Sept. 21 "	Sept. 20	186

RECORD OF 1927 HATCHED PULLETS FOR THREE MONTHS

Pullet	Date		Number of eggs per pullet for three months
	1927	1927	
L 2	Sept. 8 to	Dec. 7	88
L 16	Sept. 27 "	Dec. 26	74
L 6	Sept. 17 "	Dec. 16	67
L 18	Sept. 29 "	Dec. 28	60
L 4	Sept. 10 "	Dec. 9	59
L 20	Sept. 29 "	Dec. 28	56

During the year a new laying pen was constructed and two old buildings were rebuilt, so as to provide space for incubators and records.

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