DOMINION OF CANADA
DEPARTMENT OF AGRICULTURE
DOMINION EXPERIMENTAL FARMS

REPORT OF THE CHIEF SUPERVISOR

J. FIXTER

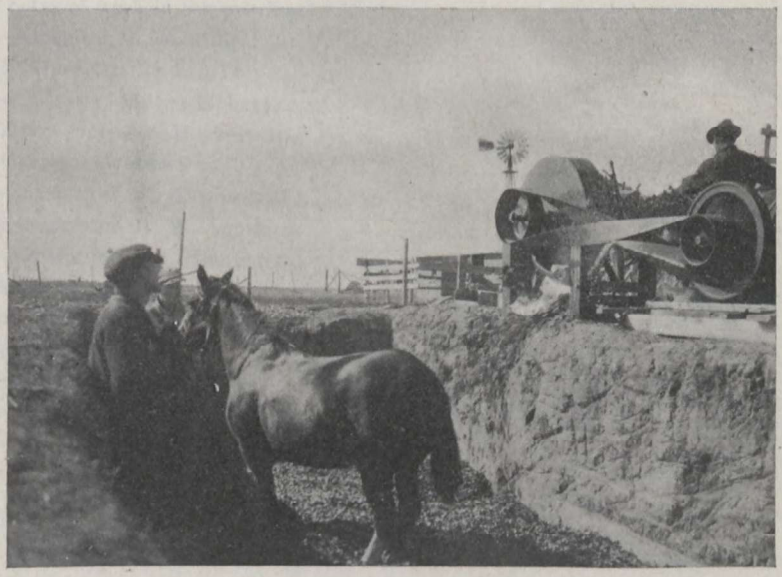
ON

THE ILLUSTRATION STATIONS

IN

BRITISH COLUMBIA, ALBERTA and SASKATCHEWAN

FOR THE YEAR 1922



Filling trench silo with horse tramping cut material at Youngstown, Alta.

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1923

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DIVISION OF ILLUSTRATION STATIONS

REPORT OF THE CHIEF SUPERVISOR, JOHN FIXTER

The number of Illustration Stations is increasing year by year; as their value becomes more and more apparent, demands for the establishment of Illustration Stations are constantly coming in from fresh sections of the Dominion, and it has been thought advisable to widen somewhat the amount of work heretofore carried on on these Stations. This has rendered it very difficult, if not impossible, for the Chief Supervisor of Illustration Stations, located at Ottawa, to keep in close and constant touch with the larger number of field supervisors now necessary and with the work being conducted on the Illustration Stations themselves. It was felt also that it would be a distinct advantage to link together more closely the work of the Illustration Stations and that of their parent bodies, namely the Experimental Farms or Stations of the various localities or districts into which the system of Illustration Stations may be grouped and upon which Stations are being demonstrated some of the well proven results of work carried on upon the Experimental Farms. Such a system of reorganization would also place the Illustration Station work under the same system of administration as obtains in the other lines of work of the Experimental Farms System.

With the above ends in view, therefore, it was decided to place a certain amount of supervisory responsibility upon the Superintendents of some of the Experimental Farms and Stations most conveniently located to look after the work of the Illustration Stations in their districts. The work as now arranged, then, leaves the Chief Supervisor of Illustration Stations in precisely the same position as before, namely in charge of, and responsible for, the Illustration Station work throughout the Dominion of Canada. To collaborate with him, and to assist him in the supervision, of details of administration and inspection, come the Superintendents of the Farms referred to above. The field supervisors, as before, carry on the actual inspection work of the Illustration Stations, accompanied once or twice a year by the superintendents and by the Chief Supervisor of Illustration Stations. These field supervisors now have the status of assistants to the superintendents interested in this work, having as their special duty that of Illustration Station inspection, their scope and method of work being such as are agreed upon and understood by the superintendents and the head of the Illustration Stations system, namely the Chief Supervisor of Ottawa.

It is felt that this new plan will add greatly to the efficiency of the work, will keep the work of the Farms and of the Illustration Stations in much closer touch and will benefit the latter a great deal by enlisting the interest, attention, and guidance of the Branch Farm superintendents who are thoroughly familiar with the local conditions obtaining in the districts where these Stations are located, and who, further, are familiar with the lines of work being demonstrated from the time that work was incepted on the Experimental Farm as an experiment until now when it is being demonstrated as a proven fact upon our Illustration Stations.

During the past year eighty-nine Illustration Stations have been in operation in the Dominion, of this number eleven are located in Alberta and fifteen in Saskatchewan. At present the Superintendent, Experimental Station, Lethbridge, Alberta, has the general supervision of the Illustration Station work in Alberta, and in Saskatchewan, the Superintendent, Experimental Station, Swift Current, Sask.

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ILLUSTRATION STATIONS FOR BRITISH COLUMBIA

Ten Stations have been in operation in the province during the past year, and work of a preparatory nature has been carried on at the following places:—

Kamloops, on land irrigated.
Kamloops, on land with dry farming methods.
Armstrong.
François Lake.
McBride.
Prince George.
Smithers.
Telkwa.
Vanderhoof.

On account of the wide variations in climate and soil conditions in British Columbia, three types of rotations have been introduced as follows:—

First year.—Hoed crops.
Second year.—Grain seeded to alfalfa.
Third year.—Alfalfa hay.
Fourth year.—Alfalfa hay.
Fifth year.—Alfalfa hay.
Sixth year.—Alfalfa hay.
Seventh year.—Alfalfa hay.

This allows for five years of alfalfa in each field. Under irrigation conditions, three good crops, and a possible fourth may be expected in one season.

SEVEN-YEAR ROTATION

First year.—Hoed crops.
Second year.—Grain seeded to timothy and clover.
Third year.—Clover hay.
Fourth year.—Timothy hay or pasture.
Fifth year.—Inter-tilled crops or mixed grain crops.
Sixth year.—Grain seeded to clover.
Seventh year.—Clover hay or pasture.

FOUR-YEAR ROTATION

First year.—Hoed crops.
Second year.—Grain and seeded with timothy and clover.
Third year.—Clover hay.
Fourth year.—Timothy hay or pasture.

This rotation is giving satisfaction under dairy and mixed farming conditions.

A provincial Supervisor of Illustration Stations has been appointed, and full reports for the season's work for 1923, will be published.

REPORT OF THE ILLUSTRATION STATIONS FOR ALBERTA

R. E. EVEREST, SUPERVISOR OF ILLUSTRATION STATIONS

Eleven Illustration Stations were operated in the province of Alberta during the year 1922. The crop season in general was disappointing. The rainfall received throughout the summer months was not adequate for the growth of full crops. The moisture in the soil had been so short for some years previous that the season of 1922 was solely dependent upon current rainfall for crop growth. Not since 1916 has the average summer rainfall been received. This lack of residual moisture was largely responsible for the restricted yields of 1922. Exception is made in one instance to this general statement; at Pincher Creek the rainfall of April to August inclusive was above the figure given as an average.

The precipitation recorded at Lethbridge for this period April to August, for an average of the past twenty-one years is 9·68 inches.

RAINFALL, GROWING MONTHS OF 1922

Month	Delacour	Foremost	Grassy Lake	High River	Jenner	Milk River	Pincher Creek	Vulcan	Wainwright	Whitla	Youngstown	Lethbridge
April	.....	2.45	0.18	1.80	1.00	1.38	3.88	2.00	0.90	1.48	0.42	2.57
May	.....	1.15	1.48	0.35	1.49	2.03	1.19	0.27	1.88	1.23	1.52	0.89
June	0.60	1.60	1.30	2.20	.....	1.23	1.13	2.11	0.42	0.91	1.67	1.87
July	1.00	2.03	0.82	1.00	0.46	1.88	3.66	2.06	0.14	1.01	0.48	2.30
August	2.45	0.40	1.18	1.50	2.29	0.49	0.46	0.47	1.37	1.61	2.26	0.40
Total	4.05	7.63	4.96	6.85	5.24	7.01	10.32	6.91	4.71	6.24	6.35	8.03

SUNFLOWERS AND SILOS

A special feature of the station work in 1922 has been the growing of sunflowers for ensilage. At five points where stations are located the growing of corn and sunflowers was undertaken upon an acreage which would warrant the use of a silo.

The object of this endeavour was to ascertain the possibility of farmers securing a supply of succulent feed for winter use at a small cash outlay. For this purpose the trench silo was the system generally employed in the ensiling and storing of the crop.

The plan followed out upon the individual farm was to sow ten acres to corn and sunflowers, sowing the crops separately, five acres of each. For storing this crop, a trench silo thirty feet in length, twelve feet in width and eight feet in depth was decided upon and for filling this silo, a plain, old-type cutting box. One with a four and a half foot short carrier attachment (to deliver over the trench) was provided.

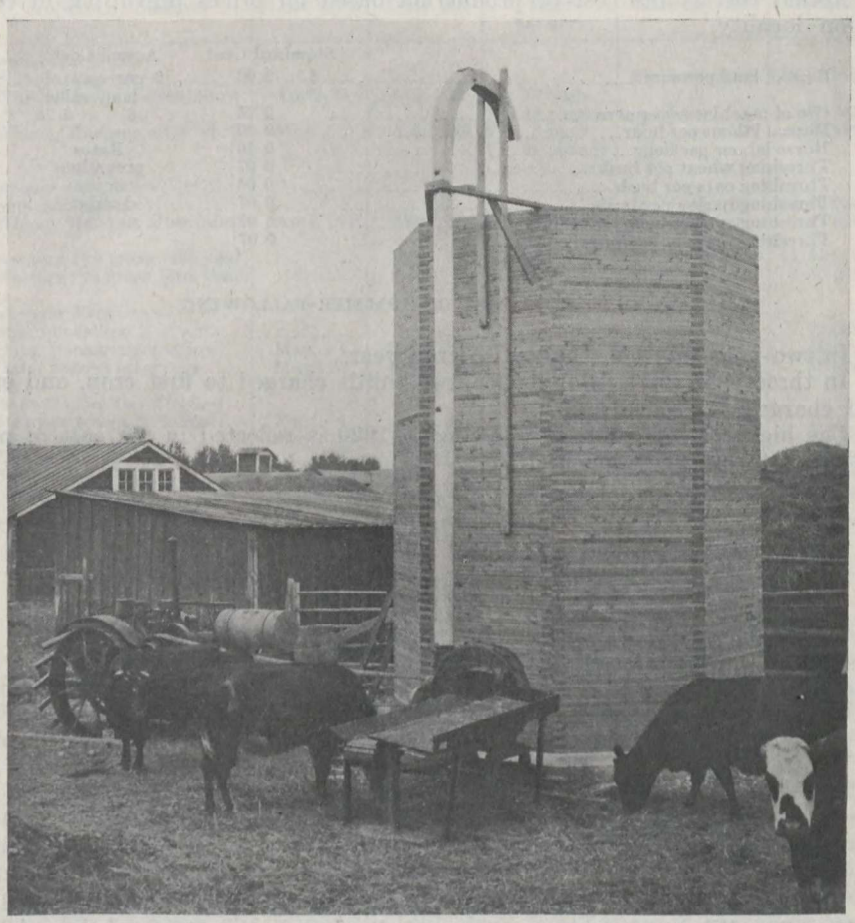
In taking out the trench silo, labour is the chief item. This amounts to two days' work for two men with four horses; and the implements used are a single furrow walking plough and slip scrapers. Given a yield of four to six tons of corn or sunflowers per acre over a ten-acre field, a quantity of silage would be obtained ranging from forty to sixty tons, which amount could be taken care of in a trench of the above dimensions.

In one district selected on its present stock growing reputation, a more substantial and permanent system was adopted. At this point a scantling or

Taking out a Trench Silo at Delacour.

Showing plain cutting box with short carrier for delivery over trench, at Grassy Lake.

crib silo above ground was erected; a corn binder for harvesting and an ensilage cutter with blower for silo filling made up the equipment necessary to perform the work efficiently.



Blower cutting box in place for filling overhead silo. Oat-sheaf, green feed, sunflowers and corn were stored in this silo, at Pincher Creek.

Throughout the filling season advice was given and a direct interest was taken in the operation of the eleven trench silos and two above-ground silos. Silo filling demonstrations were held on two Farms with a total attendance of sixty people. In each locality where this work was instituted, the importance of filling the silo quickly, levelling the cut material evenly, tramping the silage firmly and sealing it effectively was emphasized. Keen interest was evident, numerous questions were answered, and the assistance available was sought and appreciated by farmers who were making a beginning in the use of silos and growing sunflowers for ensilage.

CROP SEASON, 1922

In compiling this report the cost of production is based on the undermentioned rates. The yield of corn, sunflowers, and hay is estimated in each instance.

In determining standard cost, all Illustration Stations are calculated on the same cost basis, so that the cost of production may be comparable at the different stations in the province.

Actual cost is the cost of production based on prices prevailing in each Station locality.

	Standard Cost	Actual Cost
Rent of land per acre	$ 2 00	6 per cent of land value
Use of machinery per acre	0 75	$ 0 75
Manual labour per hour	0 30	Rates prevailing in the district.
Horse labour per hour	0 10	
Threshing wheat per bush	0 07	
Threshing oats per bush	0 04	
Threshing barley per bush	0 07	
Threshing rye per bush	0 07	
Threshing peas per bush	0 07	

ALLOCATION OF COST OF SUMMER-FALLOWING

In two-year rotation, charged to crop year.

In three-year rotation or longer, two-thirds charged to first crop, and one-third charged to second crop.

The high cost of summer-fallowing in 1920 is reflected in the cost of production of the second crop in 1922.

Cost of Seed	Standard Cost	Actual Cost
Wheat, Marquis, per bush	$ 1 50	$ 2 00
Wheat, Red Fife, per bush	1 50	1 80
Wheat, Ruby, per bush	1 50	3 25
Wheat, Kubanka, per bush	1 50	1 80
Oats, Banner, per bush	1 00	0 92
Oats, Victory, per bush	1 00	1 08
Oats, Gold Rain, per bush	1 00	0 80
Barley, O.A.C. 21, per bush	0 96	1 75
Winter Rye, Rosen, per bush	3 00	3 25
Peas, Arthur, per bush	3 00	3 00
Corn, N.W. Dent, per bush	1 50	1 50
Sunflowers, per pound	0 08	0 08
Sweet clover, per pound	0 14	0 14
Western rye grass	The price paid the season the field was seeded; divided equally over years the meadow remains down.	
Alfalfa		

DELACOUR—*Operator, A. H. Fennessey.*

The spring of 1922 opened late. First seeding on the Station was done on April 29. Wheat was sown at the rate of one and a quarter bushels and oats at two bushels per acre. Soil moisture from winter snows was sufficient for good germination and grain crops had a fair start. This favourable beginning was not long sustained, as May and June were almost devoid of rain and July followed with but one inch of precipitation. This drought, with heat, held the hay crop to a near failure and reduced the cereal crops very materially in yield. Harvesting was completed by September 6.

Rainfall for the summer season recorded at this point totalled 4·5 inches.

The following table gives the results of the season's work:—

Crops and Rotations	Date sown	Date cut	Yield per acre	Standard cost	Actual cost
Three-year Rotation—					
Summer-fallow				$6·66 per acre.	$7·32 per acre.
Wheat, Marquis after fallow.	April 29	Aug. 22	13 bush. 12 pounds.	·88 per bush.	1·08 per bush.
Wheat, Marquis after wheat	May 1	Aug. 22	8 bush. 24 pounds.	1·14 per bush.	1·55 per bush.
Four-year Rotation—					
Summer-fallow				8·03 per acre.	8·79 per acre.
Wheat, Marquis after fallow	April 29	Aug. 21	12 bush. 36 pounds.	·93 per bush.	1.14 per bush.
Western rye grass (1st year)		Aug. 1	1,000 pounds.	10.36 per ton.	11.44 per ton.
Western rye grass (3rd year)			Failure.	2.00 per acre	2.40 per acre.
Three-year Rotation—					
Summer-fallow				6.66 per acre.	7.32 per acre.
Oats, Banner after fallow	May 1	Aug. 18	30 bush.	.42 per bush.	.48 per bush.
Oats, Banner after oats	May 23	Sept. 6	23 bush.	.42 per bush.	.46 per bush.
Demonstration Test Fields—					
Marquis wheat on fallow	May 1	Aug. 31	15 bush.	.78 per bush.	.96 per bush.
Victory oats	May 13	Aug. 31	35 bush.	.36 per bush.	.43 per bush.
Alfalfa in rows		July 17	1,000 pounds.	16.40 per ton.	18.20 per ton.
Sunflowers	June 1	Sept. 19	5 tons	2.22 per ton	2.46 per ton.
Corn	June 1	Sept. 19	5 tons	2.22 per ton.	2.46 per ton.

METHOD EMPLOYED IN GROWING SUNFLOWERS

The sunflower crop at Delacour was put in upon land that had grown a crop of oats in 1921. The field in the spring of 1922 was ploughed and harrowed. The sunflower seed was sown in rows thirty-six inches apart at the rate of twelve pounds to the acre. For planting the crop, the ordinary grain drill was used. In this work the sowing in rows was accomplished by blocking five runs of the drill and leaving every sixth open for seeding.

At intervals during the growing season, the crop was cultivated between the rows with a single horse scuffler. Here is left an opening for the grower's ingenuity to adjust his team cultivator so that two rows of sunflowers may be worked at a time, and the teamster riding.

The faithfulness of the cultivation given the sunflowers during the growing season has a marked effect upon the tonnage of crop harvested as well as exerting a controlling influence over the condition of the field for the following year.

FOREMOST—*Operator, T. H. Frankish.*

The spring of 1922 opened late. First seeding on the Station was done on May 19. Wheat was sown at the rate of one bushel, and oats at two bushels, per acre.

On July 4, a severe hail storm cut all vegetation to the ground. Considerable moisture was received following this hail set-back. These good rains encouraged a second growth. Grain fields came along, and favoured by an open, frost-free season, gave an unexpected and surprising return. Harvesting was completed by the second of October.

Rainfall for the summer season recorded at this point totalled 7·63 inches.

The following table gives the results of the season's work:—

Crops and Rotations	Date sown	Date cut	Yield per acre	Standard cost	Actual cost
Two-year Rotation—					
Summer-fallow				$5.87	$6.14 per acre.
Wheat, Marquis, after fallow	May 19	Sept. 11	10 bush. 36 pounds.	1.22 per bush.	1.46 per bush.
Four-year Rotation—					
Summer-fallow				5.87 per acre.	6.14 per acre.
Wheat, Marquis after fallow.	May 19	Sept. 11	9 bush. 36 pounds.	1.05 per bush.	1.24 per bush.
Oats, Banner, grown where grass seeds failed. Green feed	June 6	Oct. 2	1,200 pounds.	13.29 per ton.	13.41 per ton.
Oats, Banner, grown in place of hay crop. Green feed	June 6	Oct. 2	1 ton.	7.77 per ton.	7.85 per ton.
Two-year Rotation—					
Summer-fallow				5.97 per acre.	6.24 per acre.
Oats, Banner, after fallow	May 22	Sept. 4	33 bush. 20 pounds.	.35 per bush.	.43 per bush.
Demonstration Test Fields—					
Kubanka wheat on fallow	May 20	Sept. 11	13 bush. 48 pounds.	.76 per bush.	.90 per bush.
Victory oats	May 22	Sept. 4	30 bush. 14 pounds.	.37 per bush.	.46 per bush.
Winter rye, rosen			Failure.		
Corn and sunflowers	June 8		Failure.	7.77 per acre.	8.27 per acre.

SUITABILITY OF ROSEN RYE

The summer of 1921 saw in southern Alberta a vigorous selling campaign carried on for the disposal of Rosen rye seed. Hopes were raised in the thought that an important contribution was being made towards the solution of lean years and feed shortages.

Upon nine of the Illustration Stations in Alberta a five-acre field was sown to Rosen rye in the season of 1921. Six of these fields in the spring of 1922 were without life or had so little rye left showing vitality that the fields were seeded over to spring crops. These sowings were made without further ploughing and in three fields a small percentage of rye persisted and was harvested with the substitute oat crop as green feed. Three fields of the nine made a fair showing and threshed out grain to as high as thirty-five bushels per acre.

From the results of this one year's work the conclusion inclined to is that the Rosen variety of winter rye is somewhat lacking in winter hardiness and, up to the present, has not justified the advertising it received.

GRASSY LAKE—*Operator, J. E. James.*

The spring of 1922 opened late. First seeding on the Station was done on May 1. Wheat was sown at the rate of one and a quarter bushels and oats at two bushels per acre. During the growing season the summer rains fell short of the amount required to mature a full crop. The yields obtained were encouraging in that they are the highest since 1917 and may be an indication of the return of good seasons. Harvesting was completed by August 15.

Rainfall for the summer season recorded at this point totalled 4·96 inches.

The following table gives the results of the season's work:—

Crops and Rotations	Date sown	Date cut	Yield per acre	Standard cost	Actual cost
Two-year Rotation—					
Summer-fallow				$5.39 per acre.	$4.95 per acre.
Wheat, Marquis after fallow.	May 4	Aug. 15	15 bush.	.75 per bush.	.80 per bush.
Four-year Rotation—					
Summer-fallow				5.53 per acre.	5.10 per acre.
Wheat, Marquis after fallow.	May 3	Aug. 15	10 bush. 12 pounds.	1.07 per bush.	1.12 per bush.
Western rye grass (1st year)		July 13	1 ton. 666 pounds.	4.15 per ton.	3.78 per ton.
Western rye grass (1st year)		July 13	1 ton . 334 pounds.	5.52 per ton.	4.74 per ton.
Two-year. Rotation—					
Summer-fallow				5.53 per acre.	5.10 per acre.
Oats after fallow	May 10	Aug. 12	19 bush. 9 pounds.	.39 per bush.	.42 per bush.
Demonstration Test Fields—					
E. Red Fife wheat	May 5	Aug. 14	7 bush.	.98 per bush.	1.02 per bush.
Kubanka wheat	May 1	Aug. 14	11 bush. 12 pounds.	.78 per bush.	.83 per bush.
Victory oats	May 9	Aug. 12	21 bush.	.42 per bush.	.47 per bush.
Winter, rye, Rosen			Failure.		
Corn	May 23	Sept. 22	1 ton. 500 pounds.	5.92 per ton.	5.68 per ton.
Sunflowers	May 23	Sept. 22	1 ton. 500 pounds.	5.92 per ton.	5.68 per ton.

THE GRASSHOPPER MENACE

In the winter of 1921-22, grasshopper infestation was known to exist over considerable areas of southern Alberta. This condition was fraught with possibilities of serious inroads being made on the growing crops of 1922. Early in the year the Provincial Department of Agriculture commenced a vigorous educational tour which resulted in a thorough organization of the districts known to be infested. At strategic points, bait-mixing stations were established, materials for poisoning mixture were supplied in quantity from a central control and the municipalities and districts were further officered. Residents of the village, town or city which might fall in the campaign area joined with the farmers in spreading the bait at the right time of day and at the proper intervals. This work of bait-spreading was carried forward with persistent vigilance and to all it was a matter of gratification that the grasshopper, generally speaking, was held under control.

HIGH RIVER—*Operator, B. F. Kiser.*

The spring of 1922 opened late. First seeding on the Station was done on May 5. Wheat was sown at the rate of one and a quarter bushels and oats at two and a quarter bushels per acre. The spread of rains through the growing months was favourable, though the total moisture received was not large. These moisture conditions, in conjunction with the thorough timely cultural practice of the operator, contributed well to the fair crop yields obtained. Harvesting was completed by the fourth of September. Rainfall for the summer season recorded at this point totalled 6·85 inches.

The following table gives the results of the season's work:—

Crops and Rotations	Date sown	Date cut	Yield per acre	Standard cost	Actual cost
Three-year Rotation—					
Summer-fallow				$4.71 per acre.	$5.85 per acre.
Wheat, Marquis, after fallow	May 6	Aug. 25	27 bush.	.41 per bush.	.54 per bush.
Wheat, Marquis, after wheat	May 5	Aug. 25	18 bush.	.57 per bush.	.78 per bush.
Four-year Rotation—					
Summer-fallow				5.45 per acre.	6.60 per acre.
Wheat, Marquis, after fallow	May 5	Aug. 25	22 bush.	.48 per bush.	.64 per bush.
Oats, substituted for hay crop	May 13	Aug. 26	42 bush.	.23 per bush.	.29 per bush.
Hay		June 28	1,000 pounds.	6.16 per ton.	8.24 per ton.
Demonstration Test Fields—					
Ruby wheat	May 9	Sept. 4	30 bush.	.33 per bush.	.52 per bush.
Victory oats	May 9	Aug. 26	60 bush.	.20 per bush.	.27 per bush.

JENNER—*Operator, Jerry Fisher.*

Seeding dates in Alberta were progressively earlier in the spring of 1922 from the south in a north-by-east direction. On the station at Jenner, first sowing was done on April 22.

The precipitation for the months of April, May, June and July totalled less than three inches. By the end of July (as a result of drought and hail) prospects of a crop had almost vanished. Later in the season there was sufficient revival to permit of using the mower over certain grain fields and in this way a small amount of roughage was gathered for the winter feeding of stock.

Rainfall for the summer season recorded at this point was 5·24 inches.

MILK RIVER—*Operator, B. L. Cornwall.*

The spring of 1922 opened late. First seeding on the Station was done on May 8. Wheat was sown at the rate of one bushel and oats at one and three-quarter bushels, per acre.

Resulting from the good depth of snow which lay on the ground through the winter, supplemented by rains of the early growing season, crops generally had a good healthy start. This favourable beginning was not maintained throughout, however, as midsummer brought a period of drought accompanied by heat which reduced grain yields considerably. Harvesting was completed by the 31st of August.

Rainfall for the summer season recorded at this point totalled 7·1 inches.

The following table gives the results of the season's work:—

Crops and Rotations	Date sown	Date cut	Yield per acre	Standard cost	Actual cost
Three-year Rotation—					
Summer-fallow				6.11 per acre.	6.45 per acre.
Wheat, Marquis, after fallow	May 9	Aug. 17	9 bush.	1.18 per bush.	1.30 per bush.
Wheat, Marquis, after wheat	May 9	Aug. 17	15 bush.	.57 per bush.	.74 per bush.
Four-year Rotation—					
Summer-fallow				5.41 per acre.	5.70 per acre.
Wheat, Marquis, after fallow	May 11	Aug. 16	14 bush.	.79 per bush.	.87 per bush.
Western Rye Grass (1st year)		July 28	1 ton.	7.26 per ton.	8.93 per ton.
Western Rye Grass (2nd year		July 26	1 ton.	5.82 per ton.	6.08 per ton.
Three-year Rotation—					
Summer-fallow				5.55 per acre.	5.85 per acre.
Oats, Banner, after fallow	May 11	Aug. 18	48 bush.	.24 per bush.	.28 per bush.
Oats, Banner, after oats	June 3	Aug. 31	14 bush.	.74 per bush.	.89 per bush.
Demonstration Test Fields—					
Winter Rye, Rosen	Sept. 15	Aug. 2	35 bush.	.40 per bush.	.45 per bush.
Barley, O.A.C. 21	May 10	Aug. 9	27 bush.	.47 per bush.	.52 per bush.
Sweet Clover hay		July 5	1 ton. 400 pounds.	5.14 per ton.	5.41 per ton.

The one instance for the season of spring ploughing for second crop out-yielding summer-fallow occurred at Milk River.

The spring ploughed field in 1921 had been harvested with the header. This high header stubble in the winter intervening held a solid snow to a depth of seventeen inches, while the fallow field next was swept bare. Hence it seems more reasonable to attribute the larger yield to the condition which resulted in the holding of snow rather than to the practice of spring ploughing over fallowing.

SEEDING

Rates of seeding vary with differing districts. In dry areas a somewhat light sowing is favoured. This is good reasoning to a certain point, but when the plants are unduly thin upon the ground, weeds have an opportunity and will persist in spaces that might better be occupied with grain.

Quality of seed is of great moment in grain growing and should be stressed at all times, while quantity of seed is a matter that will be governed to some extent by individual circumstances.

PINCHER CREEK—*Operators, Sandgren and Carlson.*

The spring of 1922 opened late. First seeding on the station was done on May 8. Wheat was sown at the rate of one and a half bushels and oats at two and a half bushels, per acre.

In the months of April and July, the larger part of the season's rainfall was received. At harvest time, prospects were for a fair yield of grain, but at the separator the straw did not thresh out so well as expected. Moisture at the ripening period had been a little light for making well-filled heads. Harvesting was completed by the 1st of September. Rainfall for the summer season recorded at this point totalled 10·32 inches.

The following table gives the results of the season's work:—

Crops and Rotations	Date sown	Date cut	Yield per acre	Standard cost	Actual cost
Three-year Rotation—					
Summer-fallow				$7.99 per acre.	$8.54 per acre.
Wheat, Marquis, after fallow	May 8	Aug. 31	16 bush.	.77 per bush.	.98 per bush.
Wheat, Marquis, after wheat	May 9	Aug. 31	14 bush. 24 pounds.	.87 per bush.	1.23 per bush.
Four-year Rotation—					
Summer-fallow				7.99 per acre.	8.54 per acre.
Wheat, Marquis, after fallow	May 8	Sept. 1	15 bush. 36 pounds.	.81 per bush.	1.00 per bush.
Western Rye Grass		Aug. 31	1,000 pounds.	10.84 per ton.	11.42 per ton.
Oats substituted for hay crop	May 10	Aug. 14	1,000 pounds.	18.70 per ton.	19.34 per ton.
Demonstration Test Fields—					
Ruby wheat	May 9	Aug. 18	12 bush. 12 pounds.	1.00 per bush.	1.57 per bush.
Winter rye, Rosen	Sept. 20	Aug. 5	11 bush. 45 pounds.	1.10 per bush.	1.32 per bush.
Alfalfa hay		June 27	2 tons.		
		July 31	1,000 pounds.	2.98 per ton.	3.34 per ton.
Sweet Clover hay		Aug. 29	2 tons. 200 pounds.	4.11 per ton.	4.51 per ton.

In this district, the wild rose bush and Canadian thistle are persistent invaders. During the past fallow work season, the effectiveness of the rotary rod weeder in destroying these weeds has been noted with hopefulness. This implement works freely, laying the plants up on the surface to dry out and die, when other machines have been seen to clog and fail.

Two types of rod implement are now in use, the first is known as the Rod Cultivator, the second, which is an improvement over the first, is called the Rotary Rod Weeder. The rod cultivator is a home-made device and can be secured for an outlay of fifteen dollars. Experimental Farms' pamphlet No. 28 describes in detail the work of making. This pamphlet explains the rod cultivator and its use somewhat as follows:—

> "The principle on which it works is to have a rod of five-eighths inch, round, tool steel, pass through the soil about three inches below the surface. This completely cuts or rather rubs off all weeds but in the operation does not pulverize the surface as would a disc or even a duckfoot cultivator.
>
> "The rod cultivator is not intended to be used in a wet season when there is abundance of moisture in the ground, i.e., when the soil might be termed wet. Under such conditions, a broad-toothed cultivator is more desirable, for pulverizing does not take place to a great extent when the soil is in such a condition. The time that it is particularly desirable to use this rod cultivator on summer-fallow is when the top soil is dry for two or three or possibly four inches down. An ordinary cultivator, and particularly a disc, used under such conditions would powder the surface to a dangerous extent. The rod cultivator, on the other hand, will not do so, in fact has a tendency to bring any small lumps present to the surface, where they have a beneficial effect so far as preventing drifting is concerned."

The rotary rod weeder is a patented implement. The rod in this instance is seven-eighths inch square, and is driven by a gear to revolve in a forward and upward direction. By this action the bar has moving cutting edges and the direction in which the rod revolves tends to carry cut-off material to the surface where the weed roots are exposed to sun and air and soon die.

The rotary rod weeder performs the same work as the rod cultivator, with this difference—it does the work with greater ease and effectiveness. However, the cost is a consideration, as the price of a rotary rod weeder ranges around one hundred dollars. When this amount is more than it is cared to invest, one may fall back on the home-made type of rod cultivator with the assurance of obtaining fair results.

VULCAN—*Operator, J. H. Cook.*

The spring of 1922 opened late. First seeding on the Station was done on May 6. Wheat was sown at the rate of one bushel and oats at one and three-quarter bushels, per acre. Seed bed preparation and seeding operations were thoroughly performed hence the fields at this place had an especially neat appearance.

Early in the summer, drought, together with cutworms, thinned the stand of cereals, and an unusual invasion of pigweed soon made a shadowing growth over what grain plants remained. These conditions required exceptional treatment which interfered with the crop plan and thwarted the desired results.

Rainfall for the summer season recorded at this point totalled 6·91 inches.

The following table gives the results of the season's work:—

—	Date sown	Date cut	Yield per acre	Standard cost	Actual cost
Demonstration Test Fields—					
Peas, Arthur	May 6	Aug. 31	31 bush.	.43 per bush.	.53 per bush
Oats, Green feed	June 12	Aug. 29	25 pounds.	10.63 per ton.	11.69 per ton.
Sunflowers	May 23	Sept. 5	1,750 pounds.	1.46 per ton.	1.65 per ton.
Corn	May 23	Sept. 5	6 tons.	2.19 per ton.	2.48 per ton.
Summer-fallow	.....	.....	4 tons.	6.35 per acre.	7.31 per acre.

In the foregoing table the yield of Arthur field peas stands out clearly. The growing of field peas is somewhat of an innovation here and the results this season are decidedly encouraging and justify a continuance of the effort. The threshed peas are of excellent quality in size and colour and, when tested for vitality, germinated one hundred per cent.

WAINWRIGHT—*Operator, G. C. Boyd.*

The spring of 1922 opened near the average date. First seeding was done on the Station April 20. Wheat was sown at the rate of one and one-eighth bushels and oats at two bushels, per acre. This part of the province experienced this year one of the driest summers in its history. The months of June and July together had but slightly over one-half of an inch of rainfall. Seriously affecting the crops also was a ten degree frost which occurred the night of June 6. As the immediate result of this frost, corn was cut off to the ground, barley was injured, oats had a small percentage of plants drooped over, alfalfa was slightly wilted, sweet clover had odd stems broken down, while wheat and sunflowers (to the casual glance) were very little affected. Later observant opinion concluded, however, that this frost, in its influence upon stooling of grain, had a marked injurious effect upon the yield.

Harvesting was completed by the 22nd of August. Rainfall for the summer season recorded at this point totalled 4·71 inches.

The following table gives the results of the season's work:—

Crops and Rotations	Date sown	Date cut	Yield per acre	Standard cost	Actual cost
Three-year Rotation—					
Summer-fallow	.....	.....	.....	$6.67 per acre.	$6.90 per acre.
Wheat, Marquis, after fallow	April 20	Aug. 15	18 bush.	.68 per bush.	.83 per bush.
Wheat, Marquis, after wheat	April 20	Aug. 15	13 bush. 12 pounds.	.85 per bush.	1.03 per bush.
Four-year Rotation—					
Summer-fallow	.....	.....	.....	5.81 per acre.	6.04 per acre.
Wheat, Marquis, after fallow	April 20	Aug. 10	13 bush. 36 pounds.	.53 per bush.	.65 per bush.
Western Rye Grass (1st year)	.....	July 26	1 ton.	5.87 per ton.	6.38 per ton.
Western Rye Grass (2nd year)	.....	July 26	1,500 pounds.	7.99 per ton.	8.65 per ton.
Three-year Rotation—					
Summer-fallow	.....	.....	.....	5.97 per acre.	6.23 per acre.
Oats, after fallow	May 19	Aug. 22	32 bush.	.37 per bush.	.40 per bush.
Oats, after oats	May 19	Aug. 22	27 bush. 20 pounds.	.41 per bush.	.48 per bush.
Two-Year Rotation—					
Wheat after corn and sunflowers	April 21	Aug. 10	10 bush.	.66 per bush.	.79 per bush.
Corn after wheat	May 19	Sept. 8	4 tons.	2.44 per ton.	2.53 per ton.
Sunflowers after wheat	May 19	Sept. 8	4 tons	2.44 per ton.	2.53 per ton.
Demonstration Test Fields—					
Winter Rye, Rosen	.....	.....	Failure	.....	.....
Alfalfa hay	.....	July 10	1 ton.	7.93 per ton.	8.37 per ton.
Sweet clover hay	.....	July 10	2 tons.	3.61 per ton.	3.84 per ton.

SUMMER-FALLOW TREATMENT

Results on the Illustration Stations show that land intended for fallow requires attention early in the season. By passing the disc over the stubble

Ploughing a Rye Grass Sod for Fallow on June 7th, at Wainwright.

in the spring, a mulch is formed which conserves moisture, encourages weed seed germination, and, at the same time, the soil is placed in such condition as to make ploughing easier. Summer-fallow ploughing should be finished in

June. This operation should be done thoroughly and to a medium depth. The land should be worked with a duck-tooth cultivator at such intervals as the weed growth requires. In the autumn, the same implement should be passed over the ground in the direction crossing the sweep of the prevailing wind. This tends to reduce soil drifting.

WHITLA—*Operator, R. H. Babe.*

The spring of 1922 opened late. First seeding on the Station was done on May 4. Wheat was sown at the rate of one and a quarter bushels and oats at two bushels, per acre.

Soil tilth at the time of seeding was quite fair and the grain crops came along with a good even stand, holding their colour and vigour until the fore part of June. Crop pests were early at work in the district. Upon the station, rabbits, gophers and wireworms made it almost impossible to secure a stand of corn and sunflowers. By the middle of June, drought was seriously hampering growth and only from the exceptional care and good cultural practice of the operator, was the yield of grain as recorded obtained. Harvesting was completed by August 18.

Rainfall for the summer season recorded at this point totalled 6.24 inches.

The following tables gives the results of the season's work:—

Crops and Rotations	Date sown	Date cut	Yield per acre	Standard cost	Actual cost
Two-year Rotation—					
Summer-fallow				$5.66 per acre.	$5.12 per acre.
Wheat after fallow	May 4	Aug. 11	16 bush.	.99 per bush.	1.09 per bush.
Four-year Rotation—					
Summer-fallow				7.11 per acre.	6.73 per acre.
Wheat, Marquis, after sod	May 4	Aug. 18	2 bush. 36 pounds.	2.89 per bush.	2.90 per bush.
Wheat after grass seed failure	May 4	Aug. 8	13 bush.	.50 per bush.	.74 per bush.
Western Rye Grass (1st year)		July 17	1,600 pounds.	9.46 per ton.	9.93 per ton.
Two-year Rotation—					
Summer-fallow				6.54 per acre.	6.10 per acre.
Oats, Banner, after fallow	May 8	Aug. 7	24 bush.	.68 per bush.	.78 per bush.
Demonstration Test Fields—					
Kubanka wheat	May 6	Aug. 11	13 bush. 36 pounds.	.97 per bush.	1.06 per bush.
Winter Rye, Rosen	Aug. 30	July 28	19 bush.	.79 per bush.	.87 per bush.
Victory oats	May 6	Aug. 7	26 bush.	.53 per bush.	.63 per bush.
Corn	May 30	Sept. 4	1 ton.	15.14 per ton.	15.49 per ton.
Sunflowers	May 30	Sept. 4	1 ton.	15.14 per ton.	15.49 per ton.

CUTWORMS

The district of Whitla in the past season suffered severely from the cutworm pest. Crop damage to the extent of seventy-five per cent was not unusual in the neighbourhood. In June, fields that normally should have been carrying an even stand of grain were almost bereft of a vestige of green growth owing to the destructive work of the cutworm. The farm on which the Illustration Station is located was not seriously affected by this menace.

Mr. Babe sows each year mainly on summer-fallowed land. When preparing the fallow in 1921, the operator followed the advice of the Entomological Branch, Lethbridge, which advice is: to leave the fallows untouched throughout the month of August and the fore-part of September. This period is the egg laying season of the cutworm moth. The majority of eggs remain in the soil over winter and hatch out in the spring, and in the cutworm stage feed upon growing plants until the middle of June. Therefore, the object of this special cultural method is to make conditions unfavourable to the moth for egg laying. This state of the fallow field is best obtained by leaving the area entirely alone and untraversed for the period named. Land so left forms a slight crust and this crusting is the condition it is desired to maintain during the egg laying season. For depositing their eggs the moths seek a loose soil with lump shelters and when this protection is not found on the fallow field, egg laying does not take place there, and as a result the field is not infested at the time of egg hatching in the next crop year.

An important part of this method is that the fallow field at the end of July should be thoroughly clear of weed growth with the weed root system well broken up, for the field to enter this work-free period. When the cutworm danger exists, the foregoing treatment may be followed with a reasonable assurance that the situation will be effectively controlled.

YOUNGSTOWN—*Operator, G. S. Coad.*

The spring of 1922 opened near the average date. First seeding on the Station was done on April 21. Wheat was sown at the rate of one and a quarter bushels and oats at one and a half bushels, per acre. In the early part of the season, the rainfall in this district was very light and by the middle of May crops were burning from heat and drought. Careful work and extra quality seed accounted largely for Mr. Coad's yields running higher than the average of the locality.

Sunflowers, the growing of which had been undertaken by the operator with some misgivings, were increasingly appreciated as the hay and oat crops were seen to be falling short of an average yield. Harvesting was completed by the 18th of August. Rainfall for the summer season recorded at this point totalled 6.35 inches.

The following table gives the results of the season's work:—

Crops and Rotations	Date sown	Date cut	Yield per acre	Standard cost	Actual cost
Two-year Rotation—					
Summer-fallow				$6.57 per acre.	$6.24 per acre.
Wheat, Marquis, after fallow	April 21	Aug. 10	6 bush.	2.44 per bush.	2.73 per bush.
Four-year Rotation—					
Summer-fallow				5.99 per acre.	5.63 per acre.
Wheat, Marquis	April 22	Aug. 10	4 bush.	2.56 per bush.	3.11 per bush.
Western Rye Grass (1st year)		July 18	1,000 pounds.	10.80 per ton.	9.90 per ton.
Western Rye Grass (2nd year)		July 19	1,000 pounds.	10.86 per ton.	10.08 per ton.
Two-year Rotation—					
Sunflowers	May 16	Sept. 16	4 tons. 1,000 pounds.	2.44 per ton.	2.44 per ton.
Oats, Banner	May 10	Aug. 9	18 bush. 17 pounds.	.73 per bush.	.82 per bush.
Demonstration Test Fields—					
E. Red Fife Wheat	April 21	Aug. 8	10 bush.	1.17 per bush.	1.31 per bush.
Winter Rye, Rosen			Failure.		
Winter Rye, Common			Failure.		
Victory oats	May 12	Aug. 9	25 bush.	.50 per bush.	.58 per bush.
Barley, O.A.C. 21	May 19	Aug. 5	12 bush. 24 pounds.	.94 per bush.	.95 per bush.

TRENCH SILOS

The trench taken out in the stack yard of Coad's farm (for storing ensilage) is worthy of remark as a neat, unobtrusive innovation. This silo is twenty-four feet in length, twelve feet in width and six and a half feet in depth. The far, squared-down end of this silo and the sides bore evidence of some hand labour having been given with shovel or spade to obtain a neat, even wall, the front end of the silo had a sharp slope but one which could be negotiated easily by horse for purpose of going in to tramp or for the drawing of the silage out for feeding.

The first consideration in making a trench silo is selecting the site. Obviously the supply of feed should be near where it is to be fed; also, in locating a trench, it is advisable to select a place enclosed from running stock and one which is not traversed in the ordinary work around the buildings. Two positions are worth looking over in deciding the location, (1) the stack yard; it may be possible to select a convenient edge here for the purpose, (2) adjoining the cattle stable so that ensilage may be taken direct from silo to stable. In this second instance, it probably will be necessary to improvise a roof for the trench; this would not only protect the silo from stock but would also add to the convenience in having the feed free of winter drifts. Doubtless, at the present stage of development, we do not fully appreciate the combinations and adaptations that are possible in the construction and use of trench silos.

Having selected the site, the dimensions required will need to be decided upon. One cubic foot to forty pounds of sunflower ensilage is a fair calculation. The desired width and depth of trench will be fixed while the length will remain flexible and be determined by the tonnage capacity it is aimed to secure. For example a trench twelve feet wide, eight feet deep and length averaging up to twenty-five feet would give a capacity of forty-eight tons sunflower ensilage, i.e., 25 by 12 by 8 by 40—96,000 by 2,000 pounds=48 tons.

When the dimensions are arrived at and the site measured off the ploughing will follow. Regard the silo area as if it was a land area in the field, open out

down the centre and gather to the width lined up. This furrow depth is then taken away by slip scrapers and another course ploughed up and removed. As the trench goes down, the plough can be kept hugging the side by using a stretch of chain from eveners to plough or by using one horse on the edge furrows. When the required depth is reached, the trench squared off and cleaned up, the silo is ready for filling.

Should a plain, old-type cutting box be employed in cutting the silage crop, the best position will be found about midway along the convenient side of the trench, the box being so placed that the cut material will be delivered well over the trench edge. From the start of filling one man will be required to level silage, and in levelling it is advisable to see that the heavier, solid portions of stalks are well distributed and intermixed with the leaves. The riding horse and boy are needed in attendance throughout to tramp the cut material, by watching opportunities when waggons are pulling out and in, or, should a wait occur, the tramping at these times can be given extra attention. In this way the horse need not be constantly about the man who is levelling while actual cutting is on. Prevention of mould pockets and waste is, to quite an extent, dependent upon the kind of work done in the silo at the time of filling.

When the silo is filled and rounded up above the ground surface for a couple of feet, the silage can be allowed to settle for two or three days, by which time it will be down near the trench top level; then the whole trench should be thoroughly sealed over until time of commencing to feed. The object of this sealing is that the air may be excluded from the cut sunflowers. For covering, first a layer of fine straw, with coarse roughage over all, will answer. A roof may well be added for keeping out the snow. This may be made as in the instance of Mr. Coad's silo; poles were laid along the edges of the trench to give roof space, from these poles extending over the trench, other strips were placed and this was again topped with threshed straw. At the front, temporary doors were sloped up; these doors could be opened or removed as each day's feed allowance was taken out.

Once the silo is opened, the ensilage is removed at regular intervals and is taken in layers from the pependicular face of the mass, working back, as the feed is used, to the deep end of the trench.

The cost of growing ten acres of sunflowers and storing by use of a trench silo is not prohibitive to anyone who is engaged in farming. Where farm stock is being kept, the benefit has already, in some cases, amounted to the difference between ill-fed, degenerate cattle and well-fed, producing stock.

REPORT OF THE ILLUSTRATION STATIONS IN SASKATCHEWAN

E. C. SACKVILLE, SUPERVISOR OF ILLUSTRATION STATIONS

Illustration work was carried on in fifteen districts in Saskatchewan during this year. Five more stations have been selected and work will be commenced on these next spring.

In the southwest part of the province, where most of the illustration work is carried on, conditions, on the whole, were favourable for crop production this year. Though spring was late, yet there was a bountiful supply of moisture for the start and a fairly good rainfall throughout the growing season. This contributed to produce the best crop since the bumper year of 1915. In the northwest section, conditions were not so favourable. The spring was quite moist but was followed by a scanty summer rainfall hence the crops were much lighter. In some cases, however, on the well-made summer fallow an excellent crop of wheat came through in a surprising manner.

The new lines of work which were added this season promise to give more information on some of our farm problems. The sweet clover crop particularly is being watched with considerable interest.

In making up this report the cost of production is based on the undermentioned prices.

In determining standard cost, all Illustration Stations in the province are figured at the same cost; in this way the cost of production is comparative, one station with the other. Here yields are the only factor influencing difference in cost.

	Standard Cost	Actual Cost
Rent of land per acre	$2.00	based on value of land at 6% interest
Use of machinery per acre	.75	$0.75
Manual labour per hour	.30	(Based on prices prevalent in the district).
Horse labour per hour	.10	
Threshing—		
Wheat per bush	.07	
Oats per bush	.04	
Manure per ton	1.00	1.00
Cost of seed—		
Oats, Banner, per bushel	1.00	·92
Oats, Gold Rain, per bushel	1.00	·80
Oats, Victory, per bushel	1.00	1.08
Rye (fall Rosen) per bushel	3.00	3.25
Rye (spring) per bushel	1.50	1.50
Wheat, Red Fife, per bushel	1.50	1.80
Wheat, Marquis, per bushel	1.50	2.00
Wheat, Ruby, per bush	1.50	3.25
Wheat, Kubanka, per bushel	1.50	1.80
Clover, sweet white, per pound	.10	.10
Clover, red, per pound	.31	.31
Clover, alsike, per pound	.23	.23
Clover, Arctic, per pound	.40	.40
Alfalfa, Grimm, per pound	.51	.51
Alfalfa, Turkestan, per pound	.25½	.25½
Orchard grass, per pound	.30	.30
Western rye, per pound	.11	.11
Brome, per pound	.12	.12
Timothy, per pound	.13	.13
Turnips, per pound	.70	.70
Sunflowers, per pound	·08	·08
Corn (N.W. Dent) per bushel	1·50	1·50

PRECIPITATION RECORDS TAKEN ON THE ILLUSTRATION STATIONS, SASKATCHEWAN, 1922.

Month	Davidson	Herbert	Lloyd-minster	Pamb-rum	Parkbeg	Radville	Shaun-avon	Tugaske	Ogema	Meota	Weyburn	Zealan-dia	Maple Creek	Cadillac
April	.....	0·96	.....	.....	.....	0·43	.....	0·53	.....	.....	1·02	0·50	0·40	
May	2·95	2·73	3·36	2·73	.....	3·50	1·19	2·98	.....	2·65	3·63	2·44	2·42	.....
June	0·86	2·07	1·25	1·58	.....	4·02	2·07	1·89	4·26	0·61	2·89	0·60	1·81	.....
July	1·26	0·47	0·56	1·50	.....	1·49	2·18	1·07	3·10	0·03	1·33	0·16	1·74	.....
August	5·40	0·78	3·93	1·35	2·45	2·70	3·19	2·77	2·28	3·56	1·82	3·90	2·62	2·17
September	0·36	0·21	0·73	0·44	0·38	1·48	0·86	0·32	2·39	0·45	2·38	.....	2·11	0·96
October	0·40	.....	1·22	.....	0·10	0·36	.....	0·50	0·10	0·70	0·30	.....	.....	0·25
November	.....	.....	.....	.....	.....	0·40	.....	.....	.....	.....	.....	.....	.....	.....
December	0·03	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0·50	.....	.....
Totals	11·26	7·22	11·05	7·60	.....	14·39	9·49	10·06	.....	.....	13·37	8·10	11·10	.....

AVONLEA—*Operator, J. W. Miller.*

The spring here opened later than usual, with favourable moisture conditions. The growing season, on the whole, was a favourable one, though it became rather dry later in the season. A good yield of both grain and hay crops was obtained.

The first wheat was sown on May 3 and oats May 4. Rate of seeding for wheat was one and a quarter bushels; oats, two bushels; rye grass, fourteen pounds; brome, fourteen pounds; sweet clover, fifteen pounds; corn, twenty to twenty-five pounds per acre.

Harvesting of grain was started on August 12. Hay was cut July 8.

The following table gives the results of the season's work and the cost of production:—

Crops and Rotation	Yield per acre	Days Maturing	Standard cost of production	Actual cost of production
Two-year rotation with corn and wheat—				
Corn, N.W. Dent	6 tons.	116	$ 2.35 per ton.	$2.38 per ton.
Marquis wheat after corn	20 bush.	99	.44 per bush.	.57 per bush.
Four-year rotation with wheat and rye grass—				
Fallow	.....	.....	7.71 per acre.	7.70 per acre.
Marquis wheat seeded with rye grass	28 bush.	105	.47 per bush.	.59 per bush.
Hay	2¼ tons.	.....	4.03 per ton.	4.48 per ton.
Hay	2¼ tons.	.....	4.03 per ton.	4.48 per ton.
Three-year rotation with wheat and sweet clover—				
Oats (green feed)	2 tons.	.....	3.29 per ton.	3.37 per ton.
Marquis wheat seeded with sweet clover.	30 bush.	104	.44 per bush.	.56 per bush.
Marquis wheat	34 bush.	104	.40 per bush.	.52 per bush.
Demonstration Test Plots—				
Early Red Fife wheat seeded with Brome grass	30 bush.	106	.44 per bush.	.56 per bush.
Kubanka wheat seeded with Brome grass	30 bush.	106	.44 per bush.	.56 per bush.
Banner oats	65 bush.	99	.21 per bush.	.26 per bush.
Victory oats	55 bush.	99	.25 per bush.	.30 per bush.
Alfalfa seeded this year sweet clover	2 tons.	.....	9.70 per ton.	4.93 per ton.
Fall rye (sown this fall on oat stubble disced)	.....	.....	.....	.....

SUMMARY OF SOME IMPORTANT FEATURES OF THE WORK

Western rye grass sown last year on land which was being fallowed gave a yield of two and a half tons per acre of excellent hay.

Sweet clover seeded last season under similar conditions produced two and a half tons of hay per acre also.

Alfalfa was seeded this season part alone and part with a light nurse crop of oats and in both cases failed to give a satisfactory stand.

Corn gave a good account of itself again this year. Apparently, this district is well adapted to corn growing. A yield of six tons per acre was put into the silo along with some sunflowers and made a good quality of ensilage as many of the cobs were almost ripe.

Marquis wheat after a corn crop gave a lower yield than after the fallow this year. Early Red Fife wheat and Kubanka did not show any advantage over Marquis in either yield or quality.

Banner oats outyielded Victory, both sown on fallow.

DAVIDSON—*Operator, Reuben Lloyd.*

The spring season opened quite favourably, with a liberal supply of moisture in April and May. Later on, in June and July, it became dry and hot, so

that crops suffered. However, rains came in time to give a fairly good return. Work on the land was started the last days of April and the first wheat on the Station was sown April 28; oats, May 27. The rate of seeding for wheat was one and a quarter to one and a half bushels, and oats, two bushels per acre.

Harvesting of grain was started August 17 and completed September 9. Hay was cut July 17.

The following table gives the results of the season's work and the cost of production for each crop:—

Crops and Rotations	Yield per acre	Days Maturing	Standard cost of production	Actual cost of production
Four-year rotation with grain and rye grass or Brome grass—				
Fallow	.....	.....	$10.17 per acre.	$11.79 per acre.
Victory oats seeded with Brome grass	18 bush.	118	.57 per bush.	.69 per bush.
Hay (fallowed this year)	.....	.....	5.99 per acre.	3.49 per acre.
Hay, rye grass	1½ tons.	.....	5.60 per ton.	6.61 per ton.
Three-year rotation with wheat and sweet clover—				
Fallow	.....	.....	6.81 per acre.	7.81 per acre.
Marquis wheat on fallow seeded with sweet clover	17⅜ bush.	111	.64 per bush.	.85 per bush.
Marquis wheat	24⅜ bush.	.....	.41 per bush.	.56 per bush.
Two-year rotation with corn and wheat—				
Corn, N.W. Dent	2½ tons fodder.	103	4.26 per ton.	5.10 per ton.
Wheat after corn	21¼ bush.	.....	.40 per bush.	.61 per bush.
Demonstration Test Plots—				
Banner oats, 2nd crop	26 bush.	105	.36 per bush.	.44 per bush.
Kubanka Wheat on fallow	17½ bush.	111	.62 per bush.	.80 per bush.
Alfalfa	1½ tons.	.....	9.97 per ton.	11.44 per ton.

SUMMARY OF SOME IMPORTANT POINTS

Manure was applied on one summer-fallow this year at the rate of about nine tons per acre. The effect on next year's wheat crop will be watched with interest.

Sweet clover was seeded with wheat on fallow at the rate of fifteen pounds per acre. The catch was quite uniform.

Alfalfa seeded last year on land fallowed the previous year at fifteen pounds per acre, gave a yield of one and a half tons of excellent hay per acre this year.

Corn gave a fairly good crop and wheat on last year's corn land gave a higher yield than some of the wheat on fallowed land.

Kubanka wheat did not show up well at this Station, yielding less than Marquis.

HERBERT—*Operator, Milton Holmes.*

The spring was backward in this district and the first seeding was done on the illustration fields May 16. Wheat was sown at the rate of one and a quarter bushels and oats one and a half bushels per acre. There was a plentiful supply of moisture during the growing season, particularly in the early part. The rainfall for April was ·96 inches, May, 2·73 inches, and June, 2·7 inches. All crops made a strong uniform growth. Later in the season it became dry, but all crops were well advanced and an excellent yield of both grain and hay of good quality resulted. Harvesting was started August 18 and completed by September 4. Hay was cut July 12.

The following table gives the results of the season's work and the cost of production:—

Crops and Rotations	Yield per acre	Days maturing	Standard cost of production	Actual cost of production
Three-year rotation with wheat and sweet clover—				
Fallow	.....		$6.07 per acre.	$6.59 per acre.
Marquis wheat on fallow seeded with sweet clover	32 bush.	98	.46 per bush.	.57 per bush.
Marquis wheat on fallow	32 bush.	98	.45 per bush.	.56 per bush.
Four-year rotation with wheat and Brome grass—				
Fallow	.....	.....	7.89 per acre.	8.39 per acre.
Marquis wheat seeded with Brome grass on fallow	34 bush.	98	.44 per bush.	.55 per bush.
Banner oats	52 bush.	94	.24 per bush.	.30 per bush.
Hay—Land fallowed and seeded this year with Brome grass	.....	.....	.....	.....
Four-year Rotation with wheat and Western rye grass—				
Corn, N.W. Dent as a fallow substitute	2½ tons.	.....	3.82 per ton.	4.34 per ton.
Marquis wheat seeded with rye grass	(substituted by hay)			
Hay, western rye	2½ tons.	.....	5.32 per ton.	6.12 per ton.
Hay, western rye	2 tons.	.....	4.20 per ton.	4.72 per ton.
Two-year rotation with wheat and corn—				
Corn, N.W. Dent	pastured	.....	7.41 per acre.	7.92 per acre.
Marquis wheat	35½ bush.	102	.31 per bush.	.41 per bush.
Demonstration Test Plots—				
Early Red Fife wheat on fallow	35¼ bush.	107	.42 per bush.	.53 per bush.
Kubanka wheat, 2nd crop	21 bush.	100	.53 per bush.	.65 per bush.
Victory oats on fallow	61 bush.	98	.25 per bush.	.32 per bush.
Duckbill barley, 2nd crop	29 bush.	99	.42 per bush.	.50 per bush.
Alfalfa	1 ton.	.....	12.63 per ton.	13.58 per ton.

Hauling a two ton crop of Rye Grass at Herbert.

SUMMARY OF SOME IMPORTANT FEATURES OF THE WORK THIS SEASON

Western rye grass hay gave a yield of two and a half tons per acre. This was seeded last year at the rate of fourteen pounds per acre with the wheat crop on summer-fallow.

Sweet clover seeded alone last year gave a yield of two and a half tons of hay per acre this year, first cutting, and one ton, second cutting, three and a half tons per acre altogether.

Alfalfa seeded last year in rows two and a half feet apart on fallowed land gave a yield of one ton of excellent hay per acre this year.

The corn crop was again successful this year. It was cut with a corn binder, run through the cut box and stored in a trench silo thirty-five feet by fourteen feet by eight feet.

Marquis wheat sown on last year's corn field (double disced) gave as heavy a yield as on any fallowed land.

Early Red Fife wheat was grown for the first time on this station. Results show it about equal to Marquis in yield and quality. In a season of rust, however, it would suffer more than Marquis.

Rosen rye seeded last fall on wheat stubble, part on shallow ploughing and part on disced stubble, winter-killed forty to sixty per cent; the disced stubble showed less killing.

LLOYDMINSTER—*Operator, Hugh Hill.*

Climatic conditions were unfavourable to Lloydminster this season. Though the spring opened auspiciously with plenty of moisture, and growth was favourable until June 6, a heavy frost came that night and all crops were frozen to the ground. This was reported to be the heaviest spring frost in this locality for fifteen years, ranging from seven to seventeen degrees. Following this, there was no rain for ten days and not a good rain for over two weeks. June, on the whole, was dry, 1·25 inches of rain being recorded. July was also dry with only ·56 inches of rain. All crops, however, recovered better than was at first expected and though yields were light, they were not a failure. Seeding commenced the 23rd of April. The regular rates of seeding were used, one and a half bushels of wheat and two and a quarter bushels of oats per acre. Rye grass and sweet clover were sown with a nurse crop at the rate of fourteen pounds per acre. Harvesting was started August 24.

The following table gives the results of the season's work and the cost of production:—

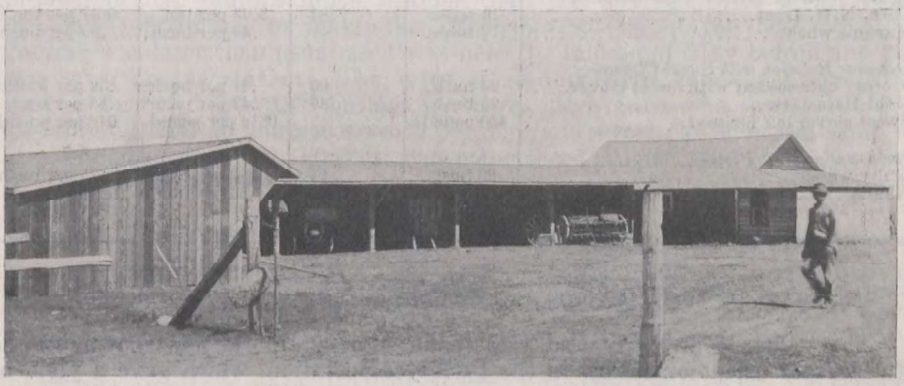
Crops and Rotations	Yield per acre	Days maturing	Standard cost of production	Actual cost of production
Three-year Rotation with wheat—				
Summer-fallow			$7.65 per acre.	$6.93 per acre.
Marquis wheat on fallow	9¼ bush.	127	1.19 per bush.	1.31 per bush.
Marquis wheat, 2nd crop	9⅝ bush.	117	1.12 per bush.	1.21 per bush.
Five-year rotation including rye grass—				
Summer-fallow			7.05 per acre.	6.32 per acre.
Marquis wheat	12 bush.	121	.91 per bush.	1.01 per bush.
Banner oats seeded with rye grass	31 bush.	112	.38 per bush.	.39 per bush.
Hay, western rye grass	950 pounds.		10.57 per ton.	8.93 per ton.
Hay, western rye grass	760 pounds.		13.34 per ton.	11.29 per ton.
Demonstration Test Plots—				
Early Red Fife wheat seeded with sweet clover	14¾ bush.	121	.78 per bush.	.84 per bush.
Victory oats	28 bush.	110	.42 per bush.	.45 per bush.
Banner oats seeded with sweet clover	1½ tons. green feed.		9.05 per ton.	8.62 per ton.
Corn, N.W. Dent	3 tons.	105	5.17 per ton.	4.98 per ton.
Sunflowers Giant Russian	9 tons.	105	1.53 per ton.	1.46 per ton.
Light nurse crop of oats seeded down with alfalfa	1,800 pounds	green feed.	13.08 per ton.	12.43 per ton.

Over half of the corn crop was killed by the spring frost while sunflowers suffered much less and gave a very fair yield.

Alfalfa was seeded at the rate of ten pounds per acre, with a light nurse crop of oats (three pecks) for green feed early in June. The catch in the fall looked quite promising.

Early Red Fife wheat was grown at this station for the first time. It yielded well and the quality was good. This is, however, not so safe a wheat to grow as Marquis, as it is damaged more if rust is prevalent.

Mr. Hill excavated a trench silo this fall thirty-two feet long, twelve feet wide and eleven feet deep. The corn and sunflower crops were cut with a corn binder, hauled in and run through a cutting box into this trench and well tramped by a man and horse. The ensilage is of good quality and is being fed this winter to the cattle with excellent results.



This farmer says that machinery is too expensive to leave out unprotected.

MEOTA—*Operator, Walter Tait.*

This season was marked by an abundance of moisture in April and May, but with an extremely dry June and July; 2·65 inches of rain fell in May but only ·64 inch came in both June and July together. The first seeding was done the last two days of April. Wheat was sown one and a quarter bushels; oats, two bushels, per acre, except when used as a nurse crop for grass or clover, when one bushel was the rate. Wheat came through and gave a good yield, but oats, being sown later, suffered more from drought and gave a light yield of fair quality. Harvesting was early, Ruby wheat was cut August 1; Marquis, August 9. The hay crop was cut July 14.

The following table gives the results of the season's work and the cost of production:—

Crops and Rotations	Yield per acre	Days maturing	Standard cost of production	Actual cost of production
Three-year Rotation with wheat—				
Summer-fallow			$7.71 per acre.	$8.26 per acre.
Marquis wheat on fallow	32⅝ bush.	102	.44 per bush.	.58 per bush.
Marquis wheat, 2nd crop	14 9/10 bush.	97	.80 per bush.	1.00 per bush.
Five-year Rotation including Western Rye Grass—				
Summer-fallow			8.07 per acre.	8.65 per acre.
Marquis wheat	24 3/10 bush.	103	.56 per bush.	.71 per bush.
Banner oats seeded with rye grass	½ ton oats (green feed)		19.58 per ton.	22.18 per ton.
Hay	1 ton		6.04 per ton.	6.49 per ton.
Hay, 2nd crop	1 ton		6.04 per ton	6.49 per ton.
Two-year Rotation with corn and wheat—				
Corn, N.W. Dent	1½ tons.	83	5.93 per ton.	6.47 per ton.
Marquis wheat	17¾ bush.		.48 per bush.	.59 per bush.
Three-year Rotation with Sweet Clover—				
Victory oats seeded with sweet clover	25 bush.	90	.41 per bush.	.52 per bush.
Gold Rain oats	25 bush.	89	.43 per bush.	.53 per bush.
Sweet clover left for seed	400 pounds.		.08½c per pound.	04c per pound.
Demonstration Test Plots—				
Ruby wheat	25 bush.	94	.52 per bush.	.75 per bush.
Alfalfa	2 tons, 2 cuttings		7.55 per ton.	8.85 per ton.

SUMMARY OF SOME IMPORTANT FEATURES OF THE SEASON'S OPERATIONS

The value of an early and well made summer-fallow was shown by the returns from wheat on fallow in the three-year rotation, which gave a yield of thirty-two bushels, twenty-five pounds per acre. This summer-fallow was ploughed in 1921 on June 6, about seven inches deep, packed behind the plough, then harrowed and later cultivation was given as necessary to destroy weed growth.

Wheat on the summer-fallow in the five-year rotation, where summer-fallow comes after two years' cropping of rye grass hay, gave a yield of eight bushels per acre less this season than wheat on fallow in the three-year rotation referred to above. This does not agree with the results obtained at the Scott Experimental Station with a similar rotation over a period of years. One year's results alone do not mean much. The future of this rotation at Meota will be watched with interest.

Wheat after corn and sunflowers yielded less than any wheat on fallow. It was noticeable that the wheat after the sunflowers was much lighter than after the corn.

The value of early seeding, particularly in a season like the one just past, was shown by the difference in the yields of the wheat and oat crops, the wheat being sown much the earlier.

Western rye grass gave a lighter hay crop than usual but demonstrated its ability to produce a fair crop even in a dry June and July. A light top dressing of manure on part of the field gave good results.

Alfalfa gave two cuttings of one ton per acre each, in a season which was none too favourable. It was sown last year on fallowed land, half in rows two and a half feet apart and half solid. The latter gave better results this year.

Sweet clover made a more vigorous growth than either alfalfa or rye grass, but as it was left for seed production, a comparison of the hay yield cannot be

given, but it was much the heaviest crop. The yield of seed was four hundred pounds per acre.

The corn crop was light this year, but sunflowers gave a heavy yield and were not damaged by the first fall frost as the corn was. Most of the ensilage had to be made from the sunflowers. The crop was cut with a corn binder and run through a cutting box and well tramped into the silo which Mr. Tait put in last year.

This silo is ten feet deep in the ground and is carried five feet above the ground with a cement wall eight inches thick. The diameter of the hole is twelve feet. The part below the ground is lined with staves two inches thick. This silo was used last year and the ensilage was of excellent quality. Mr. Tait reports this year the results are again quite satisfactory.

OGEMA—*Operator, T. E. Gamble.*

The climatic conditions at Ogema this year were very favourable for crop production. A rainfall much heavier than the average, with good growing weather, contributed to make the 1922 harvest one of the best on record. Seeding was later than usual as it was near the middle of May before any grain was sown on the station. The rates of seeding were, for wheat, one and a quarter bushels; oats, two bushels per acre. Rye grass was sown with wheat on fallowed land at fourteen pounds per acre and sweet clover in the same way at a fifteen-pound rate. Harvest was commenced August 25.

The following table gives the results of the season's work and the cost of production:—

Crops and Rotations	Yield per acre	Days maturing	Standard cost of production	Actual cost of production
Three-year Rotation with Wheat—				
Summer-fallow substitute (Corn, N.W. Dent)	fodder 3¾ tons.	170	$4.68 per ton.	$5.32 per ton.
Marquis wheat second crop	34 bush.	96	.33 per bush.	.45 per bush.
Marquis wheat, second crop	32 bush.	96	.34 per bush.	.47 per bush.
Four-year Rotation with Wheat and Western Rye Grass—				
Fallow	.....	.....	6.17 per acre.	6.63 per acre.
Marquis wheat on fallow seeded with rye grass	38 bush.	94	.31 per bush.	.62 per bush.
Hay	3½ tons.	.....	3.30 per ton.	3.32 per ton.
Hay	3 tons.	.....	2.81 per ton.	3.20 per ton.
Demonstration Test Plots—				
Kubanka wheat, second crop seeded with sweet clover	26 bush.	110	.41 per bush.	.53 per bush.
Early Red Fife wheat, second crop	10 bush. rusted.	95	1.21 per bush.	1.42 per bush.
Banner oats	65 bush.	99	.19 per bush.	.25 per bush.
Gold Rain oats	60 bush.	99	.19 per bush.	.24 per bush.
Sunflowers as a fallow substitute used for ensilage	10 tons.	107	2.27 per ton.	1.95 per ton.

SUMMARY OF SOME IMPORTANT FEATURES

Kubanka and Early Red Fife wheat were grown on this station for comparison with Marquis. All three wheats were grown on stubble land (disced). It will be noted from the above table that Marquis made the best showing. The Early Red Fife was a fine-looking stand but rusted very badly, hence yield and grade were disappointing.

Western rye grass on this station gave two crops of hay this season with a total yield of over three tons per acre; first cutting, two tons and second,

one and a quarter tons per acre. This is the first time on the illustration fields in Saskatchewan that two cuttings of ordinary hay the same year have been taken.

Corn and sunflowers made a very heavy growth and, when measured on September 7, the corn was seven feet high and sunflowers eight feet average. Corn was used for fodder but the sunflowers were made into ensilage, run through a cut box and put into a trench silo twenty-five feet by ten feet by eight feet which Mr. Gamble excavated this season.

PAMBRUM—*Operator, T. E. Gamble.*

Spring opened later than usual here. Seeding was started May 20. Wheat was sown at the rate of one bushel and oats two bushels per acre; rye grass, fourteen pounds and sweet clover fifteen pounds. There was plenty of moisture early in the season and all crops made a good start; 2·73 inches rain came in May, in June, 1·58 inches and July 1·50 inches. This was sufficient to bring all crops along and a good yield of good-quality grain and hay resulted. The first grain was cut August 31 and harvest was completed September 8.

The following table gives the results of the season's work and the cost of production:—

Crops and Rotations	Yield per acre	Days maturing	Standard cost of production	Actual cost of production
Two-year Rotation with Oats—				
Fallow			$7.15 per acre.	$7.71 per acre.
Banner oats	25 bush.	101	.56 per bush.	.63 per bush.
Three-year Rotation with Wheat and Sweet clover—				
Fallow			6.41 per acre.	6.93 per acre.
Marquis wheat on fallow seeded with sweet clover	30 bush.	101	.52 per bush.	.63 per bush.
Marquis wheat (second crop)	12 bush.	101	1.01 per bush.	1.17 per bush.
Three-year Rotation with Wheat and Rye Grass—				
Fallow			6.83 per acre.	7.39 per acre.
Marquis wheat seeded with rye grass on fallow	33 bush.	101	.41 per bush.	.51 per bush.
Hay	1¼ tons.		9.64 per ton.	10.62 per ton.
Two-year Rotation with Wheat—				
Fallow			7.44 per acre.	8.10 per acre.
Marquis wheat	19 bush.	104	.78 per bush.	.91 per bush.
Three-year Rotation with Brome Grass—				
Victory oats on fallow	36 bush.	99	.36 per bush.	.43 per bush.
Marquis wheat on fallow seeded with Brome grass	25 bush.	100	.52 per bush.	.63 per bush.
Marquis wheat on fallow seeded with Brome grass	25 bush.	100	.52 per bush.	.63 per bush.
Demonstration Test Plots—				
Kubanka wheat on fallow	28 bush.	103	.47 per bush.	.57 per bush.
Early Red Fife wheat on fallow	30 bush.	102	.44 per bush.	.54 per bush.

SUMMARY OF SOME IMPORTANT FEATURES OF THE WORK

Western rye grass gave a yield of one and a quarter tons of good-quality hay per acre. This was sown last year with wheat on fallow land at the rate of one bushel of wheat and fourteen pounds rye grass seed per acre.

Kubanka wheat on fallow land did not show any advantage this season over Marquis.

Early Red Fife yielded well and was a good sample, but Marquis on another field gave a little higher yield. In a year of rust, the Marquis would come through better than the Fife.

PARKBEG—*Operator, T. L. Humphrey.*

Seeding was started on this Station on the 29th of April. Wheat was sown at the rate of one to one and a half bushels and oats one and a half bushels, per acre. There was sufficient moisture early in the season to give all crops a good start, germination was uniform and growth satisfactory. Later in June it was

A general view of the Illustration Station, Ogema.

dry for a while but rains came in time to bring crops along and a fairly good harvest, with a good quality of grain, resulted. The first grain was cut August 4 and harvest completed August 19.

The following table gives the results of the season's work and the cost of production of the crops:—

Crops and Rotations	Yield per acre	Days maturing	Standard cost of production	Actual cost of production
Four-year Rotation with Wheat and Brome Grass—				
Fallow (oats for green feed substituted)	2½ tons.	.....	$6.60 per ton.	$6.10 per ton.
Marquis wheat seeded with Brome grass on fallow	20⅔ tons	112	.64 per bush.	.70 per bush.
Marquis wheat seeded with Brome grass on fallow	19 bush.	105	.70 per bush.	.75 per bush.
Marquis wheat substituted for hay first year on fallow	24⅓ bush.	105	.56 per bush.	.62 per bush.
Three-year Rotation with Wheat and Sweet Clover—				
Fallow (oats for green feed substituted)	1⅔ tons.	.....	8.35 per ton.	7.67 per ton.
Marquis wheat seeded with sweet clover on fallow	21 bush.	103	.64 per bush.	.69 per bush.
Kubanka wheat on fallow	18⅓ bush.	109	.70 per bush.	.75 per bush.
Two-year Rotation with Corn and Wheat—				
Corn, N.W. Dent on fallow	5 tons	87	3.97 per ton.	3.97 per ton.
Wheat (Kubanka) on fallow	20⅔ bush.	108	.65 per bush.	.70 per bush.
Demonstration Test Plots—				
Early Red Fife wheat on fallow	17⅓ bush.	108	.75 per bush.	.80 per bush.
Banner oats on fallow	46 bush.	92	.29 per bush.	.32 per bush.
Alfalfa seeded this year	.....	.....	10.56 per acre.	10.52 per acre.

SUMMARY OF SOME IMPORTANT POINTS

Marquis wheat was seeded with brome grass on fallowed land at the rate of wheat one bushel; brome, fourteen pounds, per acre. The catch of grass looks quite promising for a hay crop in 1923.

Marquis wheat and sweet clover were also sown together, clover at the rate of fifteen pounds per acre. Clover catch looks satisfactory.

Corn gave a good yield (5 tons per acre) of excellent fodder.

Alfalfa sown on fallowed land failed to make a stand.

RADVILLE—*Operator, Ernest Noble.*

This is the best season Radville has had since 1915. Though spring was late, the first seeding being done April 27. There was an abundance of moisture; in fact, it was too wet to get on the land for some time. In the months of May and June 7·52 inches of rain fell, so growth was very favourable. July had 1·49 inches. All crops which were sown in good time came through well, but some of the late sown suffered from rust. Wheat was seeded one to one and a quarter bushels and oats one and three-quarters to two bushels, per acre. Rye grass and brome, sown with wheat on fallow, were seeded twelve to fourteen pounds per acre and sweet clover sown the same way, fifteen pounds per acre. Harvest was early, the first wheat being cut August 12.

The following table gives the results of the season's work and the cost of production.

Crops and Rotations	Yield per acre	Days maturing	Standard cost of production	Actual cost of production
Three-year Rotation with Wheat—				
Summer-fallow	.....	.....	$6.53 per acre.	$6.36 per acre.
Marquis wheat seeded with sweet clover	35 bush.	107	.42 per bush.	.49 per bush.
Marquis wheat second crop	12 bush.	91	.97 per bush.	1.07 per bush.
Four-year Rotation with Wheat and Rye Grass—				
Summer-fallow	.....	.....	6.23 per acre.	6.07 per acre.
Wheat (Early Red Fife) seeded with rye grass	32 bush.	108	.43 per bush.	.50 per bush.
Hay	1 ton.	.....	5.90 per ton.	5.96 per ton.
Hay	1½ tons.	.....	4.07 per ton.	4.04 per ton.
Demonstration Test Plots—				
Kubanka wheat second crop	22 bush.	107	.59 per bush.	.66 per bush.
Barley, Duckbill seeded with Brome grass	10 bush.	81	1.12 per bush.	1.29 per bush.
Banner oats	36 bush.	97	.35 per bush.	.37 per bush.
Victory oats	33 bush.	98	.38 per bush.	.42 per bush.
Sweet clover	1½ tons.	.....	4.53 per ton.	4.55 per ton.

SUMMARY OF SOME IMPORTANT POINTS

Sweet clover was seeded in 1921 with a light nurse crop of oats on a piece of land which had some bad burnt-out spots. This year nearly two tons per acre of clover hay were taken, being cut twice. The actual yield was more than this as, in some spots where water stood, the clover was killed out. Apparently sweet clover will catch on this hard land and no doubt it must be beneficial to the soil as the roots penetrate for a considerable distance aerating the soil and adding fibre. The plan was to fallow this field next season, then grow a crop of wheat to see the effect of the clover crop.

Five acres of sweet clover was sown this year with the wheat crop on the fallow. When the wheat was cut the clover could be seen, a quite uniform catch, in the stubble.

Western rye grass gave a yield of one and a quarter tons of good hay per acre this year.

Kubanka and Early Red Fife wheats were both tested at this station to compare with Marquis. The yields are given in the table. The Early Red Fife rusted badly and the kernels were very shrunken. Kubanka wheat on one plot

on spring ploughing sown early, April 27, gave twenty-two bushels per acre of good grade wheat, but another plot sown late, May 20, rusted so that the kernels were quite shrunken and the yield only eleven bushels.

RIVERHURST—*Operator, R. F. Rudd.*

The spring season was very favourable though later than usual, as work on the fields did not start until near the end of April. There was plenty of moisture for April and May with very good growth, but June and July rainfall was light, with extreme heat. All crops suffered considerably from the drought except corn. However, a fair return resulted. The first wheat was sown April 29, and oats May 25. The rate of seeding for wheat was one to one and a quarter bushels; oats, two bushels; rye grass, fourteen bushels; brome grass, fourteen pounds; sweet clover, fifteen pounds, per acre. Harvest was started on August 9.

The following table gives the results of the season's work and the cost of production of the different crops.

Crops and Rotations	Yield per acre	Days maturing	Standard cost of production	Actual cost of production
Four-year rotation with wheat and brome grass—				
Corn N.W. Dent (fallow substitute)	4 tons.	109	$3.65 per ton.	$3.91 per ton.
Marquis wheat on fallow seeded with Brome grass	14 bush.	108	.85 per bush.	1.03 per bush.
Marquis wheat on fallow seeded with Brome grass	14 bush.	108	.85 per bush.	1.03 per bush.
Kubanka wheat, second crop (substituted for hay)	15 bush.	101	.78 per bush.	.93 per bush.
Four-year rotation with wheat and western rye grass—				
Fallow			5.45 per acre.	5.49 per acre.
Oats for green feed seeded with rye grass	1¾ tons		7.25 per ton.	7.66 per ton.
Oats for green feed seeded with rye grass	1¾ tons		7.25 per ton.	7.66 per ton.
Banner oats (substituted for hay, being first year)	27 bush.	82	.31 per bush.	.52 per bush.
Two-year rotation corn and wheat—				
Corn, N.W. Dent	4 tons.	109	2.95 per ton.	3.24 per ton.
Marquis wheat (fallowed this year)			5.18 per acre.	5.20 per acre.
Demonstration Test Plots—				
Early Red Fife wheat on fallow	15 bush.	102	.81 per bush.	.91 per bush.
Marquis wheat on fallow	15 bush.	102	.83 per bush.	.92 per bush.
Banner oats on fallow	28 bush.	89	.45 per bush.	.52 per bush.

SUMMARY OF SOME IMPORTANT POINTS

This is the first year this station has been in operation, hence there are just one year's results. Some points, however, are worth noting.

Brome grass was seeded with wheat on fallowed land, wheat one bushel, brome fourteen pounds per acre. The catch of grass looks good for a hay crop next season.

Sweet clover seeded alone June 19 on land which was being fallowed, failed to make a successful stand owing to the lack of moisture. It is quite probable, had the land been ploughed early in the spring and sown then, a good catch might have been secured.

The corn crop made good growth here this year in spite of the drought. It was grown as a substitute for summer-fallow, sown about twenty pounds per acre, with the ordinary grain drill, by closing some of the runs so that the rows were spaced three feet apart. The crop was cultivated with an ordinary spring tooth cultivator by removing some of the teeth, two horses being used. This worked satisfactorily until the corn grew too high, when a small cultivator

was used at the finish. This crop, along with some sunflowers, was made into ensilage and stored in a crib silo which was built this summer. Though the both crops got some frost and were not as moist as desirable, particularly the corn, by the addition of water when filling the silo a satisfactory ensilage was made, which is being fed this winter with good results, as reported by Mr. Rudd.

SHAUNAVON—*Operator, Stanley Murch.*

Seeding was started on this station April 29. There was a plentiful supply of moisture early in the season and all crops got away to a good start. The June rains were rather delayed so that crops were checked a little. However, the welcome moisture came in time to supply the need and a good harvest resulted. Rainfall recorded for May was 1·19 inches, June 2·7 inches, and July 2·18 inches.

The rates of seeding were, for wheat, one to one and a quarter bushels; for oats, two bushels per acre. Rye grass, brome and sweet clover were sown, with wheat or oats as nurse crop, at twelve pounds per acre.

Harvest was started on the 22nd of August. The quality of all grain was good. First year of work at this station; rotations not yet established.

The following table gives the results of the season's work and the cost of production:—

Crops and Rotations	Yield per acre	Days maturing	Standard cost of production	Actual cost of production
Three-year rotation with wheat and sweet clover—				
Summer-fallow	.....	.....	$5.74 per acre.	$6.21 per acre.
Marquis wheat seeded with sweet clover	25 bush.	98	.45 per bush.	.56 per bush.
Oats, green feed, substituted for hay, this first year	1 ton.	.....	10.29 per ton.	11.08 per ton.
Four-year rotation with wheat and brome grass—				
Marquis wheat seeded with Brome grass.	24 bush.	118	.51 per bush.	.67 per bush.
Early Red Fife wheat seeded with Brome grass	26 bush.	114	.40 per bush.	.54 per bush.
Kubanka wheat in place of hay, first year.	22 bush.	113	.54 per bush.	.69 per bush.
Banner oats in place of hay for first year.	60 bush.	95	.21 per bush.	.28 per bush.
Four-year rotation with western rye grass—				
Victory oats	35 bush.	90	.32 per bush.	.41 per bush.
Rye grass with light nurse crop of oats	1 ton oats green feed.	.....	10.04 per ton.	10.85 per ton.
Rye grass with light nurse crop oats	1 ton oats green feed	.....	10.04 per ton.	11.85 per ton.
Banner oats	40 bush.	91	.29 per bush.	.36 per bush.
Demonstration Test Plots—				
Corn, N. W. Dent	7 tons.	99	1.49 per ton.	1.77 per ton.
Alfalfa	Seeded this year.			

SUMMARY OF SOME IMPORTANT POINTS

Early Red Fife and Kubanka wheats were tried out here this season for a comparison with Marquis, the standard variety. All three were sown side by side on fallow land. The results are given in the table. Kubanka is the lowest in yield; while the Early Red Fife gave slightly the highest, but being only one year's results these cannot be considered conclusive. All three were of excellent quality. It must be borne in mind that the Fife is more susceptible to rust than Marquis, hence it is not considered so safe a wheat.

This is the first year the work has been carried on at Mr. Murch's farm, hence there are no hay crops yet. However, grasses and sweet clover were seeded this year in readiness for next.

Alfalfa was seeded eight pounds per acre with three pecks of oats as a nurse crop. It was a fair stand, but next spring will tell the story of whether it is a success or not.

The corn crop was used as a summer-fallow substitute, being sown on land which otherwise would have been summer-fallowed. It was sown with an ordinary grain drill, as on the other stations, in rows three feet apart, using about twenty pounds of seed per acre. The crop was harrowed after coming up, then later cultivated with an ordinary spring tooth cultivator. This is a scheme which Mr. Murch worked out. Some of the teeth were removed from the cultivator so that two full spaces were cultivated at once. Two horses were used and, by careful driving, a satisfactory job was done in a short time. After the corn got too high, a one-horse cultivator was used. The crop made a good growth, about six feet high, with many good sized cobs in the glazed stage. It was cut with a grain binder the first week of September. It was then hauled to the trench silo and run through the cut box and well tramped in the silo. The ensilage is of good quality and Mr. Murch reports excellent results from feeding it to both milk cows and beef cattle. The size of this trench silo is thirty-three feet long, ten feet wide, and seven feet deep, and it was excavated by Mr. Murch early in the fall.

TUGASKE—*Operator, Robert Wilson.*

The spring season at Tugaske opened under very favourable conditions, plenty of moisture and a heavy rainfall for April and May of nearly four inches. Seeding was backward, the first wheat being sown May 3 and oats the 26. All crops got away to a good start. A dry June followed with only 1·89 inches of rain with very hot weather early in July, so growth was retarded for a time. However, rain came in time to save the situation and a good crop was harvested. The medium clay loam soil of this district, where the seed bed was well made demonstrated its ability to withstand drought conditions for some time.

Wheat on fallowed land was sown at a one and a quarter bushel rate and on spring ploughed stubble land, one bushel; oats at the rate of two bushels; rye grass, fourteen pounds; sweet clover, fifteen pounds.

Harvesting of wheat was started August 11 and oats August 17.

The following table gives the results of the season's work and the cost of production:—

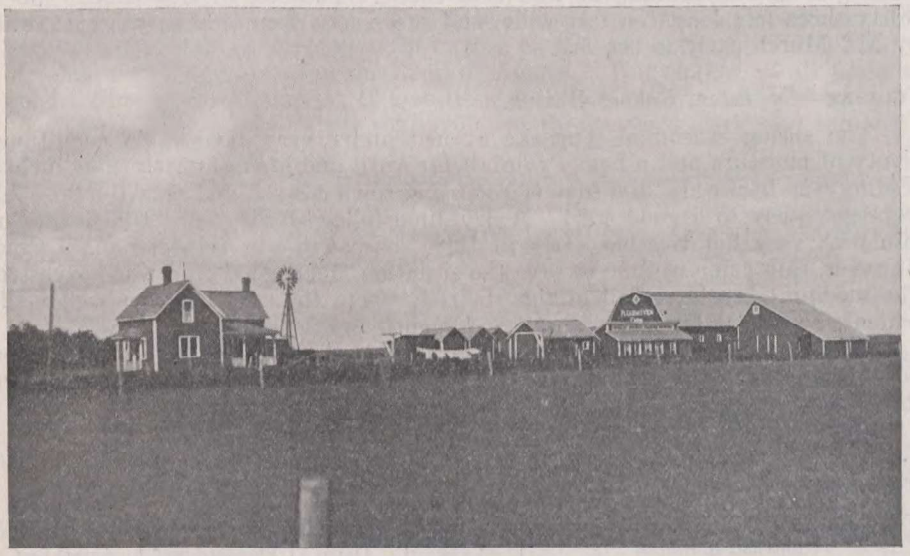
Crops and Rotations	Yield per acre	Days maturing	Standard cost of production	Actual cost of production
Three-year rotation with wheat—				
Summer-fallow	.....	.....	$5.69 per acre.	$6.43 per acre.
Wheat, Marquis, on fallow	24½ bush.	98	.53 per bush.	.66 per bush.
Wheat, Marquis, second crop	26⅝ bush.	97	.46 per bush.	.54 per bush.
Five-year rotation including western rye grass—				
Summer-fallow	.....	.....	8.34 per acre.	9.45 per acre.
Wheat, Marquis	18⅜ bush.	102	.69 per bush.	.82 per bush.
Oats, Banner seeded with rye grass	58 bush.	83	.19 per bush.	.23 per bush.
Hay, western rye grass	1 ton.	.....	9.43 per ton.	11.07 per ton.
Hay, western rye grass	2½ ton.	.....	3.42 per ton.	4.00 per ton.
Two-year rotation with corn and wheat—				
Corn, N. W. Dent	6 tons.	96	2.41 per ton.	2.91 per ton.
Wheat, Marquis	23⅛ bush.	100	.22 per bush.	.25 per bush.
Demonstration Test Plots—				
Early Red Fife wheat on fallow seeded with white sweet clover	23⅜ bush.	105	.59 per bush.	.69 per bush.
Marquis wheat on fallow	27½ bush.	105	.51 per bush.	.61 per bush.
Victory oats on fallow	70¼ bush.	95	.21 per bush.	.26 per bush.
Alfalfa	1 ton.	.....	5.51 per ton.	6.52 per ton.

SUMMARY OF SOME IMPORTANT POINTS

It will be noted that wheat on spring ploughing this year in the three-year rotation gave a higher yield, produced at a lower cost than the wheat on fallowed land. This is unusual.

The stubble land of this field was ploughed the first thing in the spring and harrowed, then packed and harrowed after seeding.

Wheat after corn was produced much the cheapest of all wheats again this year and yielded within one bushel per acre of fallowed land. Wheat on fallow cost sixty-six cents per bushel to produce; wheat, second crop, fifty-four cents and wheat after corn, twenty-five cents. The corn crop gave a good yield of excellent fodder. The results at this station with corn as a summer-fallow substitute supplying a heavy yield of one of our best feeds, are very encouraging.



The Home of Robert Wilson, Illustration Station Operator, Tugaske.

Western rye grass hay gave a good account of itself again this season. The second-year crop was heavier than the first year. This has regularly been the case here, while at Herbert the first-year crop has been the heavier so far.

Western rye grass has been grown at Tugaske successfully in a five-year rotation for the past four years. The rotation is as follows: First year—fallow; second year—wheat; third year—oats seeded with rye grass; fourth year—hay; fifth year—hay.

The yields of hay for these years are given below:—

First Year Crop	*Second Year Crop*
1919—1 ton per acre.	1 ton per acre.
1920—1⅔ tons per acre.	1¼ tons per acre.
1921—1⅔ tons per acre.	2 tons per acre.
1922—1 ton per acre.	2½ tons per acre.
Average for the four years 1⅓ tons per acre.	1¾ tons per acre.

WEYBURN—*Operator, E. Meredith.*

Spring was late in opening and the first seeding was done on May 1. Wheat was sown at one and a half bushels and oats two bushels; barley one and three-

quarter bushels; rye grass fourteen pounds; sweet clover, fifteen pounds and corn, twenty pounds, per acre. There was an ample moisture supply for growth throughout the growing season, and all crops came through well. Harvesting of the grain crops was completed by the end of August and alfalfa hay was cut on July 11.

The following table gives the results of the season's work and the cost of production:—

Crops and Rotations	Yield per acre	Days maturing	Standard cost of production	Actual cost of production
Three-year rotation with wheat—				
Fallow	.....	.....	$6.14 per acre.	$7.21 per acre.
Marquis wheat on fallow	38 bush.	105	.34 per bush.	.45 per bush.
Marquis wheat, second crop on stubble disced	26 bush.	99	.39 per bush.	.51 per bush.
Four-year rotation with wheat and western rye grass—				
Marquis wheat on fallow seeded with rye grass	39 bush.	106	.34 per bush	.45 per bush.
Early Red Fife wheat	31 bush.	105	.40 per bush.	.52 per bush.
Kubanka wheat	41½ bush.	112	.33 per bush.	.44 per bush.
Victory oats	41 bush.	91	.23 per bush.	.30 per bush.
Two-year Rotation—				
Corn N.W. Dent	4½ tons	.....	2.83 per ton.	3.35 per ton.
Barley O.A.C. 21	48 bush.	86	.23 per bush.	.30 per bush.
Demonstration Test Plots—				
Banner oats	65 bush.	96	.17 per bush.	.22 per bush.
Victory oats	66 bush.	96	.16 per bush.	.22 per bush.
Alfalfa	1⅞ tons.	.....	7.89 per ton.	9.12 per ton.

SUMMARY OF SOME IMPORTANT POINTS

Early Red Fife wheat and Kubanka were grown this season for the first time on this Station, for comparison with Marquis. The Fife rusted badly and was good only for feed. Its yield was lower than Marquis. Kubanka grew a tall, rank straw which lodged badly; the yield was slightly above Marquis but not enough to offset the difference in price.

Banner and Victory oats yielded almost the same.

Corn did well, giving a heavy yield of excellent fodder.

Alfalfa yielded about one and a half tons per acre of good quality hay. This was sown last year with wheat as a nurse crop on fallow land.

ZEALANDIA—*Operator, Wm. Roberts.*

Spring was backward here. The first seeding on the Station was done May 3. Wheat was sown at the rate per acre of one and a quarter bushels; oats, two bushels; rye grass sown with wheat on fallow, at fourteen pounds per acre; sweet clover, sown in the same manner at the same rate. During the early part of the growing season there was plenty of moisture and strong growth; the rainfall during May was 2·44 inches, but only ·6 for June and ·16 for July, hence growth was retarded. However, crops came through better than expected and gave a fair yield of good quality.

Harvesting was completed by August 28.

The following table gives the results of the season's work and the cost of production:—

Crops and Rotations	Yield per acre	Days maturing	Standard cost of production	Actual cost of production
Three-year rotation with wheat—				
Summer-fallow	.....	.....	$5.73 per acre.	$6.40 per acre.
Wheat, Marquis, on fallow	15 bush.	109	.87 per bush.	1.04 per bush.
Wheat, Marquis, second crop.	14 bush.	107	.81 per bush.	1.02 per bush.
Five-year rotation—				
Fallow	.....	.....	5.73 per acre.	6.40 per acre.
Wheat	16 bush.	109	.88 per bush.	1.11 per bush.
Banner oats seeded with rye grass	29½ bush.	116	.37 per bush.	.46 per bush.
Hay	1 ton.	.....	6.05 per ton.	6.84 per ton.
Hay	¾ tons.	.....	10.08 per ton.	11.40 per ton.
Demonstration Test Plots—				
Early Red Fife wheat on fallow	16 bush.	94	.86 per bush.	1.07 per bush.
Victory oats on fallow	28½ bush.	94	.48 per bush.	.60 per bush.
Sweet clover	left for	seed	(not threshed)	.....
Alfalfa pasture	.....	.....	.....	.....

It will be noted that rye grass and sweet clover were seeded fourteen pounds per acre along with wheat on fallowed land. The resulting catch looks promising for a hay crop next year.

SPRUCE LAKE—*Operator, H. Eagle.*

Work was started here on the farm of Mr. Harry Eagle this year. It is the farthest north Illustration Station in the province, being located in township fifty-two, range twenty-one, west of the third meridian and two miles east of the village of Spruce Lake on the Canadian National Railway, Turtleford extension.

The land is undulating with a light growth of poplar and willow and occasionally some spruce, and the soil is a dark loam. Five acre fields were laid out for three crop rotations as well as a test of some early wheat, namely, Ruby, Early Red Fife and Marquis.

The first seeding was done on April 28. There was a good supply of moisture early in the season and all crops made favourable growth until the night of June 6, when quite a heavy frost came and all crops were frozen to the ground. This was followed by dry weather, so a poor recovery was made. When the rains came later, crops came along much better than expected and gave promise of a fair harvest. However, a severe hailstorm which was quite local, passed over this part of the district on July 21 and did great damage to all the standing crops. The only crop cut before the storm was a part of the Ruby and Early Red Fife wheats. The oat and barley crops afterwards gave only a small amount of green feed.

A fair comparison of the three wheats could not be made. However, as nearly as could be estimated for the Ruby and Early Red Fife, Ruby gave a yield of fifteen bushels and Early Red Fife twenty bushels per acre, both of good quality. This was part on breaking and part second crop after breaking. Ruby ripened about a week ahead of the Early Red Fife wheat. Marquis, being all harvested after the storm, cannot be compared with the others in point of yield. The stand was good but it did not mature as soon as the others. The Marquis was sown April 29 and the other two varieties April 28.

Western rye grass, brome and sweet clover were all seeded along with oats as a nurse crop, at the rate of two bushels of oats and fourteen pounds of grasses and fifteen pounds of clover per acre. The resulting catch in all cases was quite successful, the grasses being particularly good. These were not damaged to any extent by the hail.

Owing to the damage from the storm a tabulated statement of results cannot be given this year.