DOMINION OF CANADA

DEPARTMENT OF AGRICULTURE

DOMINION EXPERIMENTAL FARMS

EXPERIMENTAL FARM

INDIAN HEAD, SASK.

REPORT OF THE SUPERINTENDENT

W. H. GIBSON, B.S.A.

FOR THE YEAR 1929

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DOMINION EXPERIMENTAL FARM
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SEASONAL NOTES

Work on the land commenced April 4, however, a heavy fall of snow on the sixth delayed further operations until April 15. Wheat seeding commenced on the Experimental Farm on April 16. The land was in fairly good tilth, with plenty of moisture to insure germination. However, continuous drought throughout the spring and the growing season reduced crop yields on the farm and surrounding district. Fallow yields in many cases were reduced to half, while stubble crops were almost a total failure. On the Experimental Farm, stubble crops were cut for feed the latter end of July.

Due to the short crop, combines were used more frequently, resulting in less feed for horses throughout the winter. "*Combine pastures*" are very unsatisfactory for any kind of live stock during the cold winter months.

Precipitation is given in the meteorological report. Harvest operations on the Farm commenced on August 5, and threshing completed on August 26. During the summer a new seed cleaning plant was erected, which will permit more extensive work in handling seed grain.

Mr. John Walker, Assistant in Horticulture resigned early in June. Mr. B. H. Wilson was appointed to fill the vacancy.

METEOROLOGICAL RECORD, 1929

Month	Temperature—F.						Precipitation				Sunshine		Evaporation
	Mean		Maximum		Minimum		Rain	Snow	Total precipitation				
	1929	Average 20 years	Highest	Mean	Lowest	Mean			1929	Average 20 years	1929	Average 20 years	
	°	°	°	°	°	°	in.	in.	in.	in.	hours	hours	in.
January	-11·32	0·53	34	18·04	—40	—0·39	.....	4·50	0·45	0·90	95·1	67·7	.....
February	- 2·57	5·54	34	23·57	—39	—1·47	.....	4·95	0·49	0·78	92·9	95·6	.....
March	25·16	20·38	51	32·24	—20	8·54	.....	7·50	0·75	1·44	109·3	133·7	.....
April	35·50	36·93	62	47·30	— 7	23·73	0·10	7·00	0·80	1·00	170·0	175·6	0·59
May	45·26	49·75	78	57·61	11	30·00	1·91	2·50	2·16	2·20	236·2	216·6	2·57
June	59·34	59·35	92	72·86	32	45·90	1·12	.....	1·12	2·99	250·2	230·1	5·77
July	66·93	63·22	93	82·77	41	51·13	0·73	.....	0·73	2·65	336·8	276·7	6·58
August	65·86	61·25	95	82·93	37	48·77	0·18	.....	0·18	1·96	271·6	250·2	9·40
September	48·03	51·11	85	59·40	28	36·70	1·72	.....	1·72	1·70	105·3	164·1	2·47
October	43·13	38·69	75	54·90	21	31·35	0·79	17·0	2·49	1·56	136·9	128·4	0·90
November	20·50	23·19	42	29·06	—16	11·73	0·04	7·50	0·79	1·03	59·8	69·3	.....
December	3·13	6·35	40	11·87	—41	—5·61	.....	17·75	1·77	0·88	62·3	52·4	.....
	.....	.....	.....	.....	.....	.....	6·59	68·70	13·46	.....	1,927·4	.....	28·28

ANIMAL HUSBANDRY

HORSES

On the Experimental Farm registered Clydesdales are maintained for work and breeding purposes. All young horses, including foals, are wintered in corrals. During the winter months oat straw forms the basic roughage, together with a grain ration to keep them in thrifty growing condition. However, horses intended for exhibition are stabled at night and fed liberally. A detailed account of feed and costs for the past year are submitted herewith.

BROOD MARES—FEED COST FOR 1929

Name	Amount of oats eaten at 1 cent per pound	Amount of bran eaten at 1 cent per pound	Amount of hay eaten at $10 per ton	Amount of green feed eaten at $3 per ton	Amount of straw eaten at 10 cents per cwt.	Amount of barley eaten at 1½ cent per pound	Amount of wild oat chop at ½ cent per pound	Months on pasture at $2 per month	Cost of feed for period
	lb.	lb.	lb.	lb.	lb.	lb.	lb.		$
Moss Rose	1,575	280	1,700	1,475	3,700	.....	250	4½	43 21
Missie	1,725	290	1,700	1,475	4,400	75	.....	4½	45 38
Indian Head Jean	1,050	135	1,200	900	4,600	.....	1,175	4½	38 67
Indian Head Maggie	1,400	140	1,200	1,000	5,000	.....	1,325	3	40 52
Indian Head May	1,125	135	200	1,050	6,300	.....	1,050	4½	35 72
Indian Head Coupon	925	125	200	1,050	4,000	.....	1,000	4½	31 07
Indian Head Jess	1,375	150	200	1,050	6,400	.....	1,050	4	37 47

Average cost—$38.86.

WORK HORSES—FULL TIME—FEED COST FOR 1929

Name	Amount of oats eaten at 1 cent per pound	Amount of bran eaten at 1 cent per pound	Amount of hay eaten at $10 per ton	Amount of green feed eaten at $3 per ton	Amount of straw eaten at 10 cents per cwt.	Amount of wild oat chop at ½ cent per lb.	Cost of feed for period
	lb.	lb.	lb.	lb.	lb.	lb.	$
Gyp	3,300	245	6,100	1,400	4,200	1,300	78 75
Pete	3,600	235	5,800	1,400	4,100	1,100	79 05
Indian Head Beth	3,750	245	5,700	1,400	4,100	1,300	81 15
Maggie Splendor	3,550	235	5,600	1,400	3,700	1,300	78 15

Average cost—$79.27

WORK HORSES (SEASONAL)—FEED COST FOR 1929

Name	Amount of oats eaten at 1 cent per pound	Amount of bran eaten at 1 cent per pound	Amount of hay eaten at $10 per ton	Amount of green feed eaten at $3 per ton	Amount of straw eaten at 10 cents per cwt.	Amount of barley eaten at 1½ cents per pound	Amount of wild oats at ½ cent per pound	Cost of feed for period
	lb.	lb.	lb.	lb.	lb.	lb.	lb.	$
Eunice	2,875	220	3,400	1,250	4,700	.....	1,150	60 27
Lonely Lassie	2,925	200	4,100	1,250	5,800	.....	1,200	65 42
Indian Head Blossom	3,275	210	4,300	1,250	6,100	.....	1,200	70 32
Indian Head Rosemary	2,250	220	3,800	1,425	5,500	250	1,600	63 09

Average Cost—$64.77

TWO YEAR OLDS—FEED COST FOR 1929

Name	Amount of oats eaten at 1 cent per pound	Amount of bran eaten at 1 cent per pound	Amount of hay eaten at $10 per ton	Amount of green feed eaten at $3 per ton	Amount of straw eaten at 10 cents per cwt.	Amount of barley eaten at 1½ cent per pound	Amount of wild oat chop at ½ cent per pound	Months on pasture at $2 per month	Cost of feed for period
	lb.	lb.	lb.	lb.	lb.	lb.	lb.		$
Indian Head Queen	2,450	775	5,500	1,925	1,600	25	200	1	67 60
Indian Head Baroness	.....	135	.....	1,425	5,300	275	1,800	5	31 90
Musician	300	270	.....	1,600	4,500	600	1,475	5	38 97
Indian Head Marie	.....	135	.....	1.425	5,300	275	1,800	5	31 90
Indian Head Bessie	.....	135	.....	1,425	5,300	275	1,800	5	31 90
Gelding	300	230	.....	1,475	4,600	425	1,525	5	36 10

Average cost—$39.73.

YEARLINGS—FEED COST FOR 1929

Name	Amount of oats eaten at 1 cent per pound	Amount of bran eaten at 1 cent per pound	Amount of hay eaten at $10 per ton	Amount of green feed eaten at $3 per ton	Amount of straw eaten at 10 cents per cwt.	Amount of barley eaten at 1½ cent per pound	Amount of wild oat chop at ½ cent per pound	Months on pasture at $2 per month	Cost of feed for period
	lb.	lb.	lb.	lb.	lb.	lb.	lb.		$
Twins	2,900	400	400	2,125	4,500	.....	500	10	65 18
Gelding	1,515	255	200	1,225	2,700	.....	250	5	35 48
Gelding	1,500	250	200	1,225	2,700	.....	250	5	34 28

Average cost—$33.73.

STALLIONS—FEED COST FOR 1929

Name	Amount of oats eaten at 1 cent per pound	Amount of bran eaten at 1 cent per pound	Amount of hay eaten at $10 per ton	Amount of green feed eaten at $3 per ton	Amount of straw eaten at 10 cents per cwt.	Amount of barley eaten at 1½ cent per pound	Amount of wild oat chop at ½ cent per pound	Cost of feed for period	
	lb.	lb.	lb.	lb.	lb.	lb.	lb.	$	$
Dunure Norman	3,275	950	6,800	2,950	3,800	50	300	.....	86 72
His Majesty	1,875	655	4,000	2,100	3,800	25	.....	52 62	
His Majesty	Feed char	ge on Seas	on 3 mont	hs	.....	.....	.....	69 00	
									121 62
Silver Flash	3,250	950	6,100	2,750	1,500	100	.....	79 62	
Silver Flash	Feed char	ge on Seas	on 3 mont	hs	.....	.....	.....	69 00	
									148 62

Average cost—$118.98.

It will be noted from the foregoing tables that the charge for feed is nominal. However, covering a period of years it may be regarded as an approximate average. During the winter of 1928-29 maintenance costs were reduced by the feeding of wild oat chop, which we have charged at half a cent per pound, and which was the price charged by the local mill.

During the summer three head of horses were shown at the Regina Summer Exhibition, winning the following prizes: first brood mare, first two-year-old filly and first stallion foal, as well as, one Grand Championship and two Reserve Championships.

During the breeding season the Clydesdale stallion, "His Majesty" was hired to Hargrave Horsebreeding Club, and the young stallion "Silver Flash" was hired to the Indian Head Clydesdale Club.

The feeding of potassium iodide as a preventive for navel-ill was continued. The brood mares are given, regularly twice per month, a small teaspoonful of potassium iodide in their drinking water. Ten strong healthy foals were born and raised. No deaths occurred.

CATTLE

BREEDING SHORTHORNS

The Shorthorn herd numbered thirty-five head at December 31, 1929. These cattle are essentially beef type. The original herd of breeding cows were built up by the use and selection of good sires. The herd is headed by the good breeding sire "Berserker." The junior herd sire is "Browndale Anchor." These sires combine size, type, smoothness, and blood lines, strong in Browndale breeding. Young bulls and surplus heifers are sold for breeding purposes throughout the territory served by the Farm.

Generally speaking, calves are more expensive to raise than yearlings and two-year-olds, on account of the milk and other expensive feeds. The average feed cost of raising calves the past year was $62.40.

DAIRY CATTLE

The Ayrshire herd was established in 1925 with six cows and a bull. At the end of December, 1929, the herd numbered twenty-five head. Four head of females were exhibited at the Regina Summer Exhibition and were successful in winning the following prizes: Grand Champion cow, Tullochgorum Dorothy; first prize three-year-old, Indian Head Dorothy; first prize two-year-old, Indian Head Dorothy 2nd; third prize yearling, Indian Head Jean 4th; and first prize progeny of cow, Indian Head Dorothy and Indian Head Dorothy 2nd.

In estimating the cost of feeds, the following values were used:—

	per ton
Meal and other concentrates	$ 30 00
Hay	10 00
Silage	3 00
Green feed	3 00
Straw	2 00
Pasture per month	1 00
Oil meal	50 00

In calculating the value of the product, the price charged per quart of milk on the farm was used, namely, eight cents per quart during the winter months, and six cents per quart during the summer months.

Name of cow	Date of freshening	Number of days in milk	Yearly average yield in milk	Average per cent fat in milk	Amount of meal eaten at 1½ cents per pound	Amount of roots and ensilage at $3 per ton	Amount of hay at $10 per ton	Amount of green feed at $3 per ton	Amount of straw at 10 cents per cwt.	Total cost of feed for period	Value of product	Profit over feed on product
			lb.	%	lb.	lb.	lb.	lb.	lb.	$	$	$
*Tullochgorum Dorothy	July 6, 1929	178	9,760·5	3·9	1,760	350	3,064	Dry milk (144)	Oil cake (168)	62 19	205 13	142 94
Tullochgorum Jean	Aug. 17, 1928	412	7,868·3	4·2	1,884	9,949	2,034	150	1,085	58 32	166 58	108 26
Burnside Nell	Mar. 11, 1929	235	5,468·4	4·2	1,381	3,770	1,003	.....	1,220	36 42	107 82	71 40
Queen of Brackley	Sept. 3, 1928	378	5,058·6	4·1	1,724	9,529	2,004	150	1,085	55 30	96 57	41 27
Indian Head Jean 2nd	April 29, 1929	245	6,292·5	4·7	1,501	3,840	983	.....	1,220	38 23	130 17	99 94
Indian Head Glenwood	May 6, 1929	239	5,635·8	4·4	1,401	3,770	1,003	.....	1,220	36 72	115 14	79 42
Indian Head Nell	April 4, 1929	271	5,058·8	5·1	1,609	4,820	1,191	.....	1,252	42 39	92 45	50 06
Indian Head Dorothy 2nd	Aug. 25, 1929	112	4,213·6	4·6	732	2,400	695	.....	1,220	20 22	100 60	80 38
Indian Head Jean	June 8, 1929	206	4·088·7	3·2	1,207	2,755	735	.....	1,220	30 95	77 27	46 32
Indian Head Dorothy	July 25, 1929	153	4,053·7	3·9	980	2,580	695	.....	1,220	25 26	88 90	63 64
Indian Head Bessie Lee	Sept. 16, 1929	107	2,452·1	4·8	622	2,000	775	.....	1,220	18 42	54 12	35 70

*Figures in brackets indicate that the cow Tullochgorum Dorothy received a percentage of dri-milk and oil cake meal in her daily ration.

SHEEP

A small flock of pure bred Shropshire sheep are maintained on the Farm for breeding purposes. The surplus stock are sold locally or through the Saskatchewan Sheep Breeders' Sale. The flock has been built up by the use of imported rams from Great Britain. Special attention is given to type, conformation, and fleece.

During the fall of 1928, one hundred feeder lambs were purchased for experimental purposes to determine the comparative feeding value of feed oats, wild oats, feed barley and frozen feed wheat. The lambs were divided into four lots of twenty-five each. The same kind of roughage was fed to each lot, namely, a mixture of alfalfa, western rye grass, hay, and ensilage. The grain was ground and fed at the rate of one-quarter of a pound per head per day, at the commencement of the experiment. The grain ration was gradually increased until all groups were getting one pound per head per day at the conclusion of the test.

Feeds used in this experiment are charged at prevailing market prices at the commencement of test. The charges for feeds are as follows:—

	per ton
Hay	$ 12 00
Silage	5 00
Feed oat chop	27 00
Wild oat chop	10 00
Feed barley chop	20 80
Frozen feed wheat	20 00

DETAILS OF LAMB FEEDING TRIAL 1928-29

Items	Group 1 Feed oats	Group 2 Wild oats	Group 3 Feed barley	Group 4 Frozen feed wheat
Number of lambs at beginning of trial	25	25	25	25
Number of lambs at end of trial	25	24	25	25
Number of days in experiment	76	76	76	76
Total weight at beginning of trial lb.	1,450	1,490	1,425	1,480
Average weight at beginning of trial lb.	58	59·6	57	59·2
Weight of loss lb.	.....	65	.....	.....
Weight at beginning of trial deducting loss lb.	1,450	1,425	1,425	1,480
Total weight at finish lb.	1,820	1,870	1,970	1,900
Total gain for period lb.	370	445	545	420
Average daily gain lb.	0·19	0·24	0·29	0·22
Feed Consumed				
Quantity of hay fed lb.	2,500	2,450	2,500	2,500
Quantity of silage fed lb.	3,785	3,700	3,785	3,785
Quantity of feed oats fed lb.	1,987	.....	.....	.....
Quantity of wild oats fed lb.	.....	1,934	.....	.....
Quantity of feed barley fed lb.	.....	.....	1,987	.....
Quantity of frozen wheat fed lb.	.....	.....	.....	1,987
Value of Feed				
Hay at $12 per ton $	15 00	14 70	15 00	15 00
Silage at $5 per ton $	9 46	9 25	9 46	9 46
Feed oats at $27 per ton $	26 82	.....	.....	.....
Wild oats at $10 per ton $	.....	9 67	.....	.....
Feed barley at $20.80 per ton $	.....	.....	20 66	.....
Frozen feed wheat at $20 per ton $	.....	.....	.....	19 87
Total cost of feed $	51 28	33 62	45 12	44 33
Original cost of lambs at $10.85 per cwt $	157 32	161 66	154 61	160 58
Average cost of lambs $	6 29	6 47	6 18	6 42
Original cost of lambs plus cost of feed $	208 60	195 28	199 73	204 91
Selling price per cwt $	11 75	11 75	11 75	11 75
Total value of group $	213 85	219 72	231 48	223 25
Profit per group $	5 25	24 44	31 75	18 34
Profit per lamb (over feed) $	0 21	1 02	1 27	0 73
Cost to produce per cwt. gain $	13 86	7 56	8 28	10 55

From the accompanying table it will be observed that feed barley chop gave the highest average daily gain. Wild oat chop ranked next to barley in average daily gains and lowest cost per pound gain—due to low purchase cost of feed. The lambs on feed oats and frozen feed wheat were low in average daily gain and relatively higher in cost of production.

SWINE

COMPARISON OF SHELTERS FOR FALL PIGS

This experiment was continued during the fall and winter of 1928-29 to determine the comparative economy of housing fall pigs under different conditions. Lot 1 was given access to a rough shelter constructed of poles and straw; lot 2 was sheltered in an ordinary A type cabin, well banked with straw; and lot 3 was housed in the farm piggery. The same meal ration was fed throughout.

RESULTS OF TEST COMPARING SHELTERS FOR FALL PIGS

—	Lot 1, stack	Lot 2, cabin	Lot 3, inside
Number of pigs on test	7	7	7
Number of days on test	119	119	119
Initial weight of pigs lb.	370	390	490
Total weight February 24 lb.	805	780	*835
Final weight of pigs April 8 lb.	1,210	1,140	1,100
Total gain during test lb.	840	750	610
Average daily gain lb.	1	0·90	0·85
Amount of barley consumed lb.	814	814	832
At 1½ cent per pound $	12 21	12 21	12 48
Amount of oats consumed lb.	1,006	1,006	1,052
At 1¼ cent per pound $	12 57	12 57	13 15
Amount of shorts consumed lb.	1,006	1,006	1,052
At 1½ cent per pound $	15 09	15 09	15 78
Amount of tankage consumed lb.	149	149	153
At 2½ cents per pound $	3 72	3 72	3 82
Cost of feed consumed $	43 59	43 59	45 23
Cost of feed per pound gain cts.	5·1	5·8	7·4

*Pig from lot 3 died February 24—weight of 6 pigs only. Data which follows is for 6 pigs.

COST OF RAISING SPRING LITTERS

The accompanying data show that the average cost of feed for eleven sows for the nursing period was $5.61. One hundred and twenty-nine pigs were farrowed by these sows, of which seventy-seven or an average of 7 per litter, were weaned (59·6 per cent). The average number of days from birth to weaning was 46 for spring litters.

COST OF RAISING SPRING LITTERS—FARROWING TO WEANING

Name of sow	Mature and young sows				
	Date litter farrowed	Date litter weaned	Number of pigs farrowed	Number of pigs weaned	Total cost of feed
					$
Duchess 020	March 6	April 22	12	4	5 63
Indian Head 63	March 7	April 22	10	6	5 60
Indian Head 80	March 8	April 22	14	7	5 56
Regina 571	March 10	April 22	13	8	5 50
Indian Head 62	March 14	April 29	13	9	5 54
Regina 570	March 18	April 22	12	4	5 10
Queen 306	March 22	May 6	15	9	4 86
Indian Head 110	April 5	May 29	9	9	*5 98
Indian Head 109	April 8	May 29	9	7	*6 03
Indian Head 107	April 9	May 29	13	8	*5 92
Indian Head 108	April 11	May 29	9	6	*5 95
Total	.....	.....	129	77	61 67
Average	.....	.....	11·73	7·0	5 61

*Young sows first litters.

COST OF RAISING FALL LITTERS

The average cost of feeding seven sows which farrowed in the fall was $7.05. This is slightly higher than the spring cost but is due to the litters remaining longer with dams—the average period being 56 days. Of the 82 pigs farrowed, 49 or 59·7 per cent were weaned.

COST OF RAISING FALL LITTERS—FARROWING TO WEANING

Name of sow	Mature sows				
	Date farrowed	Date weaned	Number of pigs farrowed	Number of pigs weaned	Total cost of feed
					$
Duchess 020	Aug. 20	Oct. 15	11	6	6 94
Indian Head 80	Aug. 18	Oct. 15	14	4	7 11
Regina 570	Aug. 19	Oct. 15	12	8	7 02
Regina 571	Aug. 20	Oct. 15	6	6	6 94
Indian Head 63	Aug. 21	Oct. 15	15	9	6 86
Indian Head 62	Aug. 27	Oct. 15	10	6	6 03
Queen 306	Sept. 3	Nov. 8	14	10	8 44
Total	.....	.....	82	49	49 34
Average	.....	.....	11·7	7·0	7 05

ADVANCED REGISTRY SWINE

The Advanced Registry Policy for Swine in Canada has been initiated by the Dominion Live Stock Branch in co-operation with the Experimental Farms. The object of this scheme is to develop and foster superior strains of pigs by testing out the progeny of individual sows and to qualify those which prove themselves as breeders of large litters of bacon type pigs.

The feed records, etc., submitted, are for the progeny of four sows entered under this policy, at the Experimental Farm. Slaughter records are not yet available so a fuller report will appear next year.

FEEDING TEST OF PIGS UNDER ADVANCED REGISTRATION

—	Pen 1	Pen 2	Pen 3	Pen 4
Number of pigs on test	5	5	5	5
Number of days on test (average)	164	162	167	140
Total initial weight of pigs lb.	94	105	112	112
Total final weight of pigs lb.	1,005	1,058	1,075	1,049
Total gain during test lb.	911	953	963	937
Average daily gain per pig lb.	1·11	1·18	1·15	1·34
Amount oat middlings consumed lb.	425·81	471·79	456·24	439·48
At 2·6 cts. per pound $	11 07	12 27	11 86	11 43
Amount of oat chop consumed lb.	853·92	852·91	895·91	844·24
At 1·25 cts. per pound $	10 67	10 66	11 20	10 55
Amount of barley chop consumed lb.	822·99	781·53	860·23	838·28
At 1·5 cent per pound $	12 34	11 72	12 90	12 57
Amount of shorts consumed lb.	435·04	415·65	456·28	451·71
At 1·6 cent per pound $	6 96	6 65	7 30	7 23
Amount of bran consumed lb.	83·09	93·10	87·87	77·20
At 1·55 cent per pound $	1 29	1 44	1 36	1 20
Amount of linseed oil meal consumed lb.	84·17	84·27	88·49	84·85
At 2·5 cents per pound $	2 10	2 11	2 21	2 12
Amount of tankage consumed lb.	84·17	84·27	88·49	84·85
At 2·5 cents per pound $	2 10	2 11	2 21	2 12
Amount of bone meal consumed lb.	27·28	27·08	28·45	27·30
At 3·9 cents per pound $	1 06	1 06	1 11	1 06
Amount of salt consumed lb.	13·51	13·54	14·22	13·63
At 1·8 cent per pound $	0 24	0 24	0 26	0 25
Amount of milk powder consumed lb.	93·57	102·33	100·71	131·47
At 12 cents per pound $	11 23	12 28	12 09	15 78
Total cost of feed consumed $	59 06	60 54	62 50	64 31
Cost of feed per pound gain cts.	6·48	6·35	6·49	6·86

CEREALS

Cereal varieties at this farm are tested on one-fortieth acre plots repeated several times. In addition, a large number of varieties and strains are tested in rod-rows but the results of these are not reported here. All varieties escaped damage from frost but suffered more or less from drought.

In the following tables there is a column giving, where possible, the yields in percentage of the best known variety. In this way it is possible to compare at a glance the yielding power of some of the different varieties.

Data covering results on wheat varieties grown on fallow and stubble are presented for the past five years. These plots were sown April 19 at the rate of one and three-quarter bushels to the acre on fallow and one and one-half bushels on stubble. The yields from summer-fallow were very satisfactory considering the season but those from stubble were very poor indeed. Although stem rust was present to a small extent no damage from this source was apparent.

Supreme has proven a good yielder over the period reported but owing to its known lack of resistance to stem rust farmers in southeastern Saskatchewan should regard it with a good deal of caution before considering it as a possibility for their section.

VARIETY TESTS OF COMMON SPRING WHEAT ON FALLOW

Variety	Number of days maturing					Strength of straw on scale of 10 points					Yield per acre					Relative yield Marquis 100 per cent
	1925	1926	1927	1928	1929	1925	1926	1927	1928	1929	1925	1926	1927	1928	1929	
											bush.	bush.	bush.	bush.	bush.	
Early Triumph	.....	.....	.....	100	115	.....	.....	.....	9·5	10·0	.....	.....	.....	45·2	32·7	.....
Garnet Ott. 652	107	99	103	93	111	8·5	7·0	9·5	7·7	10·0	48·8	57·5	30·0	34·7	28·3	93·8
Marquillo	.....	.....	.....	102	115	.....	.....	.....	10·0	10·0	.....	.....	.....	46·3	30·0	.....
Marquis Ott. 15	115	109	115	103	115	8·0	7·0	9·3	9·0	10·0	45·8	49·2	41·1	45·4	31·0	100·0
Marquis 10B	.....	.....	115	103	115	.....	.....	9·0	9·8	10·0	.....	.....	39·4	44·8	27·7	.....
Red Bobs 222	.....	105	106	99	114	.....	8·0	9·5	8·0	10·0	.....	56·7	25·4	43·8	29·6	.....
Red Fife Ott. 17	122	116	122	109	119	9·0	7·0	9·8	6·7	10·0	41·3	44·6	36·1	37·3	32·5	90·3
Renfrew	.....	113	119	108	119	.....	9·0	9·5	9·3	10·0	.....	52·5	41·4	48·8	33·5	.....
Reward Ott. 928	105	99	103	94	111	9·0	8·0	9·5	9·5	10·0	41·9	45·8	19·1	32·9	25·4	77·7
Supreme	114	109	111	102	115	8·5	8·0	9·0	10·0	10·0	39·6	59·6	37·1	47·1	33·2	101·9
1656–84	.....	.....	.....	102	115	.....	.....	.....	5·0	10·0	.....	.....	.....	42·1	33·8	.....

VARIETY TESTS OF COMMON SPRING WHEAT ON STUBBLE

Variety	Number of days maturing					Strength of straw on scale of 10 points					Yield per acre					Relative yield; Marquis 100 per cent
	1925	1926	1927	1928	1929	1925	1926	1927	1928	1929	1925	1926	1927	1928	1929	
											bush.	bush.	bush.	bush.	bush.	
Early Triumph	.....	.....	.....	100	109	.....	.....	.....	10·0	10·0	.....	.....	.....	15·3	4·2	.....
Garnet Ott. 652	107	99	101	93	108	8·0	7·0	9·5	10·0	10·0	22·1	45·8	21·9	10·8	6·3	113·5
Marquillo	.....	.....	.....	101	110	.....	.....	.....	10·0	10·0	.....	.....	.....	11·7	4·2	.....
Marquis Ott. 15	115	108	108	102	110	9·0	8·0	9·5	10·0	10·0	19·2	36·4	21·5	11·8	5·3	100·0
Marquis 10B	.....	.....	108	102	109	.....	.....	9·5	10·0	10·0	.....	.....	20·8	11·8	3·5	.....
Red Bobs 222	.....	105	103	100	109	.....	8·0	8·5	10·0	10·0	.....	38·8	18·6	12·8	4·6	.....
Red Fife Ott. 17	121	115	115	109	110	9·8	7·0	9·8	10·0	10·0	18·8	36·3	22·9	19·3	4·7	108·3
Renfrew	.....	113	111	108	110	.....	8·0	9·8	10·0	10·0	.....	41·7	22·1	16·0	3·8	.....
Reward Ott. 928	105	99	101	94	108	9·5	8·0	10·0	10·0	10·0	16·7	32·1	17·3	11·4	4·0	86·5
Supreme	112	106	106	101	109	9·0	8·0	9·0	10·0	10·0	20·0	40·8	23·3	13·9	5·6	110·0
1656–84	.....	.....	.....	101	111	.....	.....	.....	10·0	10·0	.....	.....	.....	13·3	5·8	.....

VARIETY TESTS OF DURUM WHEAT ON FALLOW

Variety	Number of days maturing					Strength of straw on scale of 10 points					Yield per acre				
	1925	1926	1927	1928	1929	1925	1926	1927	1928	1929	1925	1926	1927	1928	1929
											bush.	bush.	bush.	bush.	bush.
Mindum	118	110	114	108	121	9·0	6·0	8·5	7·0	10·0	39·6	46·3	38·3	41·7	29·4
Pelissier	.....	.....	.....	109	121	.....	.....	.....	7·0	10·0	.....	.....	.....	39·2	35·8

VARIETY TESTS OF DURUM WHEAT ON STUBBLE

Variety	Number of days maturing					Strength of straw on scale of 10 points					Yield per acre				
	1925	1926	1927	1928	1929	1925	1926	1927	1928	1929	1925	1926	1927	1928	1929
											bush.	bush.	bush.	bush.	bush.
Mindum	121	113	110	108	110	8·8	5·0	8·5	9·0	10·0	14·6	36·7	24·6	13·6	4·2
Pelissier	.....	.....	.....	109	110	.....	.....	.....	9·5	10·0	.....	.....	.....	13·3	4·2

The durum wheats were sown April 20 at the rate of two and one-quarter bushels on fallow and one and three-quarters on stubble.

Owing to the ravages of stem rust, some growers in the southeastern corner of the province have turned to durum wheats for the time being. Mindum is the prevailing variety and is giving satisfaction. Pellisier, which has large amber coloured grain, straw-coloured glumes and black beards, seems to hold some promising possibilities, but has not been tested at this farm sufficiently to warrant a definite statement.

VARIETY TESTS OF OATS ON FALLOW

Variety	Number of days maturing					Strength of straw on scale of 10 points					Yield per acre					Relative yield; Banner 100 per cent
	1925	1926	1927	1928	1929	1925	1926	1927	1928	1929	1925	1926	1927	1928	1929	
											bush.	bush.	bush.	bush.	bush.	
Abundance	.....	.....	.....	95	99	.....	.....	.....	10·0	10·0	.....	.....	.....	78·2	44·1	.....
Alaska	88	89	86	83	88	8·0	8·5	9·5	10·0	10·0	62·5	62·5	43·4	72·1	30·7	69·7
Banner Ott. 49	103	103	102	97	99	9·8	9·5	8·0	10·0	10·0	66·2	90·4	80·1	100·3	52·2	100·0
Gerlach	106	104	104	96	100	9·0	8·5	6·0	9·0	10·0	61·0	95·6	76·3	92·2	47·3	95·7
Gopher	.....	.....	.....	85	89	.....	.....	.....	10·0	10·0	.....	.....	.....	80·9	40·2	.....
Laurel Ott. 477	92	92	84	92	95	8·0	9·5	9·8	10·0	10·0	48·5	110·3	44·1	48·2	32·4	72·8
Leader	105	103	102	98	102	8·5	9·5	8·0	10·0	10·0	58·1	102·2	92·6	95·3	47·6	101·7
Longfellow Ott. 478	99	99	97	94	98	8·5	9·0	9·5	10·0	10·0	52·2	92·6	95·6	81·6	44·1	94·1
Victory	103	103	102	97	100	9·5	9·5	6·0	9·7	10·0	66·2	108·8	83·1	100·4	47·3	104·3
439	.....	.....	.....	99	106	.....	.....	.....	10·0	10·0	.....	.....	.....	92·6	39·7	.....

VARIETY TESTS OF OATS ON STUBBLE

Variety	Number of days maturing					Strength of straw on scale of 10 points					Yield per acre					Relative yield; Banner 100 per cent
	1924	1925	1926	1927	1928	1924	1925	1926	1927	1928	1924	1925	1926	1927	1928	
											bush.	bush.	bush.	bush.	bush.	
Alaska	102	93	89	86	83	8·0	8·0	7·5	9·5	10·0	41·3	41·2	50·7	20·6	45·1	78·2
Abundance	.....	.....	.....	.....	95	.....	.....	.....	.....	10·0	.....	.....	.....	.....	40·0	.....
Banner Ott. 49	115	107	104	100	97	10·0	9·0	9·0	10·0	10·0	27·3	39·0	73·5	63·2	51·2	100·0
Gerlach	117	107	104	104	96	10·0	8·5	8·5	10·0	10·0	20·1	51·5	75·0	37·5	44·6	90·0
Gopher	.....	.....	.....	.....	85	.....	.....	.....	.....	10·0	.....	.....	.....	.....	48·5	.....
Laurel Ott. 477	114	93	92	96	92	10·0	8·0	9·5	9·8	10·0	27·3	33·8	48·5	15·4	30·9	61·3
Leader	115	107	103	102	98	10·0	8·5	9·5	10·0	10·0	34·7	38·2	80·1	47·1	53·4	99·7
Longfellow Ott. 478	112	107	99	97	94	10·0	8·5	9·0	9·8	10·0	24·4	36·0	69·9	50·0	42·6	87·7
Victory	117	107	104	102	97	10·0	9·0	8·5	10·0	10·0	22·3	54·4	96·3	30·1	52·6	100·6
439	.....	.....	.....	.....	99	.....	.....	.....	.....	10·0	.....	.....	.....	.....	51·5	.....

The oat varieties were sown May 3 at the rate of two and one-half bushels to the acre. Unfortunately, the oats on stubble were a total failure owing to the extremely dry, hot summer. The results published in last year's report are therefore repeated here for the purpose of presenting what information is available.

It will be noted that Banner and Victory still hold a leading position. Leader is probably the best of the side or mane oats but is somewhat coarse. The Laurel oat is a hulless variety.

VARIETY TESTS OF BARLEY ON FALLOW

Variety	Number of days maturing					Strength of straw on scale of 10 points					Yield per acre					Relative yield; O.A.C. 21 100 per cent
	1925	1926	1927	1928	1929	1925	1926	1927	1928	1929	1925	1926	1927	1928	1929	
											bush.	bush.	bush.	bush.	bush.	
Bearer	101	97	96	90	95	7·0	8·0	9·0	8·2	10·0	32·8	64·6	52·6	61·8	28·8	104·3
Canadian Thorpe	.....	.....	.....	96	99	.....	.....	.....	10·0	10·0	.....	.....	.....	39·6	35·3	.....
Chinese	93	90	90	88	95	8·0	8·5	9·5	8·5	10·0	40·6	55·7	50·5	53·6	34·9	102·0
Colsess	.....	.....	.....	86	89	.....	.....	.....	9·5	10·0	.....	.....	.....	54·7	36·5	.....
Duckbill	106	98	102	95	98	10·0	9·5	9·5	10·0	10·0	24·0	51·0	49·0	41·5	22·2	81·4
Gold	.....	97	102	92	97	.....	8·0	6·5	8·8	10·0	.....	63·0	54·2	47·9	41·3	.....
Hannchen	.....	.....	96	89	97	.....	.....	6·5	8·0	10·0	.....	.....	52·1	48·1	42·9	.....
O.A.C. 21	93	89	90	88	95	8·0	8·5	9·5	8·3	10·0	41·7	57·3	44·8	51·0	35·9	100·0
Plumage Archer	.....	.....	.....	.....	96	.....	.....	.....	.....	10·0	.....	.....	.....	.....	25·0	.....
Star	.....	.....	.....	.....	86	.....	.....	.....	.....	10·0	.....	.....	.....	.....	33·3	.....
Trebi	.....	.....	.....	89	90	.....	.....	.....	5·5	10·0	.....	.....	.....	72·2	50·0	.....

VARIETY TESTS OF BARLEY ON STUBBLE

Variety	Number of days maturing					Strength of straw on scale of 10 points					Yield per acre					Relative yield; O.A.C. 21 100 per cent
	1924	1925	1926	1927	1928	1924	1925	1926	1927	1928	1924	1925	1926	1927	1928	
											bush.	bush.	bush.	bush.	bush.	
Bearer	117	117	100	96	94	10·0	8·5	8·5	9·0	9·3	25·5	35·4	44·8	45·8	55·2	120·1
Canadian Thorpe	.....	.....	.....	.....	96	.....	.....	.....	.....	10·0	.....	.....	.....	.....	41·7	.....
Chinese	112	107	91	90	90	10·0	9·0	8·5	9·8	8·8	28·3	27·6	52·1	33·3	47·6	109·8
Colsess	.....	.....	.....	.....	87	.....	.....	.....	.....	10·0	.....	.....	.....	.....	42·7	.....
Duckbill	119	117	100	102	95	10·0	9·0	9·5	10·0	10·0	21·9	19·8	38·0	28·1	34·2	82·5
Gold	.....	.....	102	98	96	.....	.....	8·0	9·0	9·3	.....	.....	47·4	21·9	53·3	.....
Hannchen	.....	.....	.....	96	91	.....	.....	.....	9·8	9·0	.....	.....	.....	32·8	44·1	.....
O.A.C. 21	112	107	89	90	91	10·0	9·0	8·5	9·8	8·7	28·2	22·4	50·0	23·4	48·1	100·0
Trebi	.....	.....	.....	.....	94	.....	.....	.....	.....	8·5	.....	.....	.....	.....	65·1	.....

Barley varieties were sown May 6 at the rate of one and three-quarter bushels to the acre. Like the oats the varieties sown on stubble were a failure. Last year's stubble results are accordingly reproduced here. Of the varieties reported, Canadian Thorpe, Duckbill, Gold, Hannchen and Plumage Archer are two-rowed sorts, while the balance are six-rowed. The O.A.C. No. 21 is an excellent malting barley and for the present is considered the Canadian standard variety for this purpose.

VARIETY TESTS OF FLAX ON FALLOW

Variety	Number of days maturing					Strength of straw on scale of 10 points					Yield per acre					Relative yield; Premost 100 per cent
	1925	1926	1927	1928	1929	1925	1926	1927	1928	1929	1925	1926	1927	1928	1929	
											bush.	bush.	bush.	bush.	bush.	
Crown-Sask. 272	107	113	100	104	87	9·0	10·0	10·0	10·0	10·0	12·5	12·3	23·7	19·2	8·5	119·6
Linota	.....	.....	.....	103	86	.....	.....	.....	10·0	10·0	.....	.....	.....	17·9	10·1	.....
Longstem Ott. 52	107	107	100	103	85	9·0	10·0	10·0	9·0	10·0	7·6	9·9	18·3	15·2	8·5	93·4
Novelty Ott. 53	107	113	101	102	87	9·0	10·0	10·0	10·0	10·0	11·4	12·5	21·0	19·6	8·9	115·2
Premost	99	100	98	95	87	9·0	10·0	10·0	10·0	10·0	8·9	9·8	21·5	16·1	7·4	100·0

Flax varieties were sown May 28 at the rate of 28 pounds to the acre. The Longstem variety is longer in the straw than the other varieties being more suitable for fibre. Crown and Novelty are both good yielders, outyielding Premost which is the standard. Linota is a variety which appears to hold a good deal of promise. It is a good yielder and possesses a high degree of resistance to flax-wilt, while the other varieties are quite susceptible.

MARQUIS WHEAT AND PREMOST FLAX IN COMBINATION

Variety	Rate of seeding		Days to mature		Height at harvest in inches		Yield per acre	
	Wheat	Flax	Wheat	Flax	Wheat	Flax	Wheat	Flax
	bush.	bush.					bush.	bush.
Wheat and flax	¾	¼	98	98	33·5	14·8	33·3	0·7
Wheat and flax	1	¼	98	98	33·3	14·0	33·1	0·5
Wheat and flax	1¼	¼	98	98	33·0	14·0	32·7	0·7
Wheat and flax	1½	¼	98	98	32·8	14·5	32·3	0·5
Wheat and flax	¾	½	98	98	33·0	15·0	29·2	0·9
Wheat and flax	1	½	98	98	33·0	14·0	29·2	0·7
Wheat and flax	1¼	½	98	98	33·8	14·0	31·5	0·7
Wheat and flax	1½	½	98	98	33·8	14·0	30·4	0·5

The wheat and flax combinations were sown May 10 on well prepared summer-fallow at the rates shown. The wheat was first sown at normal depth after which the flax was sown at a uniform depth of about one inch. The wheat yielded a very satisfactory crop but the flax seemed unable to withstand the competition of the wheat crop in such a dry season as in every case a very poor stand was obtained.

VARIETY TESTS OF FIELD PEAS ON FALLOW

Variety	Number of days maturing					Length of vine in inches					Yield per acre					Relative yield; Mackay 100 per cent
	1925	1926	1927	1928	1929	1925	1926	1927	1928	1929	1925	1926	1927	1928	1929	
											bus.	bus.	bus.	bus.	bus.	
Arthur Ott. 18	112	101	109	110	105	36·0	35·0	18·2	44·8	29·4	29·6	36·4	40·1	42·6	24·2	74·6
Cartier Ott. 19	115	102	113	109	108	34·0	40·0	24·8	45·4	25·4	20·0	37·8	50·2	56·0	23·2	80·8
Champlain Ott. 32	112	103	115	109	108	30·0	43·0	26·2	46·6	27·6	42·5	35·7	63·8	44·4	24·9	91·2
Chancellor Ott. 26	104	96	105	104	100	34·0	37·0	19·4	44·0	25·0	39·1	32·2	47·4	48·5	21·8	81·6
Dashaway-Sask. 625	.....	96	105	104	100	.....	37·0	19·8	44·8	25·2	.....	31·5	50·9	50·5	22·8	.....
Golden Vine	112	103	116	109	105	39·0	44·0	26·8	46·6	27·8	42·5	35·0	65·1	47·5	24·6	92·7
Mackay Ott. 25	115	106	115	112	109	37·0	48·0	27·8	48·4	28·2	37·5	46·9	63·1	56·1	28·1	100·0

The variety plots of field peas were sown May 3. The rate of seeding varied according to the size of seed. Mackay peas, although slightly later than some of the other sorts, is still the best yielder over the period reported.

FIELD HUSBANDRY

CULTURAL EXPERIMENTS

Cultural experiments cover methods of preparing land for crops. Approximately four hundred and fifty one-fortieth acre plots are laid aside for this purpose. Suitable rotations are arranged to include the summer-fallow, stubble treatments, breaking, rates, dates, and methods of seeding, manures and fertilizers. The soil is a heavy clay and the average annual precipitation is approximately nineteen inches. For the year 1929, however, the total precipitation was 12·82 inches, while that for the crop year, from the beginning of August, 1928, until the end of July, 1929, was only 7·29, much lower than it had been for many years.

SUMMER-FALLOW TREATMENTS

Project F. 144

Plot treatment	Average yield per acre 1924-29 wheat
	bushels
Ploughed 6 inches June 15 and cultivated as necessary	40·0
Fall ploughed 6 inches and cultivated during summer-fallow year	41·4
Fall disked before summer-fallow and cultivated as necessary during summer-fallow year, but not ploughed	40·1
Cultivated during summer-fallow year, but not ploughed	38·4
Ploughed 6 inches June 15 and cultivated as necessary	38·9

Project F. 144 compares the effect of four different treatments of the summer-fallow on crop yield and soil moisture. Over the period of years indicated neither the average yields nor the soil moisture show a marked difference between the plots. During the past season, however, yields from the plots which were ploughed were superior to those which were only disked or cultivated.

SUMMER-FALLOW SUBSTITUTES

Project F. 145

Items	Average yield per acre 1924-29		
	Yield of substitute	Wheat 2nd year	Oats 3rd year
	tons	bush.	bush.
Summer-fallow—ploughed 6 inches early in June	.....	36·0	55·8
Corn in rows 36 inches apart	4·97	25·3	38·6
Sunflowers in rows 36 inches apart	11·73	17·7	37·0
	bushels		
Potatoes in rows 36 inches apart	113·9	25·3	35·6
Oats in two drill rows 36 inches apart	25·7	21·4	35·2
Oats in three drill rows 36 inches apart	28·5	25·5	40·5
Summer-fallow—ploughed 6 inches early in June	.....	34·6	52·3
	tons		
Oats in two drill rows 36 inches apart and cut for green feed	1·13	27·5	46·6
Oats sown ordinary way for green feed, July 1 (2¾ bushels per acre)	*1·49	19·9	44·7
	bushels		
Oats sown in ordinary way (1 bushel per acre)	42·0	21·8	41·9
Summer-fallow ploughed 6 inches early in June	.....	35·8	56·6
Wheat in two drill rows 36 inches apart	17·6	27·1	52·1
Wheat in three drill rows 36 inches apart	15·5	24·5	43·5
Wheat sown ordinary way (¾ bushel per acre)	17·9	19·1	40·4
Barley in two drill rows 36 inches apart	21·4	29·5	51·2
Summer-fallow ploughed 6 inches early in June	.....	38·0	59·3
Barley in three drill rows 36 inches apart	18·4	28·2	45·8
	tons		
Hubam sweet clover in two drill rows 36 inches apart	*1·14	33·2	49·0
Millet in two drill rows 36 inches apart	1·52	35·3	58·1
Summer-fallow ploughed 6 inches early in June	.....	41·5	*80·1

*Five year average only.

Project F. 145 compares the standard summer-fallow as a preparation for crops following, with various crops as a substitute. In considering the results to date the yield of the substitute should not be overlooked. During the adverse conditions of the past season the crops following the summer-fallow looked and yielded well. The stand was uniform and even and the plots were reasonably free from weeds. The same was true also of the crops following sweet clover and millet sown in two-drill rows, thirty-six inches apart. The crops following grain in drill-rows were in every case very uneven, being short where

the grain had been the previous season, and longer where there had been no grain. Moreover, except where the previous crop had been cut for green feed, a good deal of volunteer oats, or barley as the case may be, showed in the wheat crop. The wheat after corn was superior in every respect to that after sunflowers.

STUBBLE TREATMENT FOR WHEAT

Project F. 146A.

Plot treatment	Average yield per acre 1924-29
	bush.
Stubble ploughed in spring	33·6
Stubble ploughed in fall	35·9
Stubble burned in spring—seeded without cultivating	35·5
Stubble burned in spring—cultivated and seeded	37·5
Stubble ploughed in spring	34·7
Stubble disked in spring and seeded	31·8

Five methods of treating wheat stubble for wheat are included in Project F. 146A. During the past season, the method which showed to best advantage was where the stubble was burned in the spring and no further treatment given. This plot looked almost as good as summer-fallow, and yielded slightly better than the next best plot where the stubble was burned and the plot cultivated. However, the latter plot had fewer weeds. It should be noted that these two plots suffered considerably more from sawfly than any of the other plots. The disking in spring appeared better than the ploughing. The fall ploughing appeared to suffer the most from the drought.

STUBBLE TREATMENT FOR OATS

Project F. 146B

Plot treatment	Average yield per acre 1924-29
	bush.
Stubble ploughed in spring	52·7
Stubble ploughed in fall	58·0
Stubble burned in spring—seeded without cultivating	57·8
Stubble burned in spring—cultivated and seeded	63·5
Stubble ploughed in spring	57·0
Stubble disked in spring and seeded	55·1

Project F. 146B is a repetition of F. 146A except that oats are used instead of wheat as the second crop. In a general way, the appearance of the standing crops during the season looked somewhat similar to the wheat in the previous project. In yield, however, burning the stubble and cultivating proved best followed in order by spring disking, spring ploughing or burning stubble without cultivating, with fall ploughing last.

METHODS OF BREAKING BROME SOD

Project F. 147

Plot treatment	Average yield per acre 1924-29		
	Hay treatment yr.	Wheat	Oats
	tons	bush.	bush.
Sod ploughed 5 inches deep immediately after hay crop was removed; disked and worked as required	1·77	17·7	41·9
Sod ploughed 5 inches deep immediately after hay crop was removed; disked and worked as required and backsetted Sept. 15	1·52	19·8	46·1
Sod ploughed 5 inches deep early in spring and summer-fallowed throughout the year		30·8	50·3

Brome grass in areas of heavy soil or fair precipitation generally requires the application of intelligent and careful methods to eradicate it and at the same time to properly prepare the land for the following crop. The results shown in the foregoing table explain themselves. The hay crop in the first two treatments should be recognized in comparing the results. The first method has not succeeded in eradicating the brome, as a good deal of brome appeared in the following wheat crop. The second method had no brome, while the third had an odd plant. It should be added that the yields of wheat for the past season on these plots were rather poor.

PLACE IN ROTATION TO SEED FALL RYE

Project F. 153

Method of seeding fall rye	Average yield per acre 1924-29
	bush.
Seeded on summer-fallow August 15	37·5
Seeded with wheat in spring	16·3
Seeded on disked wheat stubble	29·8
Seeded with oats in spring	15·4
Seeded on summer-fallow August 15	34·5
Seeded on disked oat stubble	27·0
Seeded with oats for green feed June 21	23·5
Seeded when oats are 4 inches high	18·9
Seeded on summer-fallow August 15	30·6

Results in Project F. 153 again favour the summer-fallow as being the best place in the rotation to sow fall rye. In a normal year, disked wheat or oat stubble have also given good results, but in a dry season like that of 1929 fall rye sown on disked stubble turned out to be a complete failure.

DATES OF SEEDING SUNFLOWERS

Project F. 156

Date seeded	Average yield per acre 1924-29		
	Sunflowers	Wheat	Oats
	tons	bush.	bush.
Seeded May 1	17·97	27·0	59·3
Seeded May 7	15·11	24·7	54·2
Seeded May 14	15·02	24·2	54·2
Seeded May 21	15·67	24·7	59·7
Seeded May 28	15·36	24·1	55·0
Seeded June 4	14·68	25·4	53·1
Seeded June 11	14·47	25·1	53·0
Seeded June 18	12·81	24·9	55·6

The previous findings that sunflowers may be sown any time in May or early June with good results were supported by the 1929 results. As in previous years, the wheat following sunflowers was badly piebald.

DATES OF SEEDING FALL RYE

Project F. 157

Date seeded	Average yield per acre 1924-29	
	Rye	Oats
	bush.	bush.
Seeded July 1	22·2	74·8
Seeded July 15	25·1	66·2
Seeded August 1	26·5	64·3
Seeded August 15	27·9	63·9
Seeded September 1	33·8	64·7
Seeded September 15	35·8	65·7
Seeded October 1	32·6	61·8
Seeded October 15	33·1	59·4

In the foregoing project the plot sown October first germinated late the previous fall with the result that it suffered severely from winter injury. The plot sown October fifteenth did not germinate before freeze-up, but started very early the following spring. This plot reached maturity seven days later than the other plots with the exception of the October first seeding which was four days later still. The yield was very good when compared with the other plots. It would appear that the abnormally dry season hastened maturity which might not have been possible under other circumstances, as the best yields are usually obtained from seedings made between the fifteenth of August and the fifteenth of Setember.

METHODS OF SEEDING DOWN ALFALFA AND WESTERN RYE

Project F. 169A

Method of seeding down	Average yield per acre 1924-29	
	Hay first year	Hay second year
	tons	tons
Seeded with wheat first crop after summer-fallow	1·73	2·40
Seeded with wheat second crop after summer-fallow	*2·11	2·38
Seeded with oats second crop after summer-fallow	2·00	2·10
Seeded with barley second crop after summer-fallow	2·20	2·13
Seeded with green feed oats second crop after summer-fallow	2·18	2·26
Seeded in spring on fall rye first crop after summer-fallow	1·98	2·47
Seeded in fall with fall rye first crop after summer-fallow	*1·57	*2·17
Seeded alone after summer-fallow wheat	3·19	2·53
Seeded with oats first crop after summer-fallow	2·17	2·58

*Five-year average only.

Project F. 169A treats different methods of seeding down a hay or pasture mixture with and without a nurse crop. The rate of seeding is ten pounds of alfalfa and eight pounds of western rye grass to the acre. The nurse crops include wheat, oats, barley and fall rye. While the highest yields have been obtained from seedings without a nurse crop this is not always the most practical method. The nurse crop has an economic value and it often saves the grass crop by controlling weeds that might otherwise prove harmful. Fall rye does not always prove a satisfactory nurse crop. If conditions are right it takes possession of the soil rather quickly after germination, thus making it difficult for the young grass crop to become established.

CULTURAL METHODS FOR SUNFLOWERS

Project F. 179

Cultural method	Average yield per acre 1924–29		
	Sunflowers	Wheat	Oats
	tons	bush.	bush.
Seeded on spring-ploughed ground, in rows 36 inches apart	15·47	24·8	47·7
Seeded on fall-ploughed ground, in rows 36 inches apart	15·43	22·2	48·2
Seeded on fall-ploughed ground, in rows 36 inches apart; plants thinned to 3 inches apart in rows	15·89	22·6	47·5
Seeded on fall-ploughed ground, in rows 36 inches apart; plants thinned to 6 inches apart in rows	14·46	22·3	47·7
Seeded on fall-ploughed ground, in rows 36 inches apart; plants thinned to 10 inches apart in rows	13·80	21·9	46·2
Seeded on fall-ploughed ground, in rows 42 inches apart; plants thinned to 6 inches apart in rows	12·56	21·2	43·4
Seeded on fall-ploughed ground, in rows 30 inches apart; plants thinned to 6 inches apart in rows	14·11	20·4	46·1
Seeded on fall-ploughed ground, in rows 36 inches apart; plants thinned to 6 inches apart in rows; cultivated 6 times	12·92	21·0	45·3
Seeded on fall-ploughed ground, in rows 36 inches apart; plants thinned to 6 inches apart in rows. Harrowed when coming up. Not cultivated	12·94	20·3	45·6
Seeded on summer-fallow, in rows 36 inches apart; plants thinned to 6 inches apart in rows	15·46	24·0	

The results shown in the above table explain themselves. Thinning does not appear to pay for the labour involved.

APPLYING BARNYARD MANURE FOR WHEAT

Project F. 189

Plot treatment	Average yield per acre 1924–29	
	Wheat on fallow	Wheat second year
	bush.	bush.
No manure, stubble ploughed in fall	36·6	22·5
Eight tons rotted manure spread on summer-fallow and ploughed in	41·6	24·5
Eight tons rotted manure spread on first year stubble and ploughed in	35·8	25·9
Second year grain top-dressed with 8 tons of rotted manure immediately after seeding	38·7	22·5
No manure, stubble ploughed in fall	34·9	21·9

The applications of barnyard manure for wheat on a three-year rotation of summer-fallow, wheat, wheat, is covered in Project F. 189. The best results appear to be from ploughing in manure with the summer-fallow.

APPLYING BARNYARD MANURE FOR CORN

Project F. 192

Plot treatment	Average yield per acre 1924–29		
	Corn	Wheat	*Oats
	tons	bush.	bush.
Oat stubble ploughed in fall; no manure	9·31	34·5	56·5
Eight tons rotted manure spread on oat stubble and fall-ploughed	8·67	32·1	49·9
Oat stubble fall-ploughed; 8 tons rotted manure applied after freeze-up; disked in spring	9·69	31·1	50·4
Eight tons rotted manure applied in spring and ploughed in	9·07	31·2	53·3
Oat stubble ploughed in fall; no manure	8·06	29·5	51·1
Sixteen tons rotted manure spread on oat stubble and fall-ploughed	10·81	33·5	56·2
Sixteen tons unrotted manure applied in spring and ploughed in	9·56	*32·6	48·3
Oat stubble ploughed in fall; corn top-dressed with 8 tons rotted manure immediately after seeding	9·20	*30·0	44·7

*Five-year average only.

In this project it is still difficult to draw definite conclusions from the results obtained. The plot which had sixteen tons of rotted manure spread on oat stubble and fall-ploughed appeared somewhat better than the other plots during the dry season just passed.

COMMERCIAL FERTILIZERS FOR WHEAT

Project F. 193

Plot treatment	Average yield per acre 1924–29	
	Wheat on fallow	Wheat on stubble
	bush.	bush.
Twelve tons rotted manure applied previous to seeding stubble wheat	40·4	31·3
Complete fertilizer applied for summer-fallow wheat	42·3	28·8
One hundred pounds nitrate of soda applied previous to seeding stuble wheat	38·8	27·9
No manure	38·2	28·4
Three hundred pounds superphosphate applied previous to seeding stubble wheat	38·6	29·1
One hundred pounds muriate of potash applied previous to seeding stubble wheat	35·3	24·9
Complete fertilizer, applied previous to seeding stubble wheat	35·7	25·1

Project F. 193 compares the yields obtained after applying barn-yard manure or commercial fertilizers. The commercial fertilizers are applied by broadcasting over the surface of the plot. The results shown in the above table do not point to any marked advantage of any of the fertilizers over barn-yard manure when applied in this way.

GREEN MANURE

Project F 194

Plot treatment	Average yield per acre 1924–29	
	Wheat	*Oats
	bush.	bush.
Summer-fallow; ploughed 6 inches in June	34·4	53·6
Peas (2 bushels Chancellor) ploughed under early in July	38·0	62·1
Peas (2 bushels Chancellor) ploughed under late in July	34·6	58·5
Vetches (1 bushel common) ploughed under late in July	35·4	54·1
Summer-fallow; 12 tons barnyard manure ploughed in	36·2	49·9
Summer-fallow; ploughed 6 inches early in June	27·5	41·3

*Five-year average only.

The foregoing project is designed to obtain information in the effect of ploughing down a green manure crop in the summer-fallow. The results shown in the above table should be examined with care, as a similar experiment conducted some years ago failed to show any advantage from ploughing down peas or vetches.

ROTATIONS

The continuous drought throughout the growing season of 1929 was detrimental to crop rotation experiments. Grain crops following mid-summer breaking were extremely light—ranging in yield from 6·35 bushels to 13·57 bushels per acre. The rotation summer-fallow yields ranged from 18 to 24 bushels per acre. Forage crops including hay and corn were considerably below normal.

These rotations are designed to meet the requirements of the grain and diversified farmer, and, to provide a study of crop sequence, soil fertility and cost of crop production.

Marquis wheat, Banner oats, O.A.C. 21 barley, Early Northwestern Dent corn, alfalfa and western rye grass are the crops used in the rotation experiments.

ROTATION "C"

This rotation is of three years duration and carries the common grain crop, namely, fallow, wheat, wheat. A rotation of this type encourages weeds and soil drifting.

ROTATION "C"—SUMMARY OF COST OF PRODUCTION

Rotation year	——	Yield per acre		Value of crop per acre, 1929	Cost of production, 1929	Profit or loss per acre, 1929
		Average five years	1929			
		bush.	bush.	$	$	$
1	Fallow	.....	.....	.....	7 93	
2	Wheat	28·9 four-year	18·1	22 56	13 27	
3	Wheat	22·1	.....	.....	9 86	
	Totals for rotation			22 56	31 06	−8 50
	Average per acre			7 52	10 35	−2 83

ROTATION "J"

This is a six-year rotation and specially designed for mixed farming. Results, however, covering a period of years have not been as desired.

ROTATION "J"—SUMMARY OF COST OF PRODUCTION

Rotation year	——	Yield per acre		Value of crop per acre, 1929	Cost of production, 1929	Profit or loss per acre, 1929
		Average five years	1929			
		tons four-year average	tons	$	$	$
1	Hay	1·18 five-year average	0·84	10 08	12 04	−1 96
2	Hay (break)	1·26 bush. five-year average	0·60 bush.	7 20	11 28	−4 08
3	Wheat	31·0 three-year average	6·35	7 94	18 86	−10 92
4	Oats	69·9 tons four-year average	.....	.....	14 10	−14 10
5	Corn	5·34 bush. five-year average	.....	.....	19 67	−19 67
6	Wheat (seeded down)	32·2	17 02	21 28	18 00	3 28
	Totals for rotation			46 50	93 95	−47 45
	Average per acre			7 75	15 66	−7 91

ROTATION "P"

This is an ideal rotation for live stock work, eight years' duration, carries a cash wheat crop, coarse grains for feed or sale, forage crops and pasture. If desirable, it may be reduced to five or six years to meet special conditions.

ROTATION "P"—SUMMARY OF COST OF PRODUCTION

Rotation year	Crop	Yield per acre		Value of crop per acre 1929	Cost of production, 1929	Profit or loss per acre 1929
		Average five years	1929			
		bush.		$	$	$
		4 yr. ave.				
1	Oats	63·1	.....	.....	12 80	−12 80
		tons	tons			
2	Corn	5 yr. ave. 6·61	2·01	8 04	23 92	−15 88
		bush.	bush.			
3	Barley (seeded down)	36·1	10·1	6 54	17 18	−10 64
		tons	tons			
4	Hay	1·51	0·54	6 48	9 68	− 3 20
5	Hay	1·35	0·59	7 08	9 83	− 2 75
6	Hay	1·46	0·52	6 24	9 64	− 3 40
7	Hay (break)	1·17	0·69	8 28	10 14	− 1 86
		bush.	bush.			
8	Wheat	30·2	13·57	16 96	17 54	− 0 58
	Totals for rotation			59 62	110 73	−51 11
	Average per acre			7 45	13 75	− 6 39

ROTATION "R"

The crop sequence in this rotation may be regarded as somewhat long, however, it is an excellent live stock rotation.

The wheat crop following corn yielded 11 bushels per acre and cost $1.51 per bushel to produce; on the other hand, the wheat crop after fallow yielded 24·6 bushels per acre and cost 92 cents per bushel to produce.

ROTATION "R"—SUMMARY OF COST OF PRODUCTION

Rotation year	Crop	Yield per acre		Value of crop per acre 1929	Cost of production, 1929	Profit or loss per acre 1929
		Average five years	1929			
		tons	tons	$	$	$
1	Corn	7·44	4·01	16 04	32 00	−15 96
		bush.	bush.			
2	Wheat	28·9	11·0	13 75	16 63	− 2 88
		4 yr. ave.				
3	Oats	59·3	.....	.....	14 78	−14 78
4	Summerfallow	.....	.....	.....	11 78	−11 78
5	Wheat	37·7	24·60	30 75	14 88	15 87
6	Oats (seeded down)	59·6	.....	.....	13 30	−13 30
		tons	tons			
7	Hay	1·14	0·40	4 80	9 59	− 4 79
8	Hay	1·55	1·02	12 24	11 52	0 72
9	Hay (break)	1·21	0·82	9 84	10 87	− 1 03
	Totals for rotation			87 42	135 35	−47 93
	Average per acre			9 71	15 04	− 5 32

FORAGE CROPS

Low precipitation throughout the crop year made the past season unfavourable for good yields of forage crops. Root crops were particularly affected and growth was slow and unsatisfactory. Grasses and clovers came through the winter without serious injury.

ENSILAGE CORN VARIETIES

Project Ag. 1

Variety	Source of seed	Height	Maturity at harvest	Yield per acre 1929	
				Green weight	Dry matter
		in.		tons lb.	tons lb.
Falconer	Steele, Briggs	43·4	Late milk	7 1,600	1 1,452
Dakota White Flint	O. Will	41·0	Milk	6 1,940	1 1,214
Burr Leaming	G. S. Carter	49·8	Silking	8 1,000	1 888
Wisconsin No. 7	J. O. Duke	50·4	Early milk	7 1,225	1 765
Northwestern Dent	O. Will	40·4	Late milk	6 1,900	1 758
Wisconsin No. 7 x Twitchell's	Summerland	48·2	Early milk	7 575	1 637
White Cap Yellow Dent	Steele, Briggs	51·6	Tassel	7 650	1 626
Payne's White Dent	J. M. Buckley	45·2	Early milk	6 1,160	1 578
Gehu (N.D. grown)	A. E. McKenzie	36·8	Milk	5 1,320	1 524
Longfellow	Popp & Lang	46·6	Cobs forming	7 360	1 519
Northwestern Dent	Steele, Briggs	47·2	Early milk	6 860	1 514
Golden Glow	J. O. Duke	52·0	Early milk	6 1,120	1 487
N. Dakota White Flint	Steele, Briggs	42·2	Silking	7 120	1 471
Longfellow	J. O. Duke	49·2	Early milk	6 1,720	1 457
Northwestern Dent	Dakota Improved Seed Co.	44·2	Milk	5 1,925	1 432
Bailey	J. O. Duke	51·0	Early milk	6 640	1 322
Yellow Dent	Wimple	43·0	Early milk	6 60	1 308
Hybrid	Wimple	48·4	Early milk	6 1,040	1 255
Northwestern Dent	Experimental Farm, Brandon	41·8	Late milk	5 540	1 205
Quebec 28	McDonald College	40·4	Milk	5 100	0 1,971
Amber Flint	Wimple	49·0	Early milk	5 1,300	0 1,951
Minnesota 23	Northland Seed Co.	42·8	Late milk	3 1,820	0 1,657
Minnesota 13	A. E. McKenzie	41·0	Cobs forming	3 1,350	0 1,217
Yellow Assiniboine	O. Will	23·4	Late milk	2 600	0 1,036
Squaw	Dakota Improved Seed Co.	27·2	Cobs forming	1 1,180	0 665

ENSILAGE CORN VARIETIES—SEVEN-YEAR AVERAGE

Project IA

Variety	Source of seed	Average height	Average yield per acre, 1923-29		Relative yield dry matter, Northwestern Dent = 100 per cent
			Green weight	Dry matter	
		in.	tons lb.	tons lb.	%
Northwestern Dent	Steele, Briggs	47·2	10 142	1 1,757	100·0
Wisconsin No. 7	J. O. Duke	50·4	10 878	1 1,298	87·8
Quebec 28	Macdonald College	40·4	9 1,828	1 1,298	87·8
North Dakota	Steele, Briggs	42·2	10 611	1 1,254	86·6
White Cap Yellow Dent	Steele, Briggs	51·6	9 499	1 1,235	86·1
Golden Glow	J. O. Duke	52·0	9 260	1 1,185	84·8
Longfellow	J. O. Duke	49·2	10 306	1 1,156	84·0

Ensilage corn varieties got away to a very poor start in the early part of the season. Growth was extremely slow and it appeared as if failure was inevitable. However, later in the season considerable improvement took place with the result that, although yields were somewhat reduced, satisfactory information was obtained.

MANGELS

Project No. Ag. 16

Type of root	Variety	Source of seed	Yield per acre 1929				Average yield per acre 1926-29			
			Green weight		Dry matter		Green weight		Dry matter	
			tons	lb.	tons	lb.	tons	lb.	tons	lb.
Intermediate	Yellow Intermediate	Central Experimental Farm, Ottawa	8	1,150	1	942	10	1,069	1	728
Half Long	Giant White Feeding	Steele, Briggs	9	1,300	1	1,082	10	1,164	1	712
Half Long	Green Top Half Sugar	Hjalmar Hartmann Co., Copenhagen	8	1,850	1	1,010	10	1,096	1	553
Intermediate	Rosted Barres	Hjalmar Hartmann Co., Copenhagen	7	1,250	1	168	11	1,278	1	545
Long	Giant Long Red	A. E. McKenzie Seed Co., Brandon	8	1,750	1	868	10	918	1	426
Tankard	Yellow Eckendorfer	Hjalmar Hartmann Co., Copenhagen	8	1,500	1	290	12	336	1	280
Globe	Giant Yellow Globe	Steele, Briggs	10	100	1	640	12	176	1	234
Long	Elevetham Mammoth	Hjalmar Hartmann Co., Copenhagen	7	1,850	1	570	8	1,831	1	193
Tankard	Eclipse	A. E. McKenzie Seed Co., Brandon	8	1,700	1	70	10	1,585	1	159
Globe	Golden Globe	Sutton, England	7	850	1	268	9	651	1	75

The object of the foregoing project is to compare several different types of mangels. The season was not suitable for heavy production although fair yields were obtained. In terms of dry matter, the average results to date tend to favour the intermediate and half-long types, which fortunately, are among the easier types to harvest.

FIELD CARROTS

Project Ag. 36

Type of root	Variety	Source of seed	Yield per acre 1929				Average yield per acre 1926-29			
			Green weight		Dry matter		Green weight		Dry matter	
			tons	lb.	tons	lb.	tons	lb.	tons	lb.
Long	Long Red Surrey	Steele, Briggs	3	460	..	828	5	1,244	..	1,342
Short	Improved Short White	Steele, Briggs	4	920	..	858	7	8	..	1,266
Intermediate	Champion	Hjalmar Hartmann Co., Copenhagen	3	200	..	734	5	1,374	..	1,233
Short	Oxheart	H. McFayden, Winnipeg, Man.	3	960	..	770	5	1,807	..	1,231
Intermediate	Danish Champion	Central Experimental Farm, Ottawa	2	600	..	504	5	947	..	1,211
Long	Long Orange Belgian	A. E. McKenzie Seed Co., Brandon	..	1,520	..	184	3	1,396	..	

The carrot varieties were affected very severely by the adverse season and the results cannot be considered in any sense conclusive. As previously reported, the Long Red Surrey was again easier to harvest than the Long Orange Belgian and the Oxheart than the Improved Short White.

SWEDE TURNIPS

Project Ag. 51.

Type of root	Variety	Source of seed	Yield per acre 1929		Average yield per acre 1926-29	
			Green weight	Dry matter	Green weight	Dry matter
			tons lb.	tons lb.	tons lb.	tons lb.
Globe	Ditmars	H. H. McNutt	7 1,720	1 58	10 1,838	1 243
Globe	Invicta Bronze Top	Wm. Rennie	7 160	1 20	9 272	1 25
Oval	Monarch	A. E. McKenzie	6 760	.. 1,738	7 1,921	.. 1,775
Oval	Improved Jumbo	Wm. Rennie	6 480	.. 1,684	8 397	.. 1,770
Globe.*	Bangholm	Experimental Farm, Kentville	6 520	.. 1,958	9 67	*1 343
Globe*	Bangholm	Experimental Farm, Nappan	6 800	1 104	8 1,307	*1 314
Globe†	Purple Top	Central Experimental Farm, Ottawa	7 1,200	1 48	10 340	†1 518

*Three year average—1927-29 only.
†Two year average—1928-29 only.

The above project covers a test of types of swede turnips. The average results still point to the superiority of the globe type over the oval from the standpoint of yield.

SUGAR BEETS

Project Ag. 66

Variety	Source of seed	Per cent sugar in juice	Per cent co-efficient of purity	Yield per acre 1929		
				Green weight	Dry matter	Per cent dry matter
		%	%	tons lb.	tons lb.	
Horning	Dominion Sugar Co.	17·73	78·91	7 80	1 1,376	23·97
Rabethga and Gusicke	" "	18·90	81·12	6 1,080	1 1,038	23·23
Frederiksen	" "	18·97	82·12	5 960	1 650	24·17

This project is carried out in co-operation with the Division of Chemistry at Ottawa, who make chemical analyses of the roots. In a normal year the yield of sugar beets is small and the percentage of sugar in the juice is low. The percentage of sugar obtained for the past season was fairly satisfactory although about 2 per cent less than in 1928. However, the sugar beets were small and the tonnage to the acre quite low.

Project Ag. 76 — SUNFLOWER VARIETIES

Variety	Source of seed	Maturity at harvest	Height	Yield per acre 1929		Average yield per acre 1928–29	
				Green weight	Dry matter	Green weight	Dry matter
			in.	tons lb.	tons lb.	tons lb.	tons lb.
Mammoth Russian.	Dakota Improved Seed Co.	Early milk.	65·6	13 1,480	2 244	.....	.....
Mammoth Russian.	K. McDonald.....	Early milk.	60·8	11 1,000	2 186	17 1,750	2 1,527
Ottawa 76...	Central Experimental Farm, Ottawa.	Early dough	53·6	12 560	1 1,781	15 470	2 686
Manchurian .	A. E. McKenzie Seed Co.	Milk.....	54·2	10 280	1 1,754	12 1,280	2 450
Mennonite...	Experimental Station, Rosthern.	Late dough.	35·4	5 1,360	1 228	9 1,640	1 1,367

Sunflowers reached slightly greater maturity in 1929 than in 1928, although the yield was decidedly less. From the standpoint of dry matter the Mammoth Russian was again the heaviest yielder. It will be noted, however, that this variety does not mature as early as the other varieties. The Mennonite is an early maturing sort, but does not yield as much tonnage to the acre as the others.

Project Ag. 126 — ALFALFA VARIETIES

Variety	Source of seed	Height	Yield per acre 1929			Average yield per acre 1928-29		
			Green weight	Hay	Dry matter	Green weight	Hay	Dry matter
			tons lb.	tons lb.	tons lb.	tons lb.	tons lb.	tons lb h
Grimm.....	Alberta Seed Growers.....	25·0	9 300	3 422	2 1,652	15 500	4 258	3 1,267
Cossack.....	Dakota Improved Seed Co.....	24·5	8 1,660	3 176	2 1,435	14 1,813	4 174	3 1,193
Baltic.....	Dakota Improved Seed Co.....	25·3	9 730	3 642	2 1,845	13 1,382	3 1,788	3 854
Ontario Variegated.	Peel County.....	23·7	8 640	3 369	2 1,605	13 1,403	3 1,662	3 742
Cossack.....	Paramount Alfalfa Farm.....	25·0	9 1,070	3 646	2 1,848	14 452	3 1,614	3 700
Grimm.....	A. B. Lyman.....	22·2	7 900	2 1,708	2 1,023	13 867	3 1,395	3 508
Grimm.....	Steele, Briggs.....	23·2	7 1,930	3 116	2 1,382	12 1,982	3 1,313	3 435
Variegated....	Steele, Briggs.....	22·7	7 1,500	2 1,878	2 1,172	13 483	3 1,291	3 416
Sask. 451.....	University of Saskatchewan.....	21·5	7 570	2 1,301	2 665	12 1,735	3 921	3 90
Sask. 666.....	University of Saskatchewan.....	21·0	7 1,130	2 1,598	2 926	12 1,532	3 914	3 85
Medicago falcata.	Paramount Alfalfa Farm.....	18·7	5 1,200	1 1,790	1 1,340	10 617	2 1,388	2 740

The foregoing project includes only alfalfa varieties and strains which are known to be reasonably winter hardy. Medicago falcata or Siberian alfalfa has yellow blossoms while the colour of the blossoms of the others is variegated. Sask. 451 and 666 are both strains of Grimm.

Project Ag. 242 — DATES OF SEEDING OATS FOR HAY

Date seeded	Date cut	Height	Yield per acre 1929			Average yield per acre 1925-29			
			Green weight	Hay	Dry matter	Green weight	Hay	Dry matter	
		in.	tons lb.	lb.	lb.	tons lb.	tons lb.	tons lb.	
May 22.....	Aug. 8	12·8	1 440	1,220	1,074	6 75	2 946	2 366	
May 15.....	Aug. 8	15·5	1 320	1,244	1,094	6 92	2 888	2 311	
June 5.....	Aug. 29	12·3	1	1,255	1,104	5 588	2 708	2 151	
June 12.....	Aug. 29	12·0	.. 1,900	986	867	5 168	2 573	2 32	
May 29.....	Aug. 29	13·3	1 220	1,572	1,384	5 860	2 305	1 1,848	
June 19.....	Aug. 29	11·0	.. 1,880	877	772	4 1,526	2 19	1 1,387	
June 28.....	Aug. 29	10·3	.. 1,650	680	599	.. ....	.. ....	.. ....	
July 3.....	Aug. 29	8·0	.. 1,480	562	494	.. ....	.. ....	.. ....	

The above table dealing with dates of seeding oats for hay is self-explanatory. The earlier seedings as a rule may be cut before the rush of harvest work takes place, which is a point well worth consideration.

Project Ag. 245 STAGE OF CUTTING OAT VARIETIES FOR HAY

Variety	Stage cut	Height	Yield per acre 1929						Average yield per acre 1925-29					
			Green weight		Hay		Dry matter		Green weight		Hay		Dry matter	
		in.	tons	lb.	tons	lb.	tons	lb.	tons	lb.	tons	lb.	tons	lb.
Banner	Dough	32·5	6	760	2	1,948	2	1,234	9	1,116	4	151	3	1,173
Victory	Dough	32·0	5	1,960	2	1,640	2	964	8	908	3	758	2	1,948
Gold Rain	Dough	32·0	6	....	2	1,740	2	1,051	8	1,034	3	237	2	1,841
Leader	Dough	30·0	5	1,480	2	994	2	394	7	208	2	1,617	2	943
Longfellow	Dough	32·0	5	760	2	871	2	287	6	788	2	1,437	2	787
Laurel	Dough	27·5	5	680	2	1,014	2	412	6	568	2	1,107	2	494
Alaska	Dough	32·0	4	1,680	2	468	1	1,932	5	1,642	2	678	2	116
Banner	Milk	28·5	5	1,080	2	327	1	1,808	6	996	2	479	1	1,942
Laurel	Milk	24·5	4	1,720	1	1,927	1	1,456	6	698	2	342	1	1,822
Longfellow	Milk	29·5	5	320	1	1,974	1	1,498	6	496	2	256	1	1,746
Victory	Milk	30·0	5	1,840	2	507	1	1,966	6	700	2	255	1	1,745
Gold Rain	Milk	29·0	5	1,080	2	340	1	1,819	6	222	2	177	1	1,676
Leader	Milk	27·0	5	40	1	1,754	1	1,304	5	1,506	2	80	1	1,591
Victory	Bloom	28·0	5	800	1	1,332	1	932	5	1,748	1	1,630	1	1,194
Alaska	Milk	29·5	4	760	1	1,247	1	858	5	85	1	1,443	1	1,016
Banner	Bloom	26·0	5	1,360	1	1,505	1	1,084	5	1,040	1	1,230	1	842
Gold Rain	Bloom	27·5	6	440	2	87	1	1,596	4	1,998	1	1,056	1	689
Laurel	Bloom	25·0	5	1,200	1	1,716	1	1,270	4	1,620	1	960	1	612
Leader	Bloom	27·0	5	1,040	1	1,540	1	1,116	4	1,140	1	813	1	475
Longfellow	Bloom	29·0	5	840	1	1,332	1	932	4	1,030	1	431	1	183
Alaska	Bloom	27·0	4	1,480	1	809	1	472	4	216	1	347	1	65

The object of project Ag. 245 is to obtain information on the best time to cut oats for hay. After oats are headed, there are three distinct stages before ripening, the bloom, the milk and the dough. Considered in terms of dry matter the average results to date favour the dough stage as giving the heaviest yield for all varieties.

Project Ag. 246 ANNUAL HAY CROPS—GRAIN VARIETIES

Crop	Height	Yield per acre 1929						Average yield per acre 1926-29					
		Green weight		Hay		Dry matter		Green weight		Hay		Dry matter	
	in.	tons	lb.	tons	lb.	tons	lb.	tons	lb.	tons	lb.	tons	lb.
Banner oats	12·3	2	180	1	194	..	1,931	10	265	3	981	3	142
Feeder Barley	12·0	1	880	..	1,462	..	1,287	6	1,300	2	1,144	2	526
Marquis wheat	12·8	1	100	..	1,236	..	1,088	5	1,305	2	1,120	2	504
Chancellor peas and Banner oats	10·5	..	1,600	..	900	..	792	8	1,145	2	1,046	2	439
Banner oats and Feeder barley	10·5	..	1,940	..	1,114	..	981	7	745	2	1,021	2	418
Banner oats and Prolific spring rye	(o)10·5 (r)21·5	..	1,360	..	1,057	..	930	7	315	2	867	2	282
Mackay peas and Banner oats	10·0	1	60	..	1,066	..	938	8	975	2	759	2	186
Prolific spring rye	19·0	1	460	..	1,322	..	1,163	4	1,395	1	1,900	1	1,433
*Banner oats and Siberian millet	(o)17·5 (m) 3·5	1	1,440	..	1,825	..	1,606	4	1,140	1	1,791	1	1,336
*Mackay peas and Banner oats. Oats sown 8 days after peas	10·5	..	1,380	..	855	..	752	4	1,970	1	1,669	1	1,229
*Prolific rye and Mackay peas	24·3	1	1,380	..	1,936	..	1,704	5	300	1	1,371	1	966
*Chancellor peas and Banner oats. Oats sown 8 days after peas.	(p) 8·5 (o)10·5	..	1,580	..	810	..	712	4	1,320	1	1,331	1	931

*Average 1928 and 1929 only.

In Project Ag. 246 Banner oats have again proven the heaviest yielder in this test. This past season where peas or millet were sown in combination with another crop they yielded poorly or failed altogether, apparently not being able to survive competition in such a dry season.

Project Ag. 247 — ANNUAL HAY CROPS—LEGUMES

Crop	Height	Yield per acre 1929						Average yield per acre 1926-29					
		Green weight		Hay		Dry matter		Green weight		Hay		Dry matter	
	in.	tons	lb.	tons	lb.	tons	lb.	tons	lb.	tons	lb.	tons	lb.
Mackay peas	13·0	2	340	..	1,322	..	1,164	8	1,595	2	930	2	339
Mackay peas and common vetches	(p) 13·5												
	(v) 8·5	..	1,740	..	576	..	507	9	505	2	360	1	1,797
Common vetches and Hubam sweet clover.	(v) 7·0												
	(h) 6·0	..	1,000	..	331	..	202	8	195	2	59	1	1,572
Common vetches	9·5	..	1,560	..	667	..	587	7	1,490	2	36	1	1,552
Sand vetches	6·0	..	1,280	..	367	..	323	7	1,110	1	1,196	1	812
*Hubam sweet clover	11·3	1	100	..	748	..	658	5	293	1	459	1	164

*Average 1927—1929 only.

Project Ag. 247 endeavours to compare annual legumes such as peas, vetches and Hubam sweet clover. As far as dry matter is concerned results to date favour Mackay peas. It should be noted that common vetches are more easily handled than sand vetches.

Project Ag. 248 — ANNUAL HAY CROPS—GRASSES

Crop	Height	Yield per acre 1929				Average yield per acre 1926-29					
		Green weight		Hay	Dry matter	Green weight		Hay		Dry matter	
	in.	tons	lb.	lb.	lb.	tons	lb.	tons	lb.	tons	lb.
Siberian millet	14·5	1	180	960	845	6	650	2	680	2	117
Common millet	11·8	..	1,520	787	693	5	1,230	2	500	1	1,960
Japanese millet	10·5	..	1,340	511	450	6	1,705	1	1,720	1	1,273
Sudan grass	11·3	..	1,420	616	542	4	1,670	1	1,087	1	719
Hog millet	10·0	..	1,290	633	557	4	128	1	694	1	371

Four different sorts of millet and sudan grass are compared under Project Ag. 248. The Siberian variety has given the best yields over the average period tested. Sudan grass is a taller growing grass than the millets, but under conditions that obtain at this farm, does not usually yield as well.

Project Ag. 221 — WESTERN RYE GRASS

—	Height	Yield per acre 1929						Average yield per acre 1928-29					
		Green weight		Hay		Dry matter		Green weight		Hay		Dry matter	
	in.	tons	lb.	tons	lb.	tons	lb.	tons	lb.	tons	lb.	tons	lb.
No. 39	19·0	4	530	2	423	1	1,944	5	1,765	2	1,662	2	983
No. 83	17·0	3	1,130	1	1,763	1	1,316	5	1,132	2	1,414	2	764
No. 13	23·7	4	470	2	563	2	16	5	685	2	1,412	2	763
Commercial	19·5	4	530	2	149	1	1,651	5	1,915	2	1,401	2	753
No. 93	16·2	2	1,900	1	937	1	585	5	1,700	2	1,395	2	748
No. 97	18·3	3	900	1	1,269	1	877	5	1,650	2	1,253	2	623
No. 31	18·5	3	1,200	1	1,571	1	1,143	5	933	2	1,127	2	512
No. 54	18·2	3	1,400	1	1,575	1	1,146	5	1,033	2	1,079	2	469
No. 5	16·3	3	730	1	1,250	1	860	5	915	2	885	2	299
No. 19	19·5	3	1,570	1	1,706	1	1,261	5	602	2	844	2	263

Some western rye grass strains are compared in Project 221. While strain No. 93 proved to be the best yielder in 1927 and 1928, no great differences are to be observed in the average yields of dry matter presented above.

HORTICULTURE

The meteorological data will not be given in detail here, as they are tabulated in the first part of the report. It will be seen that the winter temperatures were not very severe. The precipitation, however, was abnormal; there was very little snow during the winter, and the rainfall during the summer was far below normal.

Winter injury was not very severe among the perennials, though occasional clumps failed to winter. However, the extremely dry weather, along with moderate cold, caused considerable injury to the twigs and buds of the tree fruits; in some cases the whole tree was killed.

The new greenhouse is now functioning in a satisfactory manner. It will enable special problems in plant propagation, and plant breeding to be attacked, which would have been difficult or impossible without such aid.

FRUITS

APPLES

Although some of the crops were poor, the apple crop was remarkably large, being probably the largest crop this farm ever had. The Saunders' Hybrids did particularly well, even the later ones being able to mature their crop before freeze-up. Below is given a table showing some of the details of the 1929 crop.

SAUNDERS' HYBRID CRAB APPLES

Variety	Number of trees	Average weight of fruit	Ripening date
		lb.	
Silvia	1	88	Aug. 19
Pioneer	2	122	Aug. 29
Jewel	5	203	Sept. 11
Prince	14	108	Sept. 19
Robin	1	71	Sept. 21
Eve	2	138	Oct. 4
Tony	3	98	Oct. 9
Alberta	2	153	Oct. 11

Many seedling apple trees fruited for the first time, but the quality of most of the fruit was very poor. Only one seedling was found which produced fruit of high quality and moderate size. This one will be propagated and given a further test to see if it will live up to expectations. The seedlings which produced poor fruit will be destroyed, except in a few cases, where it is felt that the tree deserves another trial.

PLUMS

The plum crop was also very good; the Assiniboine, Cree, Opata and Hanska varieties all produced fair crops of moderately good quality fruit.

The seedlings of the native plums produced good crops of fruit, which varied tremendously in quality. Fruit from some of the seedlings was scarcely edible, while that from others (as some of the Topa seedlings) was of good quality.

Plum pocket was the only destructive pest in 1929, infestations varying from 10 per cent to 75 per cent of the fruit, with different varieties.

STRAWBERRIES

Drouth and winter have done a tremendous amount of damage to the strawberry plantation; so much so that almost no fruit was harvested in 1929.

RASPBERRIES

The raspberry crop was also a failure. There was a very large crop of blossoms, and a good crop of fruit was set, but little fruit was produced because of the extremely dry weather.

CURRANTS

The white, red, and black currants all produced good crops in 1929. The black currants that produced the greatest crops were Climax (47¾ pints from six plants) and Magnus (40 pints from six plants). The red currants that had a satisfactory habit of cane, and produced the best crops were Simcoe King (26 pints) and London Market (28 pints).

Grubs of the currant fly caused practically no loss of fruit this year. This pest is occasionally very serious, sometimes ruining most of the crop. No remedy is known that will eliminate this insect, though the running of small chicks in the currant patch will help in the control, as much of the fruit will drop with the grub inside it.

VEGETABLES

Because of the lack of rain during 1929, many of the vegetable experiments were either complete failures, or were so unsatisfactory that information regarding them is thought to be misleading. Hence some of the results in regard to the following crops are not given: Brussels sprouts, cabbage, celery, citron, egg plant, leek, lettuce, onion, pepper, pea, pumpkin, rhubarb.

ASPARAGUS—variety test.—The first cutting was made on May 17. The beds yielded a satisfactory crop, Palmetto giving the highest yields.

BEANS—variety test.—As in other years, it is noted that the heaviest yields of beans came from the earliest varieties. Princess of Artois, Interloper, Challenge Black Wax, and Yellow Eye Yellow Pod, gave the most satisfactory crop.

BEANS—distance of planting.—Two varieties, Davis White Wax and Round Pod Kidney Wax, have been planted at 2, 4, and 6-inch intervals in the row. The odds show very definitely that the 2-inch planting gives a higher yield than does the 6-inch planting. The odds show also that the 4-inch planting is not as good as the 2-inch planting, though the evidence is not conclusive in regard to this point. However, it seems to be safe to recommend the 2-inch planting as the best one for this part of the country.

BEANS—hill vs. row.—This project is designed to compare the hill and row methods of growing beans with an equal number of plants per unit area.

BEANS—HILL VS. ROW, 1929

—	Hill	Row
	oz.	oz.
Princess Artois	20	14½
Interloper Challenge Black Wax	8½	6

The hilled treatment produced the greatest crop in 1929, but in the previous year the condition was reversed, so little can be said at present regarding this experiment.

BEETS—variety test.—The very dry season caused this crop to be small, but it was of high quality. Early Model (Graham) and Half Long (Kelway) gave the heaviest crop, and were the first to be ready for use.

Descriptive details of the better varieties for Southern Saskatchewan will be found on page 37 of the 1927 report from this farm.

BEETS—harvesting at different dates for storage.—From the 1928 report: "Commencing on August 4, five equal quantities (by weight) of Detroit Dark Red beets were stored at two week intervals. The beets were placed in boxes in a cool root cellar and completely covered with dry sand. Towards spring these will be examined and the general condition, loss of weight, and other characteristics of each lot will be noted."

BEET STORAGE—WINTER OF 1928-29

Date stored	Weight stored		Number of roots	Weight on March 20		Remarks on March 20, 1929
	lb.	oz.		lb.	oz.	
Aug. 4	12	1½	35	10	..	20 firm, 15 getting soft.*
Aug. 18	12	1½	34	9	3	18 firm, 16 getting soft.*
Sept. 1	12	1½	31	10	4	19 firm, 12 getting soft.*
Sept. 15	12	1½	20	10	10	14 firm, 6 getting soft.*
Sept. 29	12	1½	.....	10	3	6 firm, 15 getting soft and some rotten.†

*Small leaves 2 to 3 inches long on some, and fibrous roots on most of the beets. †Did not keep as well as the others.

BORECOLE OR KALE.—The only variety used was Dwarf Green Curled, which produced good usable heads by September 20.

CABBAGE—variety test.—Because of the dry summer this crop was very unsatisfactory, so no recommendations can be made as to yielding ability. Golden Acre was the earliest variety, followed by Early Jersey Wakefield.

CAULIFLOWER—variety test.—This vegetable was very poor in 1929. The early varieties, as Snowball and Early Dwarf Erfurt were moderately successful, while the larger, later varieties as Danish Perfection and Veitch Autumn Giant were almost failures.

CARROTS—variety test.—Henderson Intermediate gave much larger yields than did the other varieties, but the quality, as indicated on page 38 of the 1927 report is below the average. Recommended varieties are Oxheart (short), Chantenay and Early French Forcing (intermediate), and Nantes (half-long).

CARROTS—harvesting at different dates.—From the 1928 report: "As with table beets equal weights of carrots from the same sowing were harvested and stored in dry sand at two week intervals, commencing August 4." Chantenay was the variety used.

CARROT STORAGE—WINTER OF 1928-29

Date stored	Weight stored		Number of roots	Weight on March 20		Remarks on March 20, 1929
	lb	oz.		lb.	oz.	
Aug. 4	4	2	36	2	4	19 good, 12 soft, 5 rotten; growth just beginning.
Aug. 18	4	2	21	3	2	All good shape, slightly longer growth than on the previous sample.
Sept. 1	4	2	17	3	4	All good; growth as on the second sample.
Sept. 15	4	2	17	3	2	3 decaying a little, all others good.
Sept. 29	4	2	14	3	5	All very firm and fresh.

This seems to indicate that early storage of carrots is not as satisfactory as late storage. With the beet, however, those that were placed in storage late in the season were the ones that rotted first.

CORN—variety test—The seed for this test was sown on May 28. Germination was completed by June 7 in almost all cases.

CORN VARIETIES, 1929

Variety	Source of seed	Date of appearance in silk	Date ready for use	Weight of 12 average ears		Total number of ears harvested
				lb.	oz.	
Early Adams	Ferry	July 24	Aug. 15	5	4	41
Pickaninny	Ottawa	July 24	Aug. 21	2	14	44
Banting	Ottawa	July 26	Aug. 21	2	8	22
Gehu	Will	July 27	Aug. 21	4	4	42
Sunshine	Will	July 29	Aug. 21	..	..	7
Sixty Day Golden	Child	July 29	Aug. 21	6	4	30
Alpha	Harris	July 29	Aug. 23	3	10	57
Burleigh Co. mixture	Will	July 29	Aug. 23	5	4	29
Malakoff	Vaughan	Aug. 10	Aug. 30	3	12	25
Golden Bantam	James	Aug. 6	Aug. 30	3	6	35
Assiniboine	Will	Aug. 10	Aug. 30	4	12	36
Golden Sunshine	Andrewes, Mountain	Aug. 16	Aug. 30	4	4	13
Early Dighton	Moore	Aug. 8	Aug. 30	5	8	22
Golden Bantam	McDonald	Aug. 16	Sept. 7	..	..	5
Early Malcolm	Ottawa	Aug. 10	Sept. 7	5	12	27

CORN—removal of suckers.—In this experiment the seed was planted in rows, and the plants were later thinned to about one foot apart. Suckers were removed from around the base of the plant and for two or three inches up the stem, just as soon as they appeared. Two varieties, Early Malcolm and Golden Bantan were used. The conclusions are the result of five years' work.

The odds show very clearly that the cobs are larger from the suckered plants, from both varieties. The increase in earliness is not as significant as the increase in size of cob, but even here the results are fairly definite in indicating an earlier maturity.

Little is known about the difference in yield, as frost frequently ruined the later cobs. However, any evidence that we have indicates that the two treatments produce about equal crops.

This would seem to be a very desirable practice to recommend in the growing of table corn, particularly where the crop is frequently damaged by frost.

CUCUMBERS—variety test.—The average yield for the different varieties in 1929 was slightly over 2 pounds, while in 1928, the average for the same varieties was about 38 pounds. Early Russian was the heaviest yielder, the same as the previous season.

HERBS—variety test.—The results were exactly the same as for the previous year. Sage and summer savory produced satisfactory crops. Horehound was poor, and thyme, lavender, and rosemary failed to grow from seed sown on May 1.

KOHL RABI—variety test.—This vegetable is a tasty substitute for cauliflower, when used in the immature condition. It is sown indoors and transplanted outside with the other members of the cabbage family. The two varieties which are commonly grown are, White Vienna and Purple Vienna.

LETTUCE—variety test.—One variety of leaf lettuce, ten varieties of head lettuce and one variety of cos lettuce were tested in 1929. Because of the dry season the crop was almost a failure.

Grand Rapids appears to be the best variety of leaf lettuce. Big Boston (butter type) and Giant Crystal Head (iceberg type) appear to be the best varieties in 1929.

LETTUCE—dates of sowing.—This year's results agreed very well with those of the previous year. No heads were produced from seed which was sown after May 22.

MUSKMELON—VARIETY TEST

Variety	Seedsman	Planted	Germinated	Transplanted	Date Ripe	Yield
						lb.
Golden Champlain	Walrath	June 4	June 10	June 22	Sept. 28	12½
Lake Champlain	Rice	June 4	June 10	June 22	Sept. 28	9¼
Montreal Market	Ewing	June 4	June 10	June 22	Oct. 1	16½
Knight	Wills	June 4	June 10	June 22	Oct. 1	10¼

Golden Champlain is the variety recommended for this district.

ONIONS—variety test.—White Barletta, a picking variety, was ripe about the middle of August.

Early Flat Red was the only main crop variety that matured. This has been the earliest variety for four years in succession, so it can be safely recommended as a desirable variety for winter storage.

ONIONS—production for winter storage.—For the third successive year, the treatment where the sets were thrown carelessly into a trench 3 inches deep, has been outyielded by the other two treatments. There is no significant difference in yield between the treatment where the onions are grown on the level and hilled, and those which are planted 3 inches deep.

PARSLEY—Variety test.—Two varieties, Moss Curled and Triple Curled gave fairly good crops which were ready for use about July 18.

PARSNIP—Variety test.—Because of the dry conditions, the parsnip seed did not germinate until over five weeks after it was planted. Cooper Champion was one of the most satisfactory varieties, though Guernsey XXX and Hollow Crown were both good.

PEAS—Planting distances.—Three varieties of peas, early, medium and late in season, were sown 1, 2, and 3 inches apart. The yields of these three plantings were compared. In 1929, because of very poor germination due to drouth, all three varieties gave higher yields from the closely planted rows. During the years of normal rainfall, however, there was no significant difference between the crops from the 1, 2, and 3-inch plantings.

POTATO—Variety test.—The average per acre yield for potatoes in Saskatchewan for 1929 was about 50 bushels. In the subjoined table it will be observed that the large crops are from varieties which are normally fairly early. The midseason and late varieties, in general, gave low yields.

POTATO VARIETIES, 1929

Variety	Original source of seed	Date harvested	Computed yield per acre of marketable tubers (size of plots 1/176 acre)	
			bush.	lb.
Carter Early	Invermere, B.C.	Sept. 9	138	..
Ashcroft	Invermere, B.C.	Sept. 9	135	..
Bliss Triumph	Invermere, B.C.	Sept. 9	119	16
Precocity	Invermere, B.C.	Sept. 19	118	48
Irish Cobbler	Invermere, B.C.	Sept. 19	117	20
Irish Cobbler	Indian Head, Sask.	Sept. 9	117	20
Earliest of All	Invermere, B.C.	Sept. 19	105	36
White Ohio	Invermere, B.C.	Sept. 9	98	16
Epicure	Invermere, B.C.	Sept. 19	92	52
Early Ohio	Invermere, B.C.	Sept. 9	88	..
Gold Nugget	Invermere, B.C.	Sept. 9	87	17
Early Norther	Invermere, B.C.	Sept. 19	49	52
Sharpes Express	Invermere, B.C.	Sept. 19	46	56
Delaware	Invermere, B.C.	Sept. 19	46	56
Late Puritan	Indian Head, Sask.	Sept. 19	44	..
Early White Prize	Invermere, B.C.	Sept. 19	41	4
Jersey Royal	Invermere, B.C.	Sept. 19	38	8
Gold Coin	Invermere, B.C.	Sept. 19	35	12
Manistee	Invermere, B.C.	Sept. 19	29	20
Wee McGregor	Invermere, B.C.	Sept. 19	23	30
Early Bovee	Invermere, B.C.	Sept. 19	23	28
Houlton Rose	Invermere, B.C.	Sept. 19	23	28
Seedling (R. Day)	Indian Head, Sask.	Sept. 19	23	28
Dalmeny Beauty	Indian Head, Sask.	Sept. 19	22	..
Sir Walter Raleigh	Invermere, B.C.	Sept. 19	17	7
Green Mountain	Invermere, B.C.	Sept. 19	17	36
King Edward VII	Invermere, B.C.	Sept. 19	14	40
Up-to-Date	Invermere, B.C.	Sept. 19	..	..
Rural Russet	Invermere, B.C.	Sept. 19	..	..
Blue Snyder	Invermdre, B.C.	Sept. 19	..	..
Burbank Russet	Invermere, B.C.	Sept. 19	..	..
Netted Gem	Invermere, B.C.	Sept. 19	..	..
Golden Russet	Indian Head, Sask.	Sept. 19	..	..

POTATO—Sprouted vs. unsprouted seed.—This experiment has now been carried on for seven years. The results in 1929 were similar to those for the other seasons.

In the case of the Irish Cobbler, the tubers that were placed in sunlight for six weeks or so before planting produced a significantly greater crop than did the tubers which were taken directly from the root cellar.

In the case of the Early Ohio, the reaction is different; two out of the seven years giving results quite contrary to the general trend. There is therefore no significant difference between the sprouted and the unsprouted tubers. Even in this case, there is a greater chance of increasing rather than decreasing the yield by sprouting. Hence it might be taken as a general recommendation that the sprouting of potatoes, by placing in sunshine for a month or more before planting, is a desirable practice.

RADISH—Variety test.—Twelve varieties were grown in 1929. Twenty Day was the first variety ready to use. The later varieties were all good: French Breakfast, Early Scarlet Globe, XXX Round Scarlet Oval.

The Long Black Spanish is a more satisfactory winter radish than is the Round Black Spanish. This type, however, is usually not satisfactory because of the heavy infestations of maggots.

SALSIFY—Variety test.—Mammoth Sandwich Island seemed to be a better variety than Long White, but because of the highly branched type of root produced at Indian Head, neither can be recommended very highly.

SQUASH AND VEGETABLE MARROW—Variety test.—Long White Bush Marrow, English Vegetable Marrow, and Summer Asparagus are of one general type. They are very heavy yielders of fair quality fruit, which is at its best in late summer and early autumn.

Giant Summer Crookneck is a summer and fall variety of good quality, but it is not popular because of its roughness.

Hubbard, Golden Hubbard and Delicious are the poorest yielders, but they are at their best from Christmas to spring. They are all of very high quality and are particularly good for baking.

SPINACH—Variety test.—King of Denmark appears to be the most satisfactory variety of spinach to grow. The plant is of a very good type, and it is always one of the last to go to seed.

New Zealand Spinach (which is not a true spinach) comes into its highest production a week or two after the other types of spinach have gone to seed.

SWISS CHARD—Variety test.—There was little to choose between Lucullus and Fordhook; both produced good crops of leaves (to be used as greens) and stalks (to be used like asparagus).

TOMATOES—Variety test.—Because of the very dry season, this crop did very badly; so one dare not place very much confidence in the results which were obtained. The following is an outline of the results which were obtained:—

TOMATOES—VARIETIES, 1929

Variety	Source of seed	Date in bloom	Date first ripe fruit	Ripe fruit		Green fruit		Total	
				lb.	oz.	lb.	oz.	lb.	oz.
Pink No. 2	O-11387	June 27	Aug. 9	3	13½	5	..	8	13½
Wayahead	Bruce	June 17	Sept. 20	3	..	8	4	11	4
Prosperity	Patmore	June 13	Aug. 9	2	10	11	4	13	14
Alpha	Dreer	June 18	Aug. 9	2	5	7	4	9	9
Marvana	Harris	June 25	Aug. 9	2	3½	6	8	8	11½
Pink No. 1	O-11388	June 27	Aug. 9	2	3	4	4	6	7
Burbank	Bruce	June 25	Aug. 9	2	2½	6	8	8	10½
Bonny Best	Stokes	June 25	Aug. 14	2	2	12	..	14	2
Alacrity	O-3531-41	June 25	Aug. 9	2	1	6	..	8	1
Canadian	Harris	June 27	Aug. 9	1	14½	6	12	8	10½
Sparks Earliana	McDonald	June 13	Aug. 14	1	14	7	12	9	10
Burbank	Stark	June 25	Aug. 9	1	14	6	4	8	2
Alacrity x Earlibell	O-11385	June 29	Aug. 29	1	13	1	12	3	9
Earliana Grade 2	Langdon	June 27	Aug. 9	1	12¾	6	8	8	4¾
A x B B	O-11389	June 29	Aug. 7	1	12¾	2	8	4	4¾
Marglobe	Stokes	June 26	Aug. 9	1	12	11	12	13	8
First and Best	Bruce	June 24	Aug. 14	1	11½	6	12	8	5½
Earliana Select	Moore	June 25	Aug. 14	1	11	4	12	6	7
John Baer	Steele, Briggs	June 18	Aug. 14	1	11	12	.	13	11
Chalks Early Jewel	Steele, Briggs	July 2	Aug. 14	1	10½	11	4	12	14½
Princess of Wales	Sutton	June 29	Aug. 21	1	8	13	..	14	8
Herald	O-11386	June 29	Aug. 9	1	5¾	6	..	7	5¾
Bloomsdale	Langdon	June 17	Aug. 9	1	4	10	8	11	12
New Gregory	Gregory	June 21	Aug. 9	1	3¼	7	.	8	3¼
Manifold	Livingston	June 27	Aug. 9	1	2	7	4	8	6
Red Rock	Langdon	June 29	Sept. 20	..	12	4	.	4	12
Marglobe	Harris	June 27	Sept. 4	..	9	8	8	9	1
Greater Baltimore	Ferry	July 2	Aug. 21	..	7	6	12	7	3
Penn State Earliana	Stokes	June 29	Aug. 9	..	5	6	8	6	13
Crimson Cushion	Henderson	June 13	.....	..	..	6	4	6	4
L.G. x B.B	O-11392	July 2	.....	..	..	2	..	2	..

TOMATO—Early ripening.—It was found that staking 18 inches high seemed to cause the production of the most ripe fruit, though other treatments gave greater total yields. Prosperity was the variety used.

TOMATO—RIPENING EXPERIMENT, 1929

Treatment	Ripe		Green		Total	
	lb.	oz.	lb.	oz.	lb.	oz.
Not staked	..	15	13	..	13	15
Staked 9 inches high	1	1	8	..	9	1
Staked 18 inches high	1	12	8	8	10	4
Staked upright	..	7	10	8	10	15

TOMATO—Increasing of production outside.—Three treatments were used, none of which gave any marked increase in crop. IXL was the variety used.

TOMATO—PRODUCTION EXPERIMENT, 1929

Treatment	Ripe		Green		Total	
	lb.	oz.	lb.	oz.	lb.	oz.
Open pollination (check)	1	11	14	8	16	3
Hand pollination	..	7	12	..	12	7
Superphosphate fertilizer	..	12	17	..	17	12

TURNIP—Variety test.—The turnip crop was rather poor, but the best yield came from the variety, Yellow Globe, which makes it the heaviest yielder for four years in succession.

TURNIP — VARIETY TEST, 1929

Variety	Seedsman	Sown	Germinated	Ready for use	Pulled	Marketable weight
						lb.
Yellow Globe	Stokes	May 2	May 25	.....	Oct. 20	64
Extra Early Purple Top Milan	McD	May 2	May 25	July 3	July 29	32
Golden Ball	Graham	May 2	May 25	Aug. 15	Sept. 4	31
Purple Top White Globe	Stokes	May 2	May 25	July 15	July 29	18
Red Top Strap Leaf	McD	May 2	May 25	July 10	July 29	16
Golden Neckless	Ferry	May 2	May 25	.....	Oct. 20	16

WATERMELON—variety test.—The only variety grown was Peerless or Ice Cream. It matured fruit by the end of September.

FLORICULTURE

ANNUALS

The annual flowers that were sown outside were failures, except where water was applied. Those which were started in the greenhouse, and later planted out, and also given water, made a very fine display. Petunias, stocks and the various everlastings were particularly fine during the latter half of the summer.

PERENNIALS

The perennial borders were rather poor. Certain clumps were very fine, but there were so many poorly developed groups, that the general effect was disappointing. The peonies produced a very good show of blossoms for a long period, but were watered.

TULIPS

The tulip plantings were very good, but the blooms lasted only about two weeks, due to the hot, dry weather.

HEDGES, ORNAMENTAL TREES AND SHRUBS

The shrubbery and trees continued to attract much attention from visitors. Species of shrubs that blossomed before the middle of summer were beautiful, the various varieties of lilacs being particularly fine. By fall, however, all species were showing the effects of the dry weather. Caragana, which is one of the more drouth resistant species, looked particularly badly, the leaves appearing as if they had been scorched by fire.

Varieties of shrubs and trees which are adapted to prairie conditions have been mentioned in the various reports from this farm. During the last couple of years, these species of known value, as well as others of unknown or questionable value have been placed in the new arboretum. It is hoped that additional information will be obtained concerning the plants that are already commonly grown, as well as discovering the value of some of the untried species.

POULTRY

THE SASKATCHEWAN EGG LAYING CONTEST

The Tenth Saskatchewan Egg Laying Contest opened on November 1, 1928, with forty pens entered. Different breeds were represented as follows: Barred Plymouth Rocks 18 pens, White Wyandottes 8 pens, Single Comb Rhode Island Reds 2 pens, Single Comb Anconas 1 pen, and Single Comb White Leghorns 11 pens.

Egg production throughout the contest period was very satisfactory, varying from 13 per cent the opening week to 69 per cent for the last week in May, after which it gradually declined to 24 per cent during the final week of the Contest. The average production of all pens combined for the year was 44·54 per cent.

A severe outbreak of colds and bronchitis occurred early in the Contest year but yielded well to treatment, resulting in remarkably few deaths.

British Columbia again captured first place for total points, the winning pen being Rhode Island Reds owned by Hillcrest Poultry Farm of Salmon Arm, B.C. Mrs. W. J. Thompson of Birch Hills, Sask., came next with her entry of Barred Plymouth Rocks. Sixty-five birds, in all, qualified for registration, which is the highest number ever registered in a Saskatchewan Contest.

Details of high pens, high birds and registered birds are given in the following tables:—

HIGH PENS

Award	Pen No.	Owner and address	Breed	Total points	Total eggs
1	28	Hillcrest Poultry Farm, Salmon Arm, B.C.	S.C.R.I.R.	2,367·0	1,974
2	10	Mrs. W. J. Thompson, Birch Hills, Sask.	B.P.R.	2,089·6	2,041
3	1	Miss H. M. Purdy, Aspenridge Farm, Balcarres, Sask.	B.P.R.	2,009·2	1,953
4	40	C. Headey, Oaks Poultry Farm, R.R. No. 3, Cloverdale, B.C.	S.C.W.L.	2,007·1	1,797

HIGH BIRDS

Award	Pen No.	Bird No.	Owner and address	Breed	Total points	Total eggs
1	28	8	Hillcrest Poultry Farm, Salmon Arm, B.C.	S.C.R.I.R.	287·0	222
2	35	10	Bolivar Leghorn Farm, Cloverdale, B.C.	S.C.W.L.	283·1	274
3	28	5	Hillcrest Poultry Farm, Salmon Arm, B.C.	S.C.R.I.R.	276·0	223
4	27	2	W. S. McAlpine, Creston, B.C.	S.C.R.I.R.	273·0	213

NUMBER OF BIRDS REGISTERED (FROM ONE PEN, NOT INCLUDING SPARES)

Award	Number registered	Owner and address	Breed	Pen	Average egg weight	Bird Nos.
1	6	Mrs. W. J. Thompson, Birch Hills, Sask.	B.P.R.	10	24·35	2, 3, 4, 5, 8, 10
2	6	R. V. Wilcox, Salmon Arm, B.C.	B.P.R.	18	23·93	2, 3, 4, 8, 9, 10
3	5	Hillcrest Poultry Farm, Salmon Arm, B.C.	S.C.R.I.R.	28	26·13	1, 3, 4, 5, 8.
4	5	Miss H. M. Purdy, Aspenridge Farm, Balcarres, Sask.	B.P.R.	1	24·35	5, 7, 8, 9, 10

RECORDS OF INDIVIDUALS WHICH QUALIFIED FOR REGISTRATION IN THE TENTH SASKATCHEWAN EGG LAYING CONTEST, 1928-29

Bird No.	Owner	Breed	Date first egg	Date last egg	Days in production	Total eggs laid	Per cent production	Average egg weight per dozen
15	Miss H. M. Purdy, Aspenridge Farm, Balcarres, Sask.	B.P.R.	Nov. 2.	Oct. 22.	355	217	61·1	24·75
17	" " "	B.P.R.	" 20.	" 22.	337	202	60·0	24·48
18	" " "	B.P.R.	Dec. 11.	" 23.	317	201	63·4	25·08
19	" " "	B.P.R.	Nov. 10.	" 19.	344	223	64·8	24·00
20	" " "	B.P.R.	Dec. 25.	" 23.	302	200	66·2	24·00
42	C. N. Fisher, Blytheswood Essex County, Ont.	B.P.R.	Dec. 17.	Oct. 23.	311	206	66·2	24·96
229	" " "	W.W.	Nov. 4.	" 22.	353	206	58·4	24·00
58	T. Hampson, Birch Hills, Sask.	B.P.R.	Nov. 1.	Oct. 23.	357	253	70·9	24·58
59	" "	B.P.R.	" 6.	" 1.	330	227	68·8	25·20
509	" "	B.P.R.	Jan. 28.	" 22.	267	211	79·0	26·82
61	Mrs. J. E. Byrne, Welwyn, Sask.	B.P.R.	Dec. 27.	Oct. 22.	299	223	74·6	24·00
63	" "	B.P.R.	" 30.	" 23.	297	203	68·3	24·00
66	" "	B.P.R.	" 7.	" 16.	314	234	74·5	24·00
84	J. Powell, 302-33 St. W. Saskatoon, Sask.	B.P.R.	Jan. 21.	Oct. 23.	275	201	73·1	24·00
91	John Fleming, Fernie, B.C.	B.P.R.	Nov. 5.	Oct. 23.	353	277	78·5	24·00
102	Mrs. W. J. Thompson, Birch Hills, Sask.	B.P.R.	Nov. 1.	Oct. 23.	357	232	65·0	24·00
103	" " "	B.P.R.	" 1.	" 16.	350	217	62·0	24·27
104	" " "	B.P.R.	Dec. 31.	" 12.	285	228	80·0	25·79
105	" " "	B.P.R.	Nov. 23.	" 23.	335	201	59·7	24·00
108	" " "	B.P.R.	" 1.	" 22.	356	231	64·9	24·34
110	" " "	B.P.R.	Dec. 9.	" 23.	319	249	78·1	24·22
520	" " "	B.P.R.	Jan. 1.	" 12.	284	210	73·9	24·00
114	E. Armstrong, Lockwood, Sask.	B.P.R.	Nov. 1.	Oct. 23.	357	226	63·3	24·00
115	" "	B.P.R.	" 3.	" 14.	346	204	59·0	24·00
116	" "	B.P.R.	" 7.	" 22.	350	200	57·1	24·00
120	" "	B.P.R.	Jan. 2.	" 23.	294	207	70·4	26·84
138	W. A. Aitken, Drinkwater, Sask.	B.P.R.	Nov. 6.	Oct. 16.	345	204	59·1	25·20
162	Experimental Station, Rosthern, Sask.	B.P.R.	Nov. 1.	Oct. 23.	357	228	63·9	24·64
164	" " "	B.P.R.	" 2.	" 23.	356	205	57·6	24·64
166	" " "	B.P.R.	" 4.	" 23.	354	221	62·4	24·02

RECORDS OF INDIVIDUALS WHICH QUALIFIED FOR REGISTRATION IN THE TENTH SASKATCHEWAN EGG LAYING CONTEST, 1928-29
—*Concluded*

Bird No.	Owner	Breed	Date first egg	Date last egg	Days in production	Total eggs laid	Per cent production	Average egg weight per dozen
182	R. V. Wilcox, Salmon Arm, B.C.	B.P.R.	Dec. 26.	Oct. 23.	301	212	70·4	24·00
183	" " "	B.P.R.	" 6.	" 23.	322	236	73·3	24·00
184	" " "	B.P.R.	Nov. 23.	" 23.	335	273	81·5	24·00
188	" " "	B.P.R.	Dec. 19.	" 23.	309	231	74·7	24·07
189	" " "	B.P.R.	" 13.	" 22.	314	229	72·9	24·00
190	" " "	B.P.R.	Nov. 9.	" 23.	349	218	62·5	24·53
196	Hillcrest Poultry Farm Salmon Arm, B.C.	W.W.	Nov. 2.	Oct. 23.	356	231	64·9	24·13
281	" " "	S.C.R.I.R.	" 1.	" 22.	356	214	60·1	26·46
283	" " "	S.C.R.I.R.	" 2.	" 23.	356	208	58·4	25·06
284	" " "	S.C.R.I.R.	" 1.	" 23.	357	215	60·2	25·89
285	" " "	S.C.R.I.R.	" 1.	" 23.	357	223	62·5	26·36
288	" " "	S.C.R.I.R.	" 2.	" 23.	356	222	62·4	26·00
555	" " "	S.C.R.I.R.	" 1.	" 23.	357	217	60·8	25·57
251	Mrs. T. Thompson, Zealandia, Sask.	W.W.	Dec. 5.	Oct. 23.	323	231	71·5	25·50
551	Experimental Farm, Indian Head, Sask	W.W.	Nov. 24.	Oct. 22.	333	209	62·8	25·88
271	W. S. McAlpine, Creston, B.C.	S.C.R.I.R.	Nov. 3.	Oct. 22.	354	213	60·2	24·36
272	" "	S.C.R.I.R.	Dec. 18.	" 22.	309	213	68·9	26·72
275	" "	S.C.R.I.R.	Nov. 2.	" 23.	356	200	56·2	27·00
313	Mrs. L. Draper, Welwyn, Sask.	S.C.W.L.	Nov. 2.	Oct. 22.	355	245	69·0	24·39
320	" "	S.C.W.L.	" 2.	" 23.	356	207	58·2	25·10
324	C. G. Wilkinson, Atwater, Sask.	S.C.W.L.	Nov. 2.	Sept. 15.	318	217	68·3	24·00
328	" "	S.C.W.L.	" 2.	Oct. 22.	355	213	60·0	26·12
335	Gilbert A. Smales, Muscow, Sask.	S.C.W.L.	Nov. 30.	Oct. 20.	325	200	61·5	24·83
339	" "	S.C.W.L.	" 9.	" 23.	349	209	59·9	24·55
343	Victor North, Palmer, Sask.	S.C.W.L.	Nov. 3.	Oct. 23.	355	210	59·2	24·94
346	" "	S.C.W.L.	" 12.	" 23.	346	205	59·3	24·00
353	Bolivar Leghorn Fm., Cloverdale, B.C.	S.C.W.L.	Nov. 1.	Sept. 19.	323	222	68·7	24·00
354	" " "	S.C.W.L.	" 1.	Oct. 23.	357	227	63·6	24·26
357	" " "	S.C.W.L.	Dec. 18.	" 23.	310	220	71·0	24·44
360	" " "	S.C.W.L.	Nov. 2.	" 23.	356	274	77·0	24·55
379	Round T. Ranch, High River, Alta.	S.C.W.L.	Nov. 1.	Oct. 22.	356	215	60·4	24·07
389	Rump & Sendall, R.R. 1 Milner, B.C.	S.C.W.L.	Nov. 3.	Oct. 23.	355	223	62·8	24·69
405	C. Headey, Oaks Poultry Farm, R.R. 3 Cloverdale, B.C.	S.C.W.L.	Nov. 7.	Oct. 23.	351	238	67·8	24·77
406	" "	S.C.W.L.	" 1.	" 23.	357	223	62·5	25·63
407	" " "	S.C.W.L.	" 1.	" 21.	355	217	61·1	26·80

Slight changes have been made in the feeds and methods of feeding from time to time. The present combination of feeds is proving very satisfactory in egg production and egg weight, also the maintenance of body weight and vigour. Following is the constitution of the mash now used:—

Shorts	250 pounds
Cornmeal	250 "
Oat middlings	250 "
Bran	200 "
Beef scrap	175 "
Skim-milk powder	50 "
Charcoal	30 "
Cod liver oil	1·25 gallons

Incorporated in the mash is a mineral mixture composed as follows:—

Bone flour	60 pounds
Calcium carbonate	23 "
Salt	20 "

The mineral supplement is added to the mash mixture at the rate of 45 pounds per 1,000 pounds of mash.

In the feeding of the Contest birds the following schedule is followed:—

7 a.m.—Scratch grain fed in deep straw litter (6 pounds per 100 birds). Grain mixture of 2 parts wheat and 1 part cracked corn.

11 a.m.—Warm wet mash fed from troughs (4 pounds when dry per 100 birds).

3 p.m.—In winter—later in summer—scratch grain fed in litter or from troughs when light is poor (8 pounds per 100 birds).

The dry mash mixture is accessible at all times in feed hoppers, as is also oyster shell, grit and charcoal. Green feed of some kind fed daily at rate of 5 pounds per 100 birds.

Water is available in every pen (warmed in winter).

POULTRY PLANT

A flock of White Wyandottes is maintained for breeding purposes. These are being developed by trap-nesting and culling for high egg-production, large egg size and desirable type. A number of cockerels are offered for sale each year. One or more pens of pullets are entered in the Saskatchewan Egg Laying Contests for registration only.

In the spring of 1929 a number of Light Sussex chicks were purchased with the purpose in view of establishing this desirable breed of fowl on the Farm. Present indications are that the Light Sussex breed should prove to be heavy layers and good producers of meat for table purposes.

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