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 1930

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SEASONAL NOTES

The year 1930 may be regarded as one of the most disastrous in the history of western agriculture. High winds, soil drifting, cutworm, weeds, drought together with low prices for farm commodities caused serious hardship to agriculturists throughout the West. The following figures indicate the drop in wheat prices during 1930: At Indian Head, January 2, 1930, No. 1 wheat was worth $1.22 per bushel, on August 1 the same grade was worth 71 cents per bushel, and, on December 31 it was worth 36 cents.

Work commenced on the land April 10 and seeding on April 11. Fallows appeared to have sufficient moisture to carry through; on the other hand, stubble fields were *bone dry* fourteen inches down.

Plenty of moisture during May, June and July resulted in fair yields from the earlier sown crops. Later sown crops, however, suffered from rust.

Harvest operations commenced with the cutting of O.A.C. No. 21 barley on August 2. Threshing commenced on August 23 and was finished on September 6.

METEOROLOGICAL RECORD, 1930

Month	Temperature—F.						Precipitation				Sunshine		Evaporation
	Mean		Maximum		Minimum		Rain	Snow	Total precipitation				
	1930	Average 20 years	Highest	Mean	Lowest	Mean			1930	Average 20 years	1930	Average 20 years	
	°	°	°	°	°	°	in.	in.	in.	in.	hours	hours	in.
January	9·77	0·99	17	−1·19	−43	−18·39	.....	1·00	0·10	0·86	64·4	67·5	.....
February	13·82	5·95	42	22·82	−30	4·86	0·04	4·50	0·49	0·76	92·0	95·4	.....
March	18·67	20·27	41	27·32	−19	8·06	0·10	11·50	1·25	1·43	159·4	134·9	.....
April	42·30	37·19	76	55·76	14	28·86	0·41	1·50	0·56	0·97	210·8	177·1	1·75
May	46·96	49·61	90	59·74	20	34·19	1·22	1·50	1·37	2·16	210·3	216·3	4·02
June	59·03	59·38	84	71·86	32	48·03	3·65	.....	3·65	3·02	226·1	229·9	4·33
July	66·55	63·38	102	80·86	42	52·29	0·97	.....	0·97	2·65	280·4	248·8	6·09
August	66·01	63·02	98	80·93	42	52·32	0·94	.....	0·94	1·91	252·0	250·3	6·92
September	52·13	51·16	85	65·53	17	34·58	0·96	.....	0·96	1·56	187·0	165·2	5·21
October	34·87	38·49	66	44·16	8	25·77	0·39	4·00	0·79	1·52	81·8	126·0	0·61
November	23·66	23·21	64	34·16	−10	13·16	.....	6·50	0·65	1·01	115·8	71·6	.....
December	19·42	7·0	45	28·16	−14	10·71	.....	1·25	0·12	0·84	79·7	53·7	.....
	.....	.....	.....	.....	.....	.....	8·68	31·75	11·85	.....	1,959·7	.....	28·93

26381—2½

ANIMAL HUSBANDRY

HORSES

Registered Clydesdale horses for work and breeding purposes are maintained on the Experimental Farm. During winter idle work horses and all young horses, including foals, are wintered in corrals. Straw forms the basic roughage together with a grain ration to keep them in good thrifty condition.

The introduction of mechanical farming has seriously interfered with horse breeding operations throughout the West. However, the low cost of coarse grains and other feeds together with a desire to lower the cost of production may be responsible for many farmers returning to horse power on the farm.

Feed and cost tables for the past year are submitted herewith.

BROOD MARES WITH FOALS

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.	Months on pasture at $2 per month	Cost of feed for period
	lb.	lb.	lb.	lb.	lb.		$
Moss Rose	2,025	375	1,500	95	4,900	4	44 54
Indian Head Jean	1,725	315	900	95	4,100	4	37 14
Indian Head Maggie	1,625	305	900	95	4,200	5	38 14
Silver Belle	1,850	385	1,700	95	4,800	4	43 79

Average cost, $40.90.

WORK HORSES—FULL TIME

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.	Cost of feed for period
	lb.	lb.	lb.	lb.	lb.	$ cts.
Gyp	4,125	550	5,100	95	5,300	77 69
Betty	4,600	590	4,200	125	4,100	77 19
Pete	3,925	525	5,000	95	5,500	75 14
Maggie Splendor	4,125	540	5,100	95	5,200	77 49

Average cost—$76.88.

WORK HORSES (SEASONAL)

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.	Cost of feed for period
	lb.	lb.	lb.	lb.	lb.	$ cts.
Eunice	3,675	485	3,900	95	4,200	65 44
Indian Head Coupon	4,075	545	3,600	125	6,600	70 99
Indian Head Rosetta	3,825	330	4,600	125	5,100	69 84
Indian Head Bessie	3,475	520	3,200	100	5,600	61 70

Average cost, $66.99.

TWO-YEAR-OLDS

Name	Amount of oats eaten at 1 cent per pound	Amount of bran eaten at 1 cent per pound	Amount of green feed eaten at $3 per ton	Amount of straw eaten at 10 cents per cwt.	Months on pasture at $2 per month	Cost of feed for period
	lb.	lb.	lb.	lb.		$ cts.
Rosebloom	1,625	340	100	5,300	5	35 10
Gelding	1,625	340	100	5,300	5	35 10

Teaching farm boys and girls the art of judging live stock.

YEARLINGS

Name	Amount of oats eaten at 1 cent per pound	Amount of bran eaten at 1 cent per pound	Amount of green feed eaten at $3 per ton	Amount of straw eaten at 10 cents per cwt.	Months at pasture at $2 per month	Cost of feed for period
	lb.	lb.	lb.	lb.		$ cts.
Gelding	1,825	340	675	3,550	5	36 21
Gelding	1,775	325	675	3,350	5	35 36
Gelding	1,775	325	675	3,350	5	35 36
Gelding	1,775	325	675	3,350	5	35 36
Gelding	1,775	325	675	3,350	5	35 36
Jessabell	1,775	325	675	3,350	5	35 36

Average cost, $35.50.

STALLIONS

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.	Cost of feed for period
	lb.	lb.	lb.	lb.	lb.	$ cts.
Dunure Norman	3,400	1,060	7,700	1,600	3,000	88 50
Radiance	2,500	840	5,650	975	1,000	64 11

During the past season two of the farm Clydesdales were shown at the Regina Summer Exhibition with success. The yearling stallion "Radiance" won the Grand Championship, and the three-year-old mare "Indian Head Queen" won the Reserve Grand Championship in the female classes.

At the Toronto Royal these horses were placed second and third in their respective classes.

Early in the year the Clydesdale stallion "His Majesty" was transferred to the Experimental Station, Lacombe, Alta., for breeding purposes at that Station.

CATTLE

BREEDING SHORTHORNS

The Shorthorns are essentially beef type and strong in Browndale breeding. The herd sire for the past year was Browndale Anchor and calves from this bull show considerable promise. Surplus stock of young bulls and heifers are sold for breeding purposes throughout the territory served by the Farm. During the year the old herd sire, "Berserker," was sold to Jesse Balkwell, Windthorst, Sask.

Calves as a rule, are more expensive to raise than yearlings on account of the expensive feeds required in their early growth. Yearlings can be wintered cheaply on silage, hay or straw together with very little grain. The average feed cost of raising yearlings the past season was $22.70 as compared with $57.92 for calves.

The following table gives a detailed list of feed cost of raising calves from birth to December 31, 1930:—

COST OF RAISING BEEF CALVES FROM BIRTH TO DECEMBER 31, 1930

Name	Date of birth	Approximate amount of milk consumed	Amount of meal eaten at 1½ cents per pound	Amount of roots or ensilage eaten at $3 per ton	Amount of hay eaten at $10 per ton	Amount of oil meal eaten at 2½ cents per pound	Amount of barley eaten at 1½ cents per pound	Amount of straw eaten at 10 cents per cwt.	Total cost of feed for period
		qts.	lb.	lb.	lb.	lb.	lb.	lb.	$
Indian Head Queen 7th	Jan. 10, 1930	758·8	626	.....	2,254½	71½	459	.....	73 77
Indian Head Rosebud 8th	Mar. 13, 1930	755·6	369	310	643	33	.....	186	59 52
Indian Head Rosebud 9th	Mar. 15, 1930	807·6	369	.....	829	33	.....	.....	61 93
Bertha of Towie 7th	May 23, 1930	736·8	308	.....	538	26½	.....	.....	55 19
Indian Head Janet 4th	July 20, 1930	584·8	308	.....	538	26½	.....	.....	39 20

DAIRY CATTLE

The small herd of six cows and one bull established in 1925 has steadily increased and numbered twenty-seven females and two bulls at the end of December, 1930. "Tullochgorum Dorothy" finished her lactation period during the year with a herd record of 16,462 pounds of milk, averaging 4·2 per cent fat in three hundred and fifty-five days. This cow topped the Honor Roll Class and won the Silver Cup for the Dominion with a record of 15,351 pounds of milk and 600 pounds of fat in three hundred and five days. None of the cattle were exhibited during 1930.

In estimating the cost of feeds, the following values were used, except in December, 1930, when the meal value was reduced to one cent per pound.

	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

Value of product is calculated in accordance with the price charged on the Farm, namely, eight cents per quart during the winter months, and six cents per quart during the summer months.

Tullochgorum Dorothy—82210—owned by the Indian Head Experimental Farm, winner in Honour Roll class, 1930. Record, 15,351 pounds milk, 600 pounds fat.

Name of cow	Date of freshening	Number of days in milk	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 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.	$	$	$
Tullochgorum Dorothy	July 6, 1929	355	16,462·8	4·2	4,173½	350	5,932	Oil cake 372 — Skim-milk 194	123 43	440 94	317 51
Tullochgorum Jean	Feb. 12, 1930	322	11,556·6	3·6	1,672	7,950	1,830	848	47 00	289 69	242 69
Indian Head Jean 2nd	April 19, 1930	256	7,193·5	4·7	1,226	6,350	945	808	33 45	182 64	149 19
Indian Head Queen	Jan. 3, 1930	302	6,792·9	4·6	1,503	6,255	2,037	1,180	43 29	173 97	130 68
Burnside Nell	April 26, 1930	249	6,790·2	3·9	1,234	5,825	465	948	30 52	170 65	140 13
Indian Head Glenwood	July 6, 1930	178	5,412·8	4·5	958	4,810	.....	848	22 43	141 86	119 43
Indian Head Nell	April 18, 1930	257	6,463·1	4·6	1,288	6,525	945	848	34 68	113 68	79 00
Indian Head Jean 3rd	Nov. 13, 1929	321	4,809·7	4·6	1,730	7,855	2,444	2,380	52 33	132 34	80 01
Indian Head Dorothy	July 22, 1930	163	4,563·5	4·3	958	4,810	.....	848	22 43	122 18	99 75
Indian Head Bessie Lee	Sept. 4, 1930	118	2,463·2	4·4	716	4,120	.....	848	17 77	67 40	49 63
Total	.....	2,521	72,508·1	.....	.....	.....	.....	.....	427 33	1,835 35	1,408 02
Average	.....	252·1	7,250·8	4·34	.....	.....	.....	.....	42 73	183 54	140 80

COMPARISON OF BEEF AND DAIRY CALVES FOR BABY BEEF

Four calves approximately the same age (two beef and two dairy) were placed on feed February 18, 1930, and continued until September 18, 1930, for the purpose of gaining some definite information regarding their comparative qualities for baby beef and also the cost of producing baby beef calves. These calves were weighed regularly and accurate records of feed kept.

RESULTS OF COMPARISON OF BEEF AND DAIRY CALVES FOR BABY BEEF

		Shorthorn		Ayrshire	
		Queen 7th	Charlie	Jean's Steer	Queen's Steer
Experiment commenced		Feb. 18, 1930	Feb. 18, 1930	Feb. 18, 1930	Feb. 18, 1930
Experiment ended		Sept. 18, 1930	Sept. 18, 1930	Sept. 18, 1930	Sept. 18, 1930
Duration of experiment (days)		211	211	211	211
Amount of oat chop consumed	lb.	418	437	437	437
At 0·5 cents per pound	$	2 09	2 19	2 19	2 19
Amount of bran consumed	lb.	209	218	218	218
At 1 cent per pound	$	2 09	2 18	2 18	2 18
Amount of oil meal consumed	lb.	43·75	43·75	44·75	43·75
At 2·75 cents per pound	$	1 20	1 20	1 23	1 20
Amount of hay consumed	lb.	1,212	1,198	1,243	1,198
At $10 per ton	$	6 06	6 00	6 22	6 00
Amount of whole milk consumed	qt.	615	615	868	868
At 8 cents per quart, November to March, inclusive; and 6 cents per quart, April to October, inclusive	$	41 61	41 61	57 80	57 80
Amount of skimmilk consumed	lb.	.....	.....	516	516
At 25 cents per 100 pounds	$	.....	.....	1 29	1 29
Amount of milk powder consumed	lb.	.....	.....	12	12
At 11 cents per pound	$	.....	.....	1 32	1 32
Amount of minerals (calcium phosphate) consumed	lb.	.....	12	12	.....
At 25 cents per pound	$	.....	3 00	3 00	.....
Total value of feed consumed	$	53 05	56 18	75 23	71 98
Initial weight of calf February 18, 1930	lb.	122	162	221	151
Final weight of calf September 18, 1930	lb.	580	625	675	670
Total gain during test	lb.	458	463	454	519
Average daily gain	lb.	2·17	2·19	2·15	2·46
Cost per pound gain	cts.	11·58	12·13	16·57	13·87

From the foregoing figures it will be observed that the production of baby beef is an expensive business, unless for a very special market. Generally speaking, the cost of production is out of line with market values. The beef calves were comparatively lower in cost per 100 pounds gain than the dairy bred calves.

The experiment was changed and the calves placed on exclusive rations of wheat and barley meal in order to get a comparative value of these grains for fattening purposes and also to ascertain the effect of these specific feeds when fed alone.

RESULTS OF COMPARISON OF WHEAT VERSUS BARLEY FOR FATTENING CALVES

		Wheat		Barley	
		Shorthorn	Ayrshire	Shorthorn	Ayrshire
Experiment commenced		Sept. 18, 1930	Sept. 18, 1930	Sept. 18, 1930	Sept. 18, 1930
Experiment ended		Dec. 23, 1930	Dec. 10, 1930	Dec. 23, 1930	Dec. 10, 1930
Duration of experiment (days)		96	83	96	83
Amount of wheat consumed	lb.	464	399	.....	.....
Value at 50 cents per bushel	$	3 87	3 33	.....	.....
Amount of barley consumed	lb.	.....	.....	464	399
Value at 24 cents per bushel	$	.....	.....	2 32	2 00
Amount of hay consumed	lb.	1,042	886	1,042	886
Value at $10 per ton	$	5 21	4 43	5 21	4 43
Amount of oilmeal consumed	lb.	24	20·75	24	20·75
Value at 2·5 cents per pound	$	0 60	0 52	0 60	0 52
Amount of skimmilk consumed	lb.	.....	0·96	.....	0·96
Value at 25 cents per 100 pounds	$	.....	0 24	.....	0 24
Total cost of feed at above prices	$	9 68	8 52	8 13	7 19
Initial weight	lb.	625	675	580	670
Final weight	lb.	750	775	715	840
Total gain during test	lb.	125	100	135	170
Average daily gain	lb.	1·30	1·21	1·41	2·05
Feed required per 100 pounds gain	lb.	390·4	419·95	361·5	247·2
Cost per pound gain	cts.	7·74	8·52	6·02	4·23
Selling price per 100 pounds	$	8 00	6 00	9 00	7 00
Price received for wheat per bushel	$	0 54	0 12	.....	.....
Price received for barley per bushel	$	.....	.....	0 66	0 81
Killing percentage		58·9	54·45	56·18	51·43

The foregoing table gives a detailed account of costs, gains and killing percentage. These calves were sold locally for Christmas trade. The carcasses were inspected and found to be of the highest quality, particularly the Shorthorns. The Ayrshire carcasses were of good quality and considerably above the average but they lacked thickness, finish and quality as compared with the Shorthorns.

It is interesting to note, however, that in the case of the two calves fed wheat meal and which seemed to lack finish and covering of flesh on rib, as indicated in the price paid by the butcher, when killed had a superior covering of internal fat and dressed a higher percentage than the calves fed barley. However, barley meal proved a more economical feed than wheat meal for fattening purposes.

SHEEP

Pure-bred Shropshires are maintained on the Farm. The breeding flock numbers about forty. Surplus stock are sold for breeding purposes in the territory served by the Farm. The demand and prices for breeding stock declined during the past year. Local trade for butcher lambs continued good throughout the season, ranging in price from 13 cents per pound in July to 7½ cents per pound in December.

SWINE

COMPARISON OF SHELTERS FOR FALL PIGS

In this test, which was started on December 23, 1929, four lots of fall pigs were used which averaged about three months of age at the beginning of the test. Lots 1 and 2 were housed in the Farm piggery. Lots 3 and 4 were placed in outside feed-lots with access to A type cabins which were well banked and covered with straw. The cabins were provided with bran-sack curtains which were dropped in severe weather. Feeding of lots 3 and 4 was done in the open as the cabins were not sufficiently large to permit inside feeding. The same meal ration was fed three times daily to all lots throughout the test, the amount in all cases being governed by the quantity cleaned up in fifteen minutes.

The meal ration used was made up of shorts two parts, oat chop one part, tankage 5 per cent.

RESULTS OF TEST COMPARING SHELTERS FOR FALL PIGS

—		Lot 1, Piggery	Lot 2, Piggery	Lot 3, Cabin	Lot 4, Cabin
Original number placed on test		7	6	8	10
Initial weight, gross	lb.	520	488	587	622
Final number of pigs on test		7	5	8	9
Initial weight, gross	lb.	520	406·5	587	559·8
Average initial weight	lb.	74·3	81·3	73·4	62·2
Final weight, gross	lb.	1,008	889	1,362	1,287
Average final weight	lb.	144	177·8	170·3	142
Total gain in period	lb.	488	482·5	775	727·2
Number of days on test		98	98	98	98
Average daily gain per pig	lb.	0·71	0·99	0·99	0·82
Barley chop consumed	lb.	195	166	278	281
Value at 1·5 cents per pound	$	2 93	2 49	4 17	4 22
Oat chop consumed	lb.	952	740	1,243	1,177
Value at 1·25 cents per pound	$	11 90	9 25	15 54	14 71
Shorts consumed	lb.	1,318	1,007	1,652	1,550
Value at 1·6 cents per pound	$	21 09	16 11	26 43	24 80
Tankage consumed	lb.	129	100	166	157
Value at 2·5 cents per pound	$	3 23	2 50	4 15	3 93
Skimmilk consumed	lb.	2,049	1,403	2,342	2,597
Value at 25 cents per 100 pounds	$	5 12	3 51	5 86	6 49
Total meal consumed	lb.	2,594	2,013	3,339	3,165
Total value of feed consumed	$	44 27	33 86	56 15	54 15
Meal consumed per pound gain	lb.	5·32	4·17	4·31	4·35
Milk consumed per pound gain	lb.	4·20	2·91	3·02	3·57
Cost of feed per head	$	6 32	6 77	7 02	6 02
Cost of feed per head per day	cts.	6·45	6·91	7·16	6·14
Cost of feed per pound gain	cts.	9·07	7·02	7·25	7·45

COST OF RAISING SPRING LITTERS, 1930

The average cost of feeding nine sows with litters from farrowing to weaning (average of forty-five days) was $4.48. Of the hundred and fourteen pigs farrowed, seventy-nine or 69·3 per cent were weaned. Rations fed to sows consisted of equal parts of oat chop and shorts with 10 per cent of tankage and 5 per cent linseed oil meal included in the meal mixture. An average of 116·75 pounds each of shorts and oats, 20·9 pounds tankage, 10·8 pounds oil mean and 294 pounds skimmilk was consumed per sow and litter during the nursing period. Feed values used, based on one pound of feed are: oat chop 1 cent, shorts 1·5 cents, tankage 2·5 cents, oil meal 2·75 cents and skim-milk 0·25 cent.

COST OF RAISING SPRING LITTERS—FARROWING TO WEANING

Name of sow	Mature and young sows				Total cost of feed
	Date litter farrowed	Date litter weaned	Number of pigs farrowed	Number of pigs weaned	
					$ cts.
Indian Head 62	Mar. 8	April 22	12	9	4 65
Indian Head 80	Mar. 4	April 17	18	7	4 38
Indian Head 108	Mar. 29	May 10	5	5	2 01
Indian Head 109	Mar. 22	May 10	14	11	3 21
Indian Head 110	Mar. 27	May 10	16	12	3 04
Indian Head 153*	May 12	June 28	10	7	5 13
Indian Head 154*	May 15	June 28	12	12	4 65
Indian Head 155*	May 17	June 28	13	11	8 83
Regina 570	Mar. 5	April 18	14	5	4 45
Total			114	79	40 35
Average			12·67	8·78	4 48

*Young sows, first litters.

COST OF RAISING FALL LITTERS, 1930

Six sows which farrowed in the fall produced sixty-eight pigs (average of 11·3 per litter). These litters were left on sows about nine days longer than the spring litters—or about fifty-four days. The total number of pigs weaned was fifty-one—75 per cent of the number farrowed. The cost of feed per sow and litter was $4.78. This low cost, as compared to spring costs is explained by lower prices charged for oat chop and shorts—oats and shorts were valued at 0·5 cent and 1 cent per pound respectively.

COST OF RAISING FALL LITTERS—FARROWING TO WEANING

Name of sow	Mature and young sows				Total cost of feed
	Date litter farrowed	Date litter weaned	Number of pigs farrowed	Number of pigs weaned	
					$
Indian Head 62	Aug. 17	Oct. 15	9	8	4 72
Indian Head 80	Aug. 10	Oct. 15	5	4	3 55
Indian Head 107	July 19	Sept. 2	11	11	4 62
Indian Head 108	Sept. 12	Nov. 3	12	8	4 85
Indian Head 109	Sept. 16	Nov. 3	16	10	5 25
Indian Head 110	Sept. 12	Nov. 3	15	10	5 71
Total	.....	.....	68	51	28 70
Average	.....	.....	11·33	8·50	4 78

ADVANCED REGISTRY FEEDING TESTS

The following table gives details of feeding tests carried out with five Advanced Registry slaughter-test groups of pigs.

FEEDING TEST OF PIGS UNDER ADVANCED REGISTRATION

——		Lot 1	Lot 2	Lot 3	Lot 4	Lot 5
Number of pigs on test		5	4*	5	5	5
Number of days on test (average)		141	174	163	167	159
Initial weight of pigs	lb.	118	100	155	153	129
Final weight of pigs	lb.	1,079	867	1,086	1,080	1,068
Gain during test	lb.	961	767	931	927	939
Average daily gain per pig	lb.	1·36	1·10	1·14	1·11	1·18
Amount of oat middlings consumed	lb.	608·98	454·80	648·73	638·95	529·22
At 2·2 cents per pound	$	13 40	10 06	14 27	14 06	11 64
Amount of oat chop consumed	lb.	695·41	700·07	857·43	896·15	973·87
At 0·5 cents per pound	$	3 48	3 50	4 29	4 48	4 87
Amount of barley chop consumed	lb.	563·84	646·94	746·81	802·52	915·66
At 0·5 cents per pound	$	2 82	3 24	3 73	4 01	4 58
Amount of shorts consumed	lb.	334·47	380·79	450·64	477·27	489·06
At 1 cent per pound	$	3 35	3 81	4 51	4 77	4 89
Amount of bran consumed	lb.	99·66	74·20	104·83	103·61	100·89
At 1 cent per pound	$	1 00	0 74	1 05	1 04	1 01
Amount of linseed oil meal consumed	lb.	74·70	71·25	89·13	92·54	96·74
At 2·75 cents per pound	$	2 05	1 96	2 45	2 55	2 66
Amount of tankage consumed	lb.	74·70	75·25	92·80	96·21	96·74
At 2·5 cents per pound	$	1 87	1 88	2 32	2 41	2 42
Amount of bone meal consumed	lb.	24·06	22·94	28·72	29·81	31 18
At 2·7 cents per pound	$	0 65	0 62	0 78	0 81	0 84
Amount of salt consumed	lb.	12·02	11·42	14·31	14·85	15·50
At 1·8 cents per pound	$	0 22	0 21	0 26	0 27	0 28
Amount of skim-milk consumed	lb.	255·32	217·64	253·25	253·25	572·65
At 0·25 cents per 100 pounds	$	0 64	0 54	0 63	0 63	1 43
Total amount of meal consumed	lb.	2,487·84	2,437·66	3,033·40	3,151·91	3,248·86
Total cost of feed consumed	$	29 48	26 56	34 29	35 03	34 62
Total meal required per 100 pounds gain	lb.	258·88	317·82	325·82	340·00	345·99
Cost of feed per 100 pounds gain	$	3 07	3 46	3 68	3 78	3 69

*One of the pigs in Lot 2 died at beginning of experiment—results for this lot for four pigs only.

CEREALS

The cereal varieties reported here are grown for the most part on one-fortieth-acre plots replicated several times. The rod-row results on the grains are omitted as many of the varieties are still at the preliminary testing stage.

Although the precipitation for the crop year from August, 1929, to July, 1930, was only 11·85 inches the cereal yields were surprisingly good.

The plots were not injured by the high winds during May and June. There was, however, some damage caused by the pale western cutworm, mostly in later sown grains.

Stem rust began to make its appearance on the wheat about the second week of July and a great deal of injury was apparent before the crop was harvested.

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
	1926	1927	1928	1929	1930	1926	1927	1928	1929	1930	1926	1927	1928	1929	1930	
											bush.	bush.	bush.	bush.	bush.	
Early Triumph	.....	.....	100	115	122	.....	.....	9·5	10·0	10·0	.....	.....	45·2	32·7	33·8	.....
Ceres	110	111	.....	.....	122	8·0	8·8	.....	.....	10·0	54·5	36·1	.....	.....	45·3	.....
Garnet Ott. 652	99	103	93	111	114	7·0	9·5	7·7	10·0	10·0	57·5	30·0	34·7	28·3	40·8	93·2
Marquillo	.....	.....	102	115	122	.....	.....	10·0	10·0	10·0	.....	.....	46·3	30·0	44·6	.....
Marquis Ott. 15	109	115	103	115	122	7·0	9·3	9·0	10·0	10·0	49·2	41·1	45·4	31·0	39·0	100·0
Marquis 10B	.....	115	103	115	122	.....	9·0	9·8	10·0	10·0	.....	39·4	44·8	27·7	33·8	.....
Red Bobs 222	105	106	99	114	122	8·0	9·5	8·0	10·0	10·0	56·7	25·4	43·8	29·6	33·6	92·0
Red Fife Ott. 17	116	122	109	119	125	7·0	9·8	6·7	10·0	10·0	44·6	36·1	37·3	32·5	29·8	87·8
Renfrew	113	119	108	119	126	9·0	9·5	9·3	10·0	10·0	52·5	41·4	48·8	33·5	28·3	99·5
Reward Ott. 928	99	103	94	111	114	8·0	9·5	9·5	10·0	10·0	45·8	19·1	32·9	25·4	35·6	77·4
Supreme	109	111	102	115	122	8·0	9·0	10·0	10·0	10·0	59·6	37·1	47·1	33·2	30·7	101·0

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
	1926	1927	1928	1929	1930	1926	1927	1928	1929	1930	1926	1927	1928	1929	1930	
											bush.	bush.	bush.	bush.	bush.	
Early Triumph	.....	.....	100	109	116	.....	.....	10·0	10·0	10·0	.....	.....	15·3	4·2	22·1	.....
Ceres	105	108	.....	.....	122	7·5	9·3	.....	.....	10·0	36·3	20·6	.....	.....	20·5	.....
Garnet Ott. 652	99	101	93	108	113	7·0	9·5	10·0	10·0	10·0	45·8	21·9	10·8	6·3	23·8	107·4
Marquillo	.....	.....	101	110	122	.....	.....	10·0	10·0	10·0	.....	.....	11·7	4·2	25·9	.....
Marquis Ott. 15	108	108	102	110	121	8·0	9·5	10·0	10·0	10·0	36·4	21·5	11·8	5·3	25·8	100·0
Marquis 10B	.....	108	102	109	117	.....	9·5	10·0	10·0	10·0	.....	20·8	11·8	3·5	22·8	.....
Red Bobs 222	105	106	100	109	116	8·0	8·5	10·0	10·0	10·0	38·8	18·6	12·8	4·6	22·8	96·5
Red Fife Ott. 17	115	115	109	110	122	7·0	9·8	10·0	10·0	10·0	36·3	22·9	19·3	4·7	22·8	105·0
Renfrew	113	111	108	110	123	8·0	9·8	10·0	10·0	10·0	41·7	22·1	16·0	3·8	18·6	101·0
Reward Ott. 928	99	101	94	108	113	8·0	10·0	10·0	10·0	10·0	32·1	17·3	11·4	4·0	24·2	88·1
Supreme	106	106	101	109	115	8·0	9·0	10·0	10·0	10·0	40·8	23·3	13·9	5·6	25·7	108·4

Wheat varieties were sown April 11 and 12 at the rate of one and three-quarter bushels on fallow and one and one-half bushels on stubble. It will be noted that the wheat took longer to mature in 1930 than in any season during the past five years. Ceres was included in the test again last year after having been dropped for two years. It is a variety that has appeared to withstand the ravages of rust in many cases better than Marquis.

VARIETY TESTS OF DURUM WHEAT ON FALLOW

Variety	Number of days maturing					Strength of straw on scale of 10 points					Yield per acre				
	1926	1927	1928	1929	1930	1926	1927	1928	1929	1930	1926	1927	1928	1929	1930
											bush.	bush.	bush.	bush.	bush.
Mindum	110	114	108	121	124	6·0	8·5	7·0	10·0	9·0	46·3	38·3	41·7	29·4	40·0
Pelissier	.....	.....	109	121	126	.....	.....	7·0	10·0	9·0	.....	.....	39·2	35·8	45·4

VARIETY TESTS OF DURUM WHEAT ON STUBBLE

Variety	Number of days maturing					Strength of straw on scale of 10 points					Yield per acre				
	1926	1927	1928	1929	1930	1926	1927	1928	1929	1930	1926	1927	1928	1929	1930
											bush.	bush.	bush.	bush.	bush.
Mindum	113	110	108	110	121	5·0	8·5	9·0	10·0	9·0	36·7	24·6	13·6	4·2	34·8
Pelissier	.....	.....	109	110	124	.....	.....	9·5	10·0	9·0	.....	.....	13·3	4·2	27·1

The durum wheats were sown April 12 at the rate of two and one-quarter bushels on fallow and one and three-quarters on stubble.

Mindum is a variety that has given good satisfaction. Pelissier, a black bearded variety, appears to have promising possibilities.

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
	1926	1927	1928	1929	1930	1926	1927	1928	1929	1930	1926	1927	1928	1929	1930	
											bush.	bush.	bush.	bush.	bush.	
Abundance	.....	.....	95	99	88	.....	.....	10·0	10·0	9·5	.....	.....	78·2	44·1	67·9	.....
Alaska	89	86	83	88	79	8·5	9·5	10·0	10·0	10·0	62·5	43·4	72·1	30·7	60·6	67·8
Banner Ott. 49	103	102	97	99	89	9·5	8·0	10·0	10·0	10·0	90·4	80·1	100·3	52·2	74·3	100·0
Gerlach	104	104	96	100	91	8·5	6·0	9·0	10·0	9·5	95·6	76·3	92·2	47·3	69·4	95·8
Gopher	.....	.....	85	89	81	.....	.....	10·0	10·0	10·0	.....	.....	80·9	40·2	69·9	.....
Laurel Ott. 477	92	84	92	95	85	9·5	9·8	10·0	10·0	10·0	110·3	44·1	48·2	32·4	46·6	70·8
Leader	103	102	98	102	90	9·5	8·0	10·0	10·0	10·0	102·2	92·6	95·3	47·6	59·9	100·0
Longfellow Ott. 478	99	97	94	98	86	9·0	9·5	10·0	10·0	10·0	92·6	95·6	81·6	44·1	58·4	93·7
Victory	103	102	97	100	89	9·5	6·0	9·7	10·0	10·0	108·8	83·1	100·4	47·3	64·4	101·6
439	.....	.....	99	106	95	.....	.....	10·0	10·0	10·0	.....	.....	92·6	39·7	63·2	.....

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
	1925	1926	1927	1928	1930	1925	1926	1927	1928	1930	1925	1926	1927	1928	1930	
											bush.	bush.	bush.	bush.	bush.	
Abundance	.....	.....	.....	95	88	.....	.....	.....	10·0	10·0	.....	.....	.....	40·0	52·2	.....
Alaska	93	89	86	83	78	8·0	7·5	9·5	10·0	10·0	41·2	50·7	20·6	45·1	43·4	73·0
Banner Ott. 49	107	104	100	97	88	9·0	9·0	10·0	10·0	10·0	39·0	73·5	63·2	51·2	48·5	100·0
Gerlach	107	104	104	96	89	8·5	8·5	10·0	10·0	10·0	51·5	75·0	37·5	44·6	46·3	92·6
Gopher	.....	.....	.....	85	81	.....	.....	.....	10·0	10·0	.....	.....	.....	48·5	54·0	.....
Laurel Ott. 477	93	92	96	92	84	8·0	9·5	9·8	10·0	10·0	33·8	48·5	15·4	30·9	35·3	59·5
Leader	107	103	102	98	90	8·5	9·5	10·0	10·0	10·0	38·2	80·1	47·1	53·4	48·2	96·9
Longfellow Ott. 478	107	99	97	94	86	8·5	9·0	9·8	10·0	10·0	36·0	69·9	50·0	42·6	47·1	89·1
Victory	107	104	102	97	89	9·0	8·5	10·0	10·0	10·0	54·4	96·3	30·1	52·6	51·5	103·4
439	.....	.....	.....	99	93	.....	.....	.....	10·0	10·0	.....	.....	.....	51·5	43·4	.....

NOTE.—1929 crop failed through drought.

The oat varieties were sown May 15 at the rate of two and one-half bushels to the acre.

The standard varieties Banner and Victory still show their merit. Leader is a side or mane oat that has given good yields although it is somewhat coarse. Gopher is a promising variety of the earlier sort. Laurel is a hulless variety.

The stubble yields for 1929 are omitted on account of the fact that the crop was a total failure through drought.

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
	1926	1927	1928	1929	1930	1926	1927	1928	1929	1930	1926	1927	1928	1929	1930	
											bush.	bush.	bush.	bush.	bush.	
Bearer	97	96	90	95	88	8·0	9·0	8·2	10·0	10·0	64·6	52·6	61·8	28·8	60·4	110·3
Canadian Thorpe	.....	.....	96	99	92	.....	.....	10·0	10·0	10·0	.....	.....	39·6	35·3	47·9	.....
Colsess	.....	.....	86	89	84	.....	.....	9·5	10·0	10·0	.....	.....	54·7	36·5	52·8	.....
Duckbill	98	102	95	98	89	9·5	9·5	10·0	10·0	10·0	51·0	49·0	41·5	22·2	39·6	83·7
Gold	97	102	92	97	90	8·0	6·5	8·8	10·0	10·0	63·0	54·2	47·9	41·3	72·9	115·0
Hannchen	.....	96	89	97	88	.....	6·5	8·0	10·0	10·0	.....	52·1	48·1	42·9	58·6	.....
Mensury	90	90	88	95	85	8·5	9·5	8·5	10·0	10·0	55·7	50·5	53·6	34·9	54·0	102·3
O.A.C. 21	89	90	88	95	84	8·5	9·5	8·3	10·0	10·0	57·3	44·8	51·0	35·9	54·2	100·0
Plumage Archer	.....	.....	.....	96	89	.....	.....	.....	10·0	10·0	.....	.....	.....	25·0	20·3	.....
Star	.....	.....	.....	86	84	.....	.....	.....	10·0	10·0	.....	.....	.....	33·3	47·4	.....
Trebi	.....	.....	89	90	84	.....	.....	5·5	10·0	10·0	.....	.....	72·2	50·0	59·7	.....

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
	1925	1926	1927	1928	1930	1925	1926	1927	1928	1930	1925	1926	1927	1928	1930	
											bush.	bush.	bush.	bush.	bush.	
Bearer	117	100	96	94	87	8·5	8·5	9·0	9·3	10·0	35·4	44·8	45·8	55·2	40·3	116·6
Canadian Thorpe	.....	.....	.....	96	91	.....	.....	.....	10·0	10·0	.....	.....	.....	41·7	33·9	.....
Colsess	.....	.....	.....	87	84	.....	.....	.....	10·0	10·0	.....	.....	.....	42·7	46·1	.....
Duckbill	117	100	102	95	89	9·0	9·5	10·0	10·0	10·0	19·8	38·0	28·1	34·2	25·3	76·6
Gold	.....	102	98	96	90	.....	8·0	9·0	8·3	10·0	.....	47·4	21·9	53·3	40·1	.....
Hannchen	.....	.....	96	91	88	.....	.....	9·8	9·0	10·0	.....	.....	32·8	44·1	50·0	.....
Mensury	107	91	90	90	84	9·0	8·5	9·8	8·8	10·0	27·6	52·1	33·3	47·6	45·3	108·4
O.A.C. 21	107	89	90	91	84	9·0	8·5	9·8	8·7	10·0	22·4	50·0	23·4	48·1	46·1	100·0
Plumage Archer	.....	.....	.....	.....	88	.....	.....	.....	.....	10·0	.....	.....	.....	.....	29·7	.....
Star	.....	.....	.....	.....	78	.....	.....	.....	.....	10·0	.....	.....	.....	.....	44·3	.....
Trebi	.....	.....	.....	94	83	.....	.....	.....	8·5	10·0	.....	.....	.....	65·1	48·2	.....

NOTE.—1929 crop failed through drought.

The barley varieties were sown May 16 at the rate of one and three-quarter bushels to the acre. As in the case of oats, the 1929 stubble results are omitted as the crop was a failure through drought.

O.A.C. No. 21 is the variety preferred for malting purposes by the Canadian maltsters. This is a six-rowed, rough awned sort, as are Bearer, Mensury, Star and Trebi. Colsess is a beardless type. The remaining varieties in the test are all two-rowed bearded varieties.

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
	1926	1927	1928	1929	1930	1926	1927	1928	1929	1930	1926	1927	1928	1929	1930	
											bush.	bush.	bush.	bush.	bush.	
Bison	.....	.....	.....	.....	99	.....	.....	.....	.....	10·0	.....	.....	.....	.....	14·7	.....
Crown Sask. 272	113	100	104	87	101	10·0	10·0	10·0	10·0	10·0	12·3	23·7	19·2	8·5	18·8	117·0
Linota	.....	.....	103	86	100	.....	.....	10·0	10·0	10·0	.....	.....	17·9	10·1	12·5	.....
Longstem Ott. 52	107	100	103	85	101	10·0	10·0	9·0	10·0	10·0	9·9	18·3	15·2	8·5	11·6	90·1
Novelty Ott. 53	113	101	102	87	101	10·0	10·0	10·0	10·0	10·0	12·5	21·0	19·6	8·9	19·5	115·6
Premost	100	98	95	87	98	10·0	10·0	10·0	10·0	10·0	9·8	21·5	16·1	7·4	15·6	100·0

Flax varieties were sown May 7 at the rate of 28 pounds to the acre. Bison was included in the test this past season for the first time. It is a new variety and is said to be highly resistant to wilt. Linota also shows high wilt resistance. Novelty is one of the larger seeded varieties. Longstem is a fibre flax being longer in the straw than the other varieties and lower in seed production.

MARQUIS WHEAT AND PREMOST FLAX IN COMBINATION

Variety	Rate of seeding		Days to mature		Height at harvest		Yield per acre		Average yield per acre, 1929-30	
	Wheat	Flax	Wheat	Flax	Wheat	Flax	Wheat	Flax	Wheat	Flax
	bush.	bush.			in.	in.	bush.	bush.	bush.	bush.
Wheat and flax...	¾	¼	101	101	40·5	22·5	26·1	2·1	29·7	1·4
Wheat and flax...	1	¼	101	101	40·5	21·0	26·7	1·8	29·9	1·2
Wheat and flax...	1¼	¼	101	101	40·3	21·0	28·8	1·8	30·8	1·3
Wheat and flax...	1½	¼	101	101	40·3	20·3	27·9	1·7	30·1	1·1
Wheat and flax...	¾	½	101	101	41·3	21·5	26·1	2·5	27·7	1·7
Wheat and flax...	1	½	101	101	41·5	20·5	28·8	1·5	29·0	1·1
Wheat and flax...	1¼	½	101	101	41·0	21·8	28·3	1·6	29·9	1·2
Wheat and flax...	1½	½	101	101	40·3	19·8	29·0	1·4	29·7	1·0

The wheat and flax combinations were sown May 6 on well prepared summer-fallow at the rates shown in the foregoing table. The wheat was first sown at the usual depth and immediately afterwards the flax was sown at the depth of about one inch. The wheat yielded a fair crop but the flax a very poor one. Very similar results were obtained last year, when good crops of wheat were secured but the flax was a practical failure. Although the results from the combinations showed unsatisfactory yields of flax it was quite possible to obtain good yields of flax where the flax was sown alone on summer-fallow. The flax was not injured by frost, insects, or disease. Apparently the climatic conditions at this farm during 1929 and 1930 were not suited to growing wheat and flax in combination.

VARIETY TESTS OF FIELD PEAS ON FALLOW

Variety	Number of days maturing					Length of vine					Yield per acre					Relative yield; Mackay =100 per cent
	1926	1927	1928	1929	1930	1926	1927	1928	1929	1930	1926	1927	1928	1929	1930	
						in.	in.	in.	in.	in.	bush.	bush.	bush.	bush.	bush.	
Arthur Ott. 18.....	101	109	110	105	97	35·0	18·2	44·8	29·4	45·4	36·4	40·1	42·6	24·2	55·9	79·6
Cartier Ott. 19.....	102	113	109	108	101	40·0	24·8	45·4	25·4	51·8	37·8	50·2	56·0	23·2	51·1	87·4
Champlain Ott. 32.....	103	115	109	108	101	43·0	26·2	46·6	27·6	50·8	35·7	63·8	44·4	24·9	51·5	88·2
Chancellor Ott. 26.....	96	105	104	100	88	37·0	19·4	44·0	25·0	37·1	32·2	47·4	48·5	21·8	54·5	81·8
Dashaway Sask. 625.....	96	105	104	100	96	37·0	19·8	44·8	25·2	43·2	31 5	50·9	50·5	22·8	59·3	86·0
Golden Vine.....	103	116	109	105	99	44·0	26·4	46·6	27·8	46·6	35·0	65·1	47·5	24·6	53·2	90·2
Mackay Ott. 25.....	106	115	112	109	98	48·0	27·8	48·4	28·2	50·8	46·9	63·1	56·1	28·1	55·6	100·0

Field peas were sown May 14 at varying rates according to the size of seed. The season seemed to favour the growth of peas as fairly high yields were obtained. The Mackay pea still gives a good account of itself, although it was not the highest yielding variety during 1930.

CO-OPERATIVE TESTS WITH CEREALS

For several years past, with the assistance of selected farmers in the district, this farm has carried on co-operative tests with cereals, thereby securing much information to supplement that already gained on the plots.

During the past season seventeen farmers continued tests which they had started in 1928. A number of the better wheat varieties were included and in some cases several varieties of oats and barley.

Also, in co-operation with the Saskatchewan Wheat Pool, tests of wheat varieties were conducted by eighty-three boys and girls between the ages of twelve and eighteen years. These were located in Pool districts numbers one, six, seven, and eight and nine south of township twenty-nine. The Pool secured the co-operators, did most of the correspondence, met the cost of inspecting the plots and supplied a large sign to mark the plot. The Experimental Farm prepared and supplied the necessary seed, bags, labels, etc., met postal and express charges, threshed and weighed the harvested grain, completed the score cards and compiled the resulting data. Six varieties of wheat, Marquis, Reward, Garnet, Ceres, Supreme and Renfrew were included in the test. All plots were inspected after heading. The boys and girls did very satisfactory work and a great deal of reliable information has been obtained.

FIELD HUSBANDRY

CULTURAL EXPERIMENTS

The following experiments deal with methods of preparing land for field crops. Approximately four hundred and fifty one-fortieth-acre plots are used for this purpose. The summer-fallow, stubble treatments, breaking, rates, dates, and methods of seeding, manures and fertilizers, are included in the tests. These are arranged in rotations to accommodate the different treatments. The soil is a heavy clay. The average annual precipitation for the crop year August to July taken over a period of twenty-three years is slightly over eighteen inches. However, for the year 1929-30 it was only 11·85 inches.

SUMMER-FALLOW TREATMENTS

Project F. 144

Plot treatment	Average yield per acre 1924-30, wheat
	bush.
Ploughed 6 inches June 15 and cultivated as necessary	39·4
Fall ploughed 6 inches and cultivated during summer-fallow year	41·0
Fall disked before summer-fallow and cultivated as necessary during summer-fallow year, but not ploughed	40·0
Cultivated during summer-fallow year, but not ploughed	38·5
Ploughed 6 inches June 15 and cultivated as necessary	38·8

In Project F. 144 four different summer-fallow treatments are compared in order to discover the effect on yield and soil moisture. Throughout the whole period of the test none of the treatments has shown any marked difference on yield or soil moisture.

SUMMER-FALLOW SUBSTITUTES

Project F. 145

Plot treatment	Average yield per acre 1924-30		
	Yield of substitute	Wheat, 2nd year	Oats, 3rd year
	tons	bush.	bush.
Summer-fallow—ploughed 6 inches early in June	.....	35·6	56·1
Corn in rows 36 inches apart	4·85	25·0	39·1
Sunflowers in rows 36 inches apart	12·45	17·8	37·7
	bush.		
Potatoes in rows 36 inches apart	116·2	25·1	36·5
Oats in two drill rows 36 inches apart	24·2	20·7	34·8
Oats in three drill rows 36 inches apart	27·1	24·8	41·0
Summer-fallow—ploughed 6 inches early in June	.....	33·9	53·2
	tons		
Oats in two drill rows 36 inches apart, and cut for green feed	1·08	26·7	46·2
Oats sown ordinary way for green feed, July 1st (2¾ bushels per acre)	*1·39	20·0	44·2
	bush.		
Oats sown ordinary way (1 bushel per acre)	43·0	20·8	42·2
Summer-fallow—ploughed 6 inches early in June	.....	34·4	58·0
Wheat in two drill rows 36 inches apart	16·4	26·1	53·3
Wheat in three drill rows 36 inches apart	15·2	23·9	42·7
Wheat sown ordinary way (¾ bushel per acre)	17·5	18·8	39·4
Barley in two drill rows 36 inches apart	20·2	29·2	51·0
Summer-fallow—ploughed 6 inches early in June	.....	36·5	57·2
Barley in three drill rows 36 inches apart	18·3	28·0	47·3
	tons		
Hubam sweet clover in two drill rows 36 inches apart	*1·10	32·1	51·6
Millet in two drill rows 36 inches apart	1·56	34·9	60·2
Summer-fallow—ploughed 6 inches early in June	.....	38·6	*75·5

*Six year average only.

Summer-fallow and summer-fallow substitutes as a preparation for grain crops are compared in project F. 145. The substitutes include grain in rows, hoed crops and annual hay crops in rows. The yield of the substitute should not be overlooked when considering the different yields. Weeds were prevalent in all crops excepting those following summer-fallow, sweet clover and millet. The wheat following corn was a good sample but that following sunflowers and potatoes contained many piebald kernels.

STUBBLE TREATMENT FOR WHEAT

Project F. 146A.

Plot treatment	Average yield per acre, 1924-30
	bush.
Stubble ploughed in spring	32·8
Stubble ploughed in fall	35·4
Stubble burned in spring—seeded without cultivating	34·9
Stubble burned in spring—cultivated and seeded	35·8
Stubble ploughed in spring	33·3
Stubble disked in spring and seeded	31·5

In project F. 146A five methods of treating stubble wheat are compared. The fall ploughed plot appeared and yielded best during the past season. The previous year burning the stubble in spring with no cultivation gave best results. However, this plot usually has more weeds than the other plots where ploughing or cultivation is practised. Moreover, it is frequently difficult to burn the stubble satisfactorily in proper time for seeding.

STUBBLE TREATMENT FOR OATS

Project F. 146B

Plot treatment	Average yield per acre, 1924-30
	bush.
Stubble ploughed in spring	53·9
Stubble ploughed in fall	60·0
Stubble burned in spring—seeded without cultivating	58·8
Stubble burned in spring—cultivated and seeded	63·5
Stubble ploughed in spring	58·7
Stubble disked in spring and seeded	57·0

In project F. 146B the methods used on stubble wheat are repeated on stubble oats. As in the case with the wheat in F. 146A fall ploughing gave the heaviest yield of oats in this test during the past season. Nevertheless, it will be noted that burning the stubble in spring, cultivating and seeding has given the highest average yields throughout the test.

METHODS OF BREAKING BROME SOD

Project F. 147

Plot treatment	Average yield per acre, 1924-30		
	Hay treatment year	Wheat	Oats
	tons	bush.	bush.
Sod ploughed 5 inches deep immediately after hay crop was removed; disked and worked as required	1·68	16·4	39·3
Sod ploughed 5 inches deep immediately after hay crop was removed; disked and worked as required, and backset September 15	1·43	18·6	44·5
Sod ploughed 5 inches deep early in spring, and summer-fallowed throughout the year	.....	30·2	48·4

Project F. 147 covers three methods of breaking brome grass sod. The second method is the most satisfactory for eradicating the brome grass, as the brome is usually completely killed. The third method is the best preparation for the following crop and is fairly effective in eradicating the brome although it is not as efficient as the preceding method. The first method is not satisfactory as the brome is only partially killed. In considering the results the yield of hay should not be overlooked.

PLACE IN ROTATION TO SEED FALL RYE

Project F. 153

Method of seeding fall rye	Average yield per acre, 1924-30
	bush.
Seeded on summer-fallow August 15	36·4
Seeded with wheat in spring	14·5
Seeded on disked wheat stubble	27·8
Seeded with oats in spring	14·3
Seeded on summer-fallow August 15	32·6
Seeded on disked oat stubble	26·3
Seeded with oats for green feed June 21	22·6
Seeded when oats are 4 inches high	18·6
Seeded on summer-fallow August 15	30·4

Results in connection with seeding fall rye in grain rotation are shown in project F. 153. These favour the summer-fallow as being the best place to seed fall rye. Also, in normal years seeding fall rye on disked wheat or oat stubble has given good results.

DATES OF SEEDING SUNFLOWERS

Project F. 156

Date seeded	Average yield per acre, 1924-30		
	Sunflowers	Wheat	Oats
	tons	bush.	bush.
Seeded May 1	17·98	27·4	56·2
Seeded May 7	14·71	24·7	52·2
Seeded May 14	14·52	25·3	56·2
Seeded May 21	15·23	24·1	58·7
Seeded May 28	14·96	24·5	53·6
Seeded June 4	14·42	25·6	51·8
Seeded June 11	14·30	25·4	51·9
Seeded June 18	12·88	25·7	55·0

Project F. 156 covers dates of seeding sunflowers. Results show that sunflowers may be sown any time in May or early June with good results. At this farm wheat following sunflowers is usually piebald.

DATES OF SEEDING FALL RYE

Project F. 157

Date seeded	Average yield per acre, 1924-30	
	Rye	Oats
	bush.	bush.
Seeded July 1	23·5	71·6
Seeded July 15	25·9	64·9
Seeded August 1	27·3	62·3
Seeded August 15	28·4	61·6
Seeded September 1	34·1	61·8
Seeded September 15	36·2	64·1
Seeded October 1	33·0	61·2
Seeded October 15	33·7	59·6

Project F. 157 covers dates of seeding fall rye. Recommended dates for seeding fall rye in this district are between August 15 and September 15. Between these dates also a taller and heavier yield of straw is usually obtained.

METHODS OF SEEDING DOWN ALFALFA AND WESTERN RYE

Project F. 169A

Method of seeding down	Average yield per acre	
	1924-29, hay, first year	1924-30, hay, second year
	tons	tons
Seeded with wheat first crop after summer-fallow	1·73	2·14
Seeded with wheat second crop after summer-fallow	†2·11	2·14
Seeded with oats second crop after summer-fallow	2·00	1·92
Seeded with barley second crop after summer-fallow	2·20	1·95
Seeded with green feed oats second crop after summer-fallow	2·18	2·13
Seeded in spring on fall rye first crop after summer-fallow	1·98	2·31
Seeded in fall with fall rye first crop after summer-fallow	†1·57	*2·10
Seeded alone after summer-fallow wheat	3·19	2·38
Seeded with oats first crop after summer-fallow	2·17	2·60

*Six-year average only.
†Five-year average.

Project F. 169A shows the results of nine methods of seeding down hay or pasture mixtures 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. The best yields have been obtained from seeding without a nurse crop but this is not often practicable. The nurse crop has a value and helps to control weeds in the early stages of the crop growth giving the alfalfa and grass a chance to become established. As fall rye usually takes possession of the soil rather rapidly after germination it frequently happens that it does not make a satisfactory nurse crop.

CULTURAL METHODS FOR SUNFLOWERS

Project F. 179

Cultural method	Average yield per acre 1924–30		
	Sunflowers	Wheat	Oats
	tons	bush.	bush.
Seeded on spring ploughed ground, in rows 36 inches apart	15·22	24·5	47·0
Seeded on fall ploughed ground, in rows 36 inches apart	15·41	22·5	47·4
Seeded on fall ploughed ground, in rows 36 inches apart: plants thinned to 3 inches apart in rows	15·95	22·5	46·8
Seeded on fall ploughed ground, in rows 36 inches apart; plants thinned to 6 inches apart in rows	14·52	22·5	47·1
Seeded on fall ploughed ground, in rows 36 inches apart; plants thinned to 10 inches apart in rows	14·09	22·1	45·2
Seeded on fall ploughed ground, 42 inches apart; plants thinned to 6 inches apart in rows	12·87	21·4	43·0
Seeded on fall ploughed ground, in rows 30 inches apart; plants thinned to 6 inches apart in rows	14·18	20·8	45·4
Seeded on fall ploughed ground, in rows 36 inches apart; plants thinned to 6 inches apart in rows. Cultivated 6 times	12·60	21·3	45·0
Seeded on fall ploughed ground, in rows 36 inches apart; plants thinned to 6 inches apart in rows. Harrowed when coming up. Not cultivated	12·35	20·7	44·2
Seeded on summer-fallow, in rows 36 inches apart; plants thinned to 6 inches apart in rows	15·20	25·3	.....

Cultural methods for sunflowers are covered in project F. 179. The results are self-explanatory. Thinning to definite distances in the rows has not paid for the labour involved.

APPLYING BARNYARD MANURE FOR WHEAT

Project F. 189

Plot treatment	Average yield per acre, 1924–30	
	Wheat, on fallow	Wheat, second year
	bush.	bush.
No manure, stubble ploughed in fall	37·4	21·9
Eight tons rotted manure spread on summer-fallow and ploughed in	41·7	24·1
Eight tons rotted manure spread on first year stubble and ploughed in	35·8	25·1
Second year grain top-dressed with 8 tons of rotted manure immediately after seeding	37·3	22·0
No manure, stubble ploughed in fall	34·7	21·4

Project F. 189 deals with the application of barnyard manure for wheat. Eight tons of rotted manure are applied in three different ways. Spreading the manure on the summer-fallow and ploughing it in has given the best average results.

Applying Barnyard Manure for Corn

Project F. 192

Plot treatment	Average yield per acre, 1924–30		
	Corn	Wheat	*Oats
	tons	bush.	bush.
Oat stubble ploughed in fall; no manure	9·11	33·8	56·3
Eight tons rotted manure spread on oat stubble and fall ploughed	8·66	31·8	50·8
Oat stubble fall ploughed; 8 tons rotted manure applied after freeze up; disked in spring	9·32	30·3	50·3
Eight tons rotted manure applied in spring and ploughed in	8·82	30·7	54·0
Oat stubble ploughed in fall; no manure	7·97	28·9	49·3
Sixteen tons rotted manure spread on oat stubble and fall ploughed	10·70	33·6	56·4
Sixteen tons unrotted manure applied in spring and ploughed in	9·45	32·8	49·3
Oat stubble ploughed in fall; corn top-dressed with 8 tons rotted manure immediately after seeding	8·96	29·7	46·0

*Six-year average only.

Applying barnyard manure for corn is dealt with in project F. 192. Although no wide differences are apparent the highest yields have been obtained from the plot which had sixteen tons of rotted manure spread on oat stubble and fall ploughed.

Commercial Fertilizers for Wheat

Project F. 193

Plot treatment	Average yield per acre, 1924–30	
	Wheat, on fallow	Wheat, on stubble
	bush.	bush.
Twelve tons rotted manure applied previous to seeding stubble wheat	40·1	30·6
Complete fertilizer applied for summer-fallow wheat	42·6	28·0
One hundred pounds nitrate of soda applied previous to seeding stubble wheat	38·6	27·4
No manure	38·2	27·9
Three hundred pounds superphosphate applied previous to seeding stubble wheat	38·4	28·9
One hundred pounds muriate of potash applied previous to seeding stubble wheat	34·9	24·9
Complete fertilizer applied previous to seeding stubble wheat	35·5	24·6

The data presented in the foregoing table do not indicate any marked superiority of commercial fertilizers over barnyard manure. In this experiment the commercial fertilizer is applied by broadcasting over the surface of the plots.

Green Manure

Project F. 194

Plot treatment	Average yield per acre, 1924–30	
	Wheat	*Oats
	bush.	bush.
Summer-fallow ploughed 6 inches in June	34·4	51·7
Peas (2 bushels Chancellor) ploughed under early in July	37·1	57·2
Sweet clover, ploughed under late in July	33·8	56·5
Vetches (1 bushel common) ploughed under late in July	34·1	52·6
Summer-fallow, 12 tons barnyard manure ploughed in	35·1	50·0
Summer-fallow ploughed 6 inches early in June	26·4	39·1

*Six-year average only.

The object of project F. 194 is to obtain information regarding the effect of ploughing down a green manure crop in the summer-fallow. A similar

experiment carried on some years ago failed to show any advantage from ploughing down peas or vetches.

ROTATIONS

Seasons 1929 and 1930 have been detrimental to crop returns on the rotations under test. Hay crops were almost a failure, alfalfa and grass had to be resown, and corn suffered a serious set-back on account of drought and cutworms. Grain crops, however, gave good returns, ranging in yield from 16 to 36 bushels of wheat per acre. Coarse grains yielded equally well. Rotation "C," a straight grain system, shows a yield on stubble almost equal to fallow crop. On account of wild oats it was found necessary to cultivate and reseed the fallow block on May 26. This crop ripened in eighty-three days, yielding 24 bushels per acre of No. 1 wheat. Reward wheat was used in reseeding.

ROTATION "C"

A common grain rotation of three years duration. This type of farming encourages weeds and soil drifting.

ROTATION "C"—SUMMARY OF COST OF PRODUCTION

Rotation year	Crop	Yield per acre		Value of crop, 1930	Cost of production, 1930	Profit or loss per acre	
		1930	Average 5 years			1930	Average 3 years
		bush.	bush.	$	$	$	$
1	Wheat	24·15	27·92	15 69	12 89	2 80	12 93
2	Wheat	23·06	17·27	14 98	13 88	1 10	0 57
3	Summer-fallow				10 51	−10 51	− 9 08
	Totals for rotation			30 67	37 28	− 6 61	4 42
	Average per acre			10 22	12 43	−2 20	1 47

ROTATION "J"

This rotation is specially designed for mixed farming. However, over a period of years results have not been satisfactory.

ROTATION "J"—SUMMARY OF COST OF PRODUCTION

Rotation year	Crop	Yield per acre		Value of crop, 1930	Cost of production, 1930	Profit or loss per acre	
		1930	Average 5 years			1930	Average 3 years
		tons	tons	$	$	$	$
1	Hay (break)	1·155	0·89	13 86	11 09	2 77	−0 70
		bush.	bush.				
2	Wheat	23·23	30·39	15 10	23 25	−8 15	9 12
3	Oats	44·70	50·80	15 19	17 94	− 2 75	− 0 11
		tons	tons				
4	Corn	2·23	4·34	8 92	22 26	−13 34	−14 54
		bush.	bush.				
5	Wheat (seeded down)	16·17	29·20	10 51	16 22	− 5 71	9 61
			tons				
6	Hay	No crop	0·65		8 48	− 8 48	− 3 99
	Cost of reseeding alfalfa and grass				7 09	− 7 09	− 2 36
	Totals for rotation			63 58	106 33	−42 75	− 2 97
	Average per acre			10 59	17 72	−7 12	− 0 49

ROTATION "P"

This rotation of eight years' duration, suitable for live stock farming, carries a cash wheat crop, coarse grains, forage and pasture crops. Wheat following midsummer breaking yielded 26 bushels per acre. The wheat crop was damaged by rust.

ROTATION "P"—SUMMARY OF COST OF PRODUCTION

Rotation year	Crop	Yield per acre		Value of crop, 1930	Cost of production, 1930	Profit or loss per acre	
		1930	Average 5 years			1930	Average 3 years
		tons	tons	$	$	$	$
1	Corn	4·10 bush.	6·14 bush.	16 40	27 55	−11 15	−9 59
2	Barley (seeded down)	35·96 tons	33·31 tons	17 26	16 54	0 72	0 53
3	Hay (resown with barley, alfalfa and western rye)	0·62	1·21	3 10	9 64	−6 54	−0 52
4	Hay	1·23	1·36	14 76	10 28	4 48	3 60
5	Hay	0·89	1·32	10 68	9 92	0 76	2 68
6	Hay (break)	0·86	1·15	10 32	10 14	0 18	−0·11
7	Wheat	bush. 26·00	bush. 28·91	16 90	24 40	− 7 50	11 29
8	Oats	49·90	48·23	17 00	19 03	− 2 03	2 72
	Reseeding alfalfa and grass	.....	.....	.....	4 63	− 4 63	−1 54
	Totals for rotation			106 42	132 13	−25 71	9 06
	Average per acre			13 30	16 52	−3 21	1 13

ROTATION "R"

Rotation "R" is an excellent live stock rotation; however, it may be regarded as somewhat long for prairie conditions. It provides abundance of possibilities for live stock.

Wheat following corn yielded 36·7 bushels per acre and cost 49 cents per bushel to produce. Oats following wheat yielded 80 bushels per acre and cost 26 cents per bushel to produce.

ROTATION "R"—SUMMARY OF COST OF PRODUCTION

Rotation year	Crop	Yield per acre		Value of crop, 1930	Cost of production 1930	Profit or loss per acre	
		1930	Average 5 years			1930	Average 3 years
		bush.	bush.	$	$	$	$
1	Wheat	36·7	30·45	23 85	18 09	5 76	8 67
2	Oats	80·0	57·14	27 20	20 69	6 51	5 79
3	Summer-fallow	.....	.....	.....	13 30	−13 30	−11 76
4	Wheat	34·3	36·46	22 20	15 98	6 31	19 82
5	Oats (seeded down)	68·8	40·54	23 39	19 21	4 18	3 47
6	Hay	tons 1·316	tons 1·275	6 58	9 86	− 3 28	−0 06
7	Hay	0·958	1·514	11 49	9 48	2 01	4 87
8	Hay (break)	0·585	1·239	7 02	9 79	−2 77	−0 03
9	Corn	4·57	6·8	18 00	24 87	− 6 87	−5 86
	Reseeding alfalfa and grass	.....	.....	.....	3 36	−3 36	−1 12
	Totals for rotation			139 82	144 63	−4 81	23 79
	Average per acre			15 54	16 07	−0 53	2 64

WEED CONTROL

Rotation experiments under test provide an opportunity to study weed control. Where grass, legumes and hoed crops are grown, weeds are kept fairly well under control with good cultivation.

Rotation "C," however, provides a different condition. This is a three-year grain sequence which in a measure encourages weeds and soil drifting. In order to control wild oats, which are prevalent on this rotation, surface cultivation has been practised exclusively the past three seasons. In the spring of 1930 the fallow block was seeded to wheat on April 14. The crop was so seriously infested with wild oats that it was necessary to cultivate and reseed. This was done on May 26. The crop was harvested August 18 and threshed August 26, yielding 24 bushels per acre grading No. 1 with very little dockage.

It would appear that on weedy summer-fallows, and the use of Reward wheat, seeding may be delayed two or three weeks in order to control weed growth. Cultural and crop experiments are being tested for weed suppression.

FORAGE CROPS

The winter of 1930 had abundant snowfall and the biennial and perennial forage crops suffered little winter injury. Moreover, the season of 1930 was much more favourable for forage crop testing than that of 1929.

ENSILAGE CORN

The ensilage corn varieties were sown May 27 and 28. While germination and emergence were normal the crop made very slow progress during the earlier part of the growing season. Later on, however, recovery was rapid and very fair yields were obtained. On the basis of dry matter, it will be noted that Northwestern Dent is still the leading variety in average yield over the period tested, by several hundred pounds.

RESULTS WITH ENSILAGE CORN VARIETIES

Project Ag. 1

Variety	Source of seed	Height	Maturity at harvest	Yield per acre, 1930	
				Green weight	Dry matter
		in.		tons lb.	tons lb.
Burr Leaming	G. S. Carter	67·4	Tassel	7 1,700	1 1,215
Hybrid	Wimple	69·0	Early milk	7 620	1 1,121
Squaw	Dakota Improved Seed Co.	64·0	Milk	7 1,400	1 1,018
Yellow Assiniboine	O. Will	51·4	Dough	5 760	1 1,004
Gehu	Dakota Improved Seed Co.	50·8	Milk	6 320	1 922
Extra Early N.W. Dent	Steele, Briggs	55·6	Milk	5 1,600	1 897
Minnesota 13 (Haney strain)	A. E. McKenzie	61·8	Milk	6 480	1 862
Bailey No. 1	J. O. Duke	68·8	Cobs forming	6 1,660	1 801
White Cap Yellow Dent	Steele, Briggs	65·2	Tassel	6 1,840	1 761
Compton's Early	J. O. Duke	62·2	Early milk	6 820	1 726
Leaming No. 1	J. O. Duke	70·2	Early milk	6 800	1 700
Golden Glow	J. O. Duke	66·8	Early milk	6 840	1 691
Northwestern Dent (North Dakota grown)	A. E. McKenzie	52·2	Late milk	5 1,260	1 689
Northwestern Dent (Crookston)	A. E. McKenzie	60·6	Late milk	5 1,420	1 633
Northwestern Dent	Dakota Improved Seed Co.	57·2	Late milk	6 100	1 622
Longfellow	Popp & Lang	66·4	Early milk	6 1,200	1 605
Falconer	A. E. McKenzie	55·4	Late milk	5 1,680	1 596
Longfellow	J. O. Duke	68·2	Early milk	6 720	1 550
Yellow Dent	Wimple	63·6	Cobs forming	6 1,100	1 527
Northwestern Dent (South Dakota grown)	A. E. McKenzie	53·4	Dough	5 1,200	1 509
Northwestern Dent (Brandon strain)	Experimental Farm, Brandon	52·6	Dough	4 1,560	1 464
Wisconsin No. 7	J. O. Duke	63·2	Early milk	6 140	1 457
Northwestern Dent	MacDonald College	60·4	Milk	5 1,000	1 410
North Dakota White Flint	Steele, Briggs	62·8	Early milk	6 340	1 358
Amber Flint	Wimple	52·4	Early milk	4 1,900	.. 1,997
Quebec 28	MacDonald College	49·8	Early milk	4 380	.. 1,786
Manalta	Manitoba Ag. College	41·0	Late dough	2 260	.. 1,500

ENSILAGE CORN VARIETIES—EIGHT-YEAR AVERAGE

Project Ag. 1A

Variety	Source of seed	Height	Average yield per acre, 1923–30		Relative yield dry matter; Northwestern Dent = 100 per cent
			Green weight	Dry matter	
		in.	tons lb.	tons lb.	%
Northwestern Dent	A. E. McKenzie	60·6	9 1,052	1 1,617	100·0
Wisconsin No. 7	J. O. Duke	63·2	9 1,786	1 1,193	88·3
White Cap Yellow Dent	Steele, Briggs	65·2	8 1,917	1 1,176	87·8
North Dakota White Flint	Steele, Briggs	62·8	9 1,577	1 1,142	86·9
Golden Glow	J. O. Duke	66·8	8 1,583	1 1,123	86·3
Quebec 28	MacDonald College	49·8	9 397	1 1,109	86·0
Longfellow	J. O. Duke	68·2	9 1,358	1 1,080	85·2

MANGELS

Project Ag. 16 covers a test of several different types of mangels such as long, half long, intermediate, tankard and globe. The intermediate and half long which head the list in terms of dry matter yields are among the easier types to harvest.

RESULTS WITH MANGELS

Project Ag. 16

Type of root	Variety	Source of seed	Yield per acre, 1930		Average yield per acre, 1926–1930	
			Green weight	Dry matter	Green weight	Dry matter
			tons lb.	tons lb.	tons lb.	tons lb.
Intermediate...	Yellow Intermediate.....	Central Experimental Farm, Ottawa.....	16 1,560	2 1,104	11 1,567	1 1,203
Half Long.....	Giant White Feeding.....	Steele, Briggs.....	14 1,600	2 326	11 851	1 1,035
Intermediate...	Rosted Barres....	Hjalmar Hartmann Co., Copenhagen.....	17 1,840	2 616	12 1,790	1 959
Long.....	Giant Long Red..	A. E. McKenzie Seed Co., Brandon.....	17 120	2 460	11 1,558	1 833
Tankard.....	Eclipse.....	A. E. McKenzie Seed Co., Brandon.....	17 640	2 732	12 196	1 674
Long.....	Elevtham Mammoth.....	Hjalmar Hartmann Co., Copenhagen.....	17 360	2 542	10 1,137	1 663
Tankard.....	Yellow Eckendorfer.....	Hjalmar Hartmann Co., Copenhagen.....	17 1,640	1 1,938	13 597	1 612
Globe.....	Giant Yellow Globe.....	Steele, Briggs.....	17 480	1 1,938	13 237	1 575
Globe.....	Golden Globe....	Sutton, England..	14 760	1 1,880	10 673	1 436
Tankard.....	Red Eckendorfer.	Hjalmar Hartmann Co., Copenhagen.....	18 680	2 760	.....	.....

FIELD CARROTS

The carrot varieties covered in project Ag. 36 yielded much better in 1930 than in the previous year. The differences in average dry matter yields between the types included in the test are somewhat narrow for the period shown.

RESULTS WITH FIELD CARROTS

Project Ag. 36

Type of root	Variety	Source of seed	Yield per acre, 1930		Average yield per acre,	
			Green weight	Dry matter	Green weight	Dry matter
			tons lb.	tons lb.	tons lb.	tons lb.
Long.....	Long Red Surrey.	Steele, Briggs.....	5 1,880	.. 1,736	5 1,371	.. 1,421
Short.....	Improved Short White.....	Steele, Briggs.....	9 320	1 12	7 870	.. 1,415
Intermediate...	Danish Champion	Central Experimental Farm, Ottawa.....	7 1,800	1 86	5 1,918	.. 1,386
Intermediate...	Champion.....	Hjalmar Hartmann Co., Copenhagen.....	7 240	.. 1,720	5 1,947	.. 1,330
Short.....	Oxheart.....	H. McFayden, Winnipeg, Man..	7 120	.. 1,688	6 270	.. 1,322

SWEDE TURNIPS

In project Ag. 51 two types of swede turnips are compared, the globe and the oval. The globe type has given the best average results to date.

RESULTS WITH SWEDE TURNIPS

Project Ag. 51

Type of root	Variety	Source of seed	Yield per acre, 1930				Average yield per acre, 1926–30			
			Green weight		Dry matter		Green weight		Dry matter	
			tons	lb.	tons	lb.	tons	lb.	tons	lb.
Globe*	Bangholm	Experimental Farm, Kentville	11	1,640	1	1,674	9	1,460	1	676
Globe*	Bangholm	Experimental Farm, Nappan	9	640	1	724	8	1,640	1	417
Globe	Invicta Bronze Top	Wm. Rennie	12	1,000	1	1,320	9	1,618	1	284
Oval	Monarch	A. E. McKenzie	10	1,880	1	992	8	1,113	1	18
Oval	Improved Jumbo	Wm. Rennie	9	1,800	1	608	8	1,078	..	1,938

*Four year average only, 1927–30.

SUGAR BEETS

Project Ag. 66 deals with a test of sugar beets. The test is carried out in co-operation with the Division of Chemistry at Ottawa, who make chemical analyses of the roots. The green weight yields per acre for the past season are superior to those usually obtained under our conditions. Moreover, the beets were on the whole of medium size and uniform in shape. The Department of Chemistry states that the beets were of fair quality but not quite equal to those recommended for factory use.

RESULTS WITH SUGAR BEETS

Project Ag. 66

Variety	Source of seed	Per cent sugar in juice	Per cent co-efficient of purity	Yield per acre, 1930			
				Green weight		Dry matter	Per cent dry matter
		%	%	tons	lb.	tons lb.	%
Dippe	Dominion Sugar Co.	17·64	81·08	9	920	2 102	21·68
Fredericksen	" "	16·57	77·93	9	1,080	1 1,990	20·91
Rahbethege and Giessecke	" "	18·18	79·16	8	1,440	1 1,870	22·19

SUNFLOWERS

With the exception of the Mennonite variety, the yields obtained from the different sunflowers during the past season were fairly satisfactory when the character of the season is considered. On the whole the dry matter yield is better than usual. Although the Mammoth Russian is a late variety, it nearly always yields a heavy tonnage to the acre. The Ottawa No. 76 and the Manchurian are earlier maturing sorts furnishing a superior quality of silage although yielding less than the Mammoth Russian. The Mennonite is a very early variety from which it is nearly always possible to obtain mature seed.

SUNFLOWER VARIETIES

Project Ag. 76

Variety	Source of seed	Maturity at harvest	Height	Yield per acre, 1930		Average yield per acre 1928-30	
				Green weight	Dry matter	Green weight	Dry matter
			in.	tons lb.	tons lb.	tons lb.	tons lb.
Mammoth Russian.	K. McDonald.....	Milk.....	105	24 1,960	6 1,010	20 487	4 21
Mammoth Russian.	Dakota Improved Seed Co.	Early milk.	68	16 200	3 762	14 1,840	2 1,503
Ottawa 76...	Central Experimental Farm, Ottawa.	Early dough	79	11 1,080	2 616	14 7	2 663
Manchurian..	A. E. McKenzie Seed Co.	Milk.....	75	12 440	2 1,086	12 1,000	2 662
Mennonite...	Experimental Station, Rosthern.	Late dough.	64	4 1,480	1 296	8 253	1 1,010

ALFALFA

In project Ag. 126 only alfalfa varieties which are known to be winter hardy are included in the test. Cossack resembles Grimm in appearance but has a greater range of flower colour and more lighter coloured blossoms. Baltic is so like Grimm in appearance and performance that it is not possible to distinguish one from the other. Medicago falcata or Siberian alfalfa is a yellow-blossomed sort that differs markedly in habit of growth from the others in the test. It is less erect, slower to recover after cutting, and is more difficult from which to obtain seed.

RESULTS WITH ALFALFA VARIETIES

Project Ag. 126

Variety	Source of seed	Height	Yield per acre, 1930			Average yield per acre, 1928-30		
			Green weight	Hay	Dry matter	Green weight	Hay	Dry matter
		in.	tons lb.	tons lb.	tons lb.	tons lb.	tons lb.	tons lb.
Grimm.....	Alberta Seed Growers.....	23·2	7 970	1 1,881	1 1,415	12 1,323	3 799	2 1,083
Cossack.....	Dakota Improved Seed Co.....	22·2	7 1,000	1 1,866	1 1,402	12 875	3 738	2 1,929
Baltic.....	Dakota Improved Seed Co.....	23·8	8 230	2 119	1 1,625	11 1,665	3 565	2 1,778
Cossack.....	Paramount Alfalfa Farm.....	23·0	7 1,830	2 166	1 1,666	12 245	3 465	2 1,689
Ontario Variegated..	Peel County.....	20·3	5 1,600	1 1,264	1 873	11 135	3 196	2 1,452
Grimm.....	Steele, Briggs.....	22·3	6 1,730	1 1,428	1 1,017	10 1,808	3 18	2 1,206
Grimm.....	A. B. Lyman.....	20·8	6 830	1 1,217	1 831	11 188	3 2	2 1,282
Variegated....	Steele, Briggs.....	20·7	5 1,870	1 1,345	1 943	10 1,612	2 1,976	2 1,258
Grimm Sask. 451....	University of Saskatchewan.....	21·3	6 370	1 1,763	1 1,311	10 1,280	2 1,868	2 1,164
Grimm Sask. 666....	University of Saskatchewan.....	19·0	5 1,600	1 1,362	1 959	10 888	2 1,730	2 1,043
Medicago falcata.....	Paramount Alfalfa Farm.....	20·2	7 1,570	1 1,994	1 1,515	9 935	2 923	2 332

NOTE.—Only one cutting obtained in 1930.

RED CLOVER

In spite of the fact that the red clover varieties had plenty of snow protection during the winter of 1929-30, several of the varieties failed to survive. The varieties included in the test were sown in 1929, and good stands were obtained. The Italian varieties are seldom able to withstand the severity of the ordinary Saskatchewan winter and usually are completely winter-killed. Even for the hardiest red clover varieties the climatic conditions at this farm are frequently unsuitable.

RESULTS WITH RED CLOVER VARIETIES

Project Ag. 146

Variety	Height	Yield per acre, 1930					
		Green weight		Hay		Dry matter	
	inches	tons	lb.	tons	lb.	tons	lb.
Altaswede	29·0	9	100	2	1,280	2	646
Oxdrift	28·0	8	1,250	2	965	2	369
Swedish, Medium	26·5	8	800	2	475	1	1,938
St. Rosalie	27·5	8	150	2	314	1	1,796
Swedish, Late	25·0	5	1,150	1	767	1	435
*Ottawa	22·0	4	1,900	1	384	1	98
*St. Clet	22·0	3	200	..	1,590	..	1,399
North Italy	Winter-killed						
Swedish, Early	Winter-killed						

*Results from one plot only.

SWEET CLOVER

The sweet clover varieties compared in project Ag. 161 were sown in June, 1929. Even although the season was decidedly adverse good stands of all varieties were obtained. In this test yellow-blossomed sorts head the list in the matter of yield. In the previous test white-blossomed sorts proved the best. The Aberrant sort is a new and promising type developed at the University of Saskatchewan.

RESULTS WITH SWEET CLOVER VARIETIES

Project Ag. 161

Variety	Source of seed	Height	Yield per acre, 1930					
			Green weight		Hay		Dry matter	
		in.	tons	lb.	tons	lb.	tons	lb.
Yellow Blossom	International Harvester Co	32·0	8	1,630	2	769	2	197
Albotrea	O. E. Febock	28·3	8	200	2	569	2	21
Yellow Blossom	Steele, Briggs	27·0	7	1,830	2	474	1	1,938
White Blossom	Steele, Biggs	29·8	8	1,470	2	324	1	1,805
Grundy		28·7	8	200	2	141	1	1,644
Zouave No. 788	University of Saskatchewan	32·5	7	1,630	2	95	1	1,603
Maccor	Manitoba Agricultural College	26·5	7	1,170	1	1,604	1	1,172
Arctic	Sask. Seed Growers	32·2	7	70	1	1,429	1	1,017
Aberrant	University of Saskatchewan	27·8	6	1,600	1	1,339	1	938

WESTERN RYE GRASS

Project Ag. 221 covers a test of several strains of western rye grass. It will be noted that the differences in the average yields are not great.

RESULTS WITH WESTERN RYE GRASS

Project Ag. 221

Variety	Height	Yield per acre, 1930						Average yield per acre, 1928–30					
		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	20·0	1	1,600	..	1,670	..	1,470	4	1,043	2	331	1	1,812
Commercial	22·0	2	270	..	1,966	..	1,730	4	1,367	2	256	1	1,745
No. 13	25·3	2	200	..	1,937	..	1,705	4	523	2	254	1	1,744
No. 93	22·0	1	1,970	..	1,765	..	1,553	4	1,123	2	185	1	1,683
No. 97	21·0	2	570	1	30	..	1,786	4	1,290	2	179	1	1,677
No. 83	18·5	1	1,530	..	1,607	..	1,414	4	598	2	145	1	1,647
No. 54	18·0	1	1,670	..	1,764	..	1,552	4	579	1	1,974	1	1,497
No. 31	20·3	1	1,530	..	1,505	..	1,324	4	465	1	1,920	1	1,449
No. 19	22·8	2	370	1	8	..	1,767	4	525	1	1,899	1	1,431
No. 5	18·8	1	1,470	..	1,547	..	1,361	4	433	1	1,772	1	1,320

DATES OF SEEDING OATS FOR HAY

Results to date in project Ag. 242, as shown in the following table, have favoured the earlier seedings. Moreover, these can usually be cut before the rush of harvest takes place.

RESULTS FROM DIFFERENT DATES OF SEEDING OATS FOR HAY

Project Ag. 242

Date seeded	Date cut	Height	Yield per acre, 1930						Average yield per acre, 1925-30					
			Green weight		Hay		Dry matter		Green weight		Hay		Dry matter	
		in.	tons	lb.	tons	lb.	tons	lb.	tons	lb.	tons	lb.	tons	lb.
May 22	Aug. 12	38 0	5	980	2	1,203	2	579	5	1,893	2	989	2	402
May 15	Aug. 2	35·5	5	1,320	2	1,025	2	422	5	1,963	2	911	2	330
June 5	Aug. 20	33·5	4	1,020	1	1,742	1	1,293	5	327	2	547	2	8
May 29	Aug. 12	38·8	6	420	2	972	2	375	5	1,120	2	466	1	1,936
June 12	Aug. 20	33·5	5	380	1	1,665	1	1,225	5	203	2	422	1	1,898
June 19	Aug. 23	34·5	3	1,040	1	708	1	383	4	1,112	1	1,801	1	1,220
*June 26	Sept. 3	27·0	2	720	1	25	..	1,782	1	1,185	..	1,353	..	1,191
*July 3	Sept. 3	27·8	2	1,380	..	1,983	..	1,745	1	1,430	..	1,273	..	1,120
July 10	Sept. 3	16·0	1	160	..	713	..	627	..	....	..	....	..	....
July 17	Sept. 3	12·0	..	740	..	212	..	186	..	....	..	....	..	....

*Average 1929 and 1930 only.

STAGE OF CUTTING OATS FOR HAY

Project Ag. 245 deals with the best time to cut oats for hay. The three distinct stages after heading are considered, the bloom, the milk and the dough. Results to date favour cutting in the dough stage.

STAGE OF CUTTING OAT VARIETIES FOR HAY

Project Ag. 245

Variety	Stage cut	Height	Yield per acre, 1930						Average yield per acre, 1925-30					
			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....	44·0	11	360	4	1,305	4	188	9	1,657	4	343	3	1,342
Victory	Dough....	47·0	8	1,200	3	566	2	1,778	8	957	3	726	2	1,920
Gold Rain	Dough....	46·0	8	1,280	3	596	2	1,804	8	1,075	3	207	2	1,835
Leader	Dough....	43·0	7	720	2	1,636	2	959	7	293	2	1,620	2	946
Longfellow	Dough....	41·0	6	560	2	1,645	2	968	6	750	2	1,472	2	817
Laurel	Dough....	38·5	7	380	2	1,384	2	738	6	953	2	1,153	2	535
Alaska	Dough....	39·0	6	1,080	2	1,763	2	1,071	5	1,882	2	859	2	275
Banner	Milk.....	43·5	9	480	2	1,741	2	1,052	6	1,910	2	680	2	127
Laurel	Milk.....	28·0	7	1,640	2	1,241	2	612	6	1,188	2	492	1	1,954
Longfellow	Milk.....	42·0	8	680	2	1,423	2	772	6	1,193	2	451	1	1,917
Victory	Milk.....	30·5	8	880	2	1,264	2	632	6	1,397	2	423	1	1,803
Gold Rain	Milk.....	44·0	8	800	2	1,220	2	593	6	985	2	351	1	1,829
Leader	Milk.....	40·0	8	200	2	1,195	2	572	6	288	2	266	1	1,755
Victory	Bloom....	36·0	8	200	2	711	2	146	6	490	1	1,810	1	1,353
Alaska	Milk.....	40·0	6	1,360	2	700	2	136	5	631	1	1,653	1	1,203
Banner	Bloom....	36·0	8	480	1	1,987	1	1,508	5	1,947	1	1,356	1	953
Gold Rain	Bloom....	38·5	8	280	2	444	1	1,910	5	1,045	1	1,287	1	893
Laurel	Bloom....	36·0	6	1,640	2	41	1	1,556	5	200	1	1,148	1	709
Leader	Bloom....	37·0	7	1,720	2	378	1	1,853	5	237	1	1,074	1	705
Longfellow	Bloom....	37·5	6	1,680	1	1,902	1	1,434	4	1,805	1	718	1	392
Alaska	Bloom....	40·0	5	1,920	1	1,412	1	1,003	4	833	1	525	1	221

ANNUAL HAY CROP—GRAIN VARIETIES

In project Ag. 246 Banner Oats still head the list over the period tested. In the plot where oats and millet were sown together the millet failed during the season.

RESULTS WITH ANNUAL HAY CROPS—GRAIN VARIETIES

Project Ag. 246

Crop	Height	Yield per acre, 1930						Average yield per acre, 1926-30					
		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	38·0	6	1,380	2	850	2	268	9	888	3	555	2	1,767
Banner oats and Feeder barley	34·0	7	1,760	2	1,347	2	705	7	948	2	1,086	2	475
Chancellor peas and (p)	40·0												
Banner oats (o)	37·0	6	360	2	540	1	1,995	8	188	2	945	2	350
Banner oats and (o)	36·5												
Prolific spring rye (r)	46·0	7	180	2	1,222	2	596	7	288	2	938	2	345
Marquis wheat	35·0	5	60	2	198	1	1,694	5	1,456	2	936	2	342
Feeder barley	39·0	6	580	1	1,867	1	1,403	6	1,156	2	889	2	301
Mackay peas and (p)	29·5												
Banner oats (o)	35·0	6	1,700	2	930	2	338	8	320	2	793	2	216
*Mackay peas and Banner oats, (p)	34·5												
oats sown 10 days after peas (o)	38·3	6	1,380	2	898	2	311	5	1,107	2	79	1	1,590
*Banner oats and (o)	35·0												
Siberian millet (m)	Nil	5	1,340	2	585	2	35	4	1,873	2	56	1	1,569
Prolific spring rye	49·0	4	1,760	2	17	1	1,535	4	1,468	1	1,923	1	1,453
*Chancellor peas and (p)	33·0												
Banner oats, oats sown 10 days													
after peas (o)	35·8	5	1,360	2	144	1	1,647	5	333	1	1,602	1	1,170
*Prolific spring rye and (r)	42·5												
Mackay peas (p)	30·5	5	600	1	1,953	1	1,479	5	400	1	1,565	1	1,137

*Average 1928-1930 only.

ANNUAL HAY CROPS—LEGUMES

Annual legumes such as peas, vetches and Hubam sweet clover are compared in project Ag. 247. The results shown in the following table are self-explanatory.

RESULTS WITH ANNUAL HAY CROPS—LEGUMES

Project Ag. 247

Crop	Height	Yield per acre, 1930						Average yield per acre, 1926-30					
		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	35·0	4	160	1	429	1	137	7	1,708	2	430	1	1,899
Mackay peas and (p)	41·0												
Common vetches (v)	33·0	4	1,680	1	1,104	1	732	8	740	2	109	1	1,584
Common vetches and (v)	30·0												
Hubam sweet clover (s.c.)	24·0	3	1,460	1	474	1	177	7	448	1	1,742	1	1,293
Common vetches	25·5	3	1,300	1	295	1	20	6	1,852	1	1,688	1	1,246
Sand vetches	28·0	5	1,100	1	670	1	350	7	308	1	1,091	1	720
*Hubam sweet clover	27·0	2	860	..	1,402	..	1,234	4	935	1	195	—	1,932

*Average 1927-30 only.

ANNUAL HAY CROPS—GRASSES

In project Ag. 248 four varieties of millet and sudan grass are under test. Both the Siberian and Common millets have given good results to date. In spite of the fact that sudan grass is a taller growing plant than the millets, under our conditions usually it does not yield as well.

RESULTS WITH ANNUAL HAY CROPS—GRASSES

Project Ag. 248

Crop	Height	Yield per acre, 1930						Average yield per acre, 1926-30					
		Green weight		Hay		Dry matter		Green weight		Hay		Dry matter	
	in.	tons	lb.	tons	lb.	tons	lb.	tons	lb.	tons	lb.	tons	lb.
Siberian millet	24·8	5	1,600	2	58	1	1,571	6	440	2	556	2	8
Common millet	32·5	5	480	2	562	2	14	5	1,080	2	512	1	1,971
Japanese millet	29·0	4	60	1	112	..	1,859	6	576	1	1,398	1	990
Sudan grass	52·0	4	1,360	1	1,366	1	962	4	1,596	1	1,143	1	768
Hog millet	35·5	3	900	1	778	1	444	3	1,882	1	711	1	386

MISCELLANEOUS GRASSES

The grasses included in project Ag. 255 were sown in 1929. Owing to excessive drought and heat very poor stands indeed were obtained with some of the varieties although no great difficulty was experienced with crested wheat grass, western rye grass, brome grass, and meadow fescue. Crested wheat grass is included in the test for the first time and is a grass which without doubt will prove useful in prairie agriculture.

RESULTS WITH MISCELLANEOUS GRASSES

Project Ag. 255

Variety and pounds of seed used	Height	Yield per acre, 1930					
		Green weight		Hay		Dry matter	
	inches	tons	lb.	tons	lb.	tons	lb.
Crested wheat grass (15)	28·3	6	30	2	1,364	2	721
Western rye grass (15)	34·3	5	170	2	216	1	1,710
Brome (15)	41·2	3	1,730	1	822	1	483
Meadow fescue (30)	28·0	1	1,800	..	1,337	..	1,177
*Tall oat (30)	39·0	1	1,900	..	1,319	..	1,161
*Orchard (30)	26·0	1	1,300	..	860	..	757
Timothy (15) ..... Failed through drought							
Red top (24) ..... " "							
Canada Blue (24) .... " "							
Kentucky blue (24) .. " "							

*Results from one plot only.

HAY AND PASTURE MIXTURES USING ALFALFA AS A BASE

The results shown in the following table are not reliable and should not be used to compare the different mixtures listed. The mixtures were sown in early June, 1929, and in every case an excellent stand of alfalfa was secured but very poor stands of grass. In fact, the Canada blue, Kentucky blue, redtop and timothy failed entirely. The only excuse for presenting the results is the fact that they show that it was possible to secure excellent stands of alfalfa under conditions where some grasses could not survive.

RESULTS WITH HAY AND PASTURE MIXTURES USING ALFALFA AS A BASE

Project Ag. 259

Variety	Height		Yield per acre, 1930					
	Alfalfa	Grasses	Green weight		Hay		Dry matter	
	in.	in.	tons	lb.	tons	lb.	tons	lb.
Alfalfa and Canada blue	23·7	.....	12	600	3	1,384	3	498
Alfalfa and Tall oat	25·3	35·0	11	1,400	3	1,116	3	262
Alfalfa and Meadow fescue	24·0	26·0	11	1,450	3	1,071	3	223
Alfalfa and Kentucky blue	24·3	.....	11	1,700	3	987	3	148
Alfalfa and Red top	26·0	.....	11	1,950	3	971	3	135
Alfalfa and Orchard	24·0	.....	11	1,300	3	859	3	80
Alfalfa and Brome	21·8	34·5	11	650	3	856	3	33
Alfalfa and Timothy	22·5	25·0	11	1,800	3	820	3	1
Alfalfa and Western rye grass	22·0	25·0	10	140	3	624	2	1,653

HAY AND PASTURE MIXTURES USING ALFALFA AS A BASE AND WESTERN RYE GRASS

In project Ag. 259A the results of seedings in different years have been rather conflicting. Sometimes the high rates of seeding give highest yields and sometimes the low rates. It would appear that it is not necessary to sow the alfalfa heavily in order to obtain a good yield. This is important in view of the relatively high cost of alfalfa seed.

RESULTS WITH HAY AND PASTURE MIXTURES USING ALFALFA AS A BASE AND WESTERN RYE GRASS
Project Ag. 259A

Variety and pounds of seed used	Heights		Yield per acre, 1930					
	Alfalfa	W. rye	Green weight		Hay		Dry matter	
	in.	in.	tons	lb.	tons	lb.	tons	lb.
Alfalfa (8) Western rye (8)	23·0	34·0	9	1,850	3	535	2	1,751
" (10) " (14)	22·5	34·0	9	900	3	351	2	1,589
" (6) " (8)	22·3	33·5	9	950	3	296	2	1,540
" (12) " (10)	22·8	31·5	9	550	3	32	2	1,308
" (16) " (8)	21·5	31·0	8	1,850	2	1,988	2	1,270
" (10) " (8)	23·0	32·8	9	1,300	2	1,967	2	1,251
" (12) " (12)	23·5	33·5	8	1,900	2	1,942	2	1,229
" (10) " (12)	22·8	31·5	9	....	2	1,875	2	1,170
" (10) " (10)	22·0	31·8	9	250	2	1,845	2	1,143
" (10) " (2)	22·5	32·5	9	1,400	2	1,784	2	1,090
" (14) " (8)	22·5	33·0	8	1,850	2	1,634	2	958
" (12) " (8)	23·8	33·0	9	50	2	1,585	2	915
" (4) " (8)	23·0	33·5	8	350	2	1,520	2	857
" (10) " (6)	22·0	31·5	8	1,050	2	1,409	2	760
" (10) " (4)	22·5	32·5	9	550	2	1,269	2	637

HAY AND PASTURE MIXTURES USING SWEET CLOVER AS A BASE

In project Ag. 260 the stands of grass were not satisfactory although the stands of sweet clover were quite good. These mixtures also were sown in early June, 1929, and the sweet clover succeeded where the grass failed. The yields presented in the following table are not reliable.

RESULTS WITH HAY AND PASTURE MIXTURES USING SWEET CLOVER AS A BASE
Project Ag. 260

Variety	Heights		Yield per acre, 1930					
	Sweet clover	Grasses	Green weight		Hay		Dry matter	
	in.	in.	tons	lb.	tons	lb.	tons	lb.
Yellow sweet clover and Tall oat	29·3	34·0	9	950	2	1,267	2	635
" " " Timothy	27·8	24·5	9	650	2	1,144	2	526
" " " Canada blue	29·7	.....	9	1,250	2	1,138	2	521
" " " Red top	29·2	.....	10	100	2	1,051	2	445
" " " Brome	28·5	31·0	9	650	2	1,008	2	407
Arctic " " Timothy	38·0	36·0*	9	1,950	2	756	2	185
Yellow " " Kentucky blue	28·9	.....	8	1,400	2	642	2	85
" " " Orchard	28·3	.....	8	300	2	527	1	1,984
Arctic " " Western rye grass	36·7	36·8	8	350	2	523	1	1,980
Yellow " " Alfalfa	27·9	19·5	8	300	2	438	1	1,906
" " " Meadow fescue	26·5	24·0*	8	100	2	425	1	1,894
Arctic " " Orchard	40·0	38·0*	9	900	2	416	1	1,886
" " " Meadow fescue	38·8	36·0*	9	500	2	304	1	1,788
Yellow " " Western rye grass	28·5	21·5	7	1,800	2	294	1	1,779
Arctic " " Tall oat	40·0	43·0	9	400	2	289	1	1,774
" " " Kentucky blue	37·0	.....	9	350	2	159	1	1,660
" " " Red top	36·3	.....	8	1,250	2	45	1	1,559
" " " Brome	38·0	39·0	8	350	2	20	1	1,538
" " " Canada blue	36·3	.....	8	1,150	1	1,911	1	1,442
" " " Alfalfa	32·5	21·8	6	1,850	1	1,668	1	1,228

* This grass in one plot only.

GRASSES AND CLOVERS IN COMBINATION

The experience with the 1929 seeding under project Ag. 264 is simply a repetition of those of the 1929 seedings under projects Ag. 259 and Ag. 260. In this case the sweet clover and the alfalfa succeeded as before, while the grass failed or gave only a partial stand. The yields should be disregarded.

RESULTS WITH GRASSES AND CLOVERS IN COMBINATION

Project Ag. 264

Variety	Heights			Yield per acre, 1930		
	Sweet clover	Alfalfa	Grasses	Green weight	Hay	Dry matter
	in.	in.	in.	tons lb.	tons lb.	tons lb.
Arctic sweet clover, alfalfa and tall oat	39·7	29·5	39·5*	10 850	2 1,201	2 577
Arctic sweet clover, alfalfa and timothy	37·5	29·2	37·0*	9 1,250	2 1,147	2 529
Yellow sweet clover, alfalfa and timothy	25·8	19·5	23·0*	9 650	2 1,017	2 415
Yellow sweet clover, alfalfa and meadow fescue	27·1	20·5	29·0	9 200	2 966	2 370
Arctic sweet clover, alfalfa and Kentucky blue	38·5	29·5	.....	9 1,850	2 842	2 261
Arctic sweet clover, alfalfa and orchard	36·9	29·1	.....	9 200	2 803	2 226
Yellow sweet clover, alfalfa and orchard	28·7	22·4	26·0*	9 200	2 757	2 186
Yellow sweet clover, alfalfa and Kentucky blue	29·4	21·9	.....	8 1,850	2 735	2 167
Arctic sweet clover, alfalfa and meadow fescue	36·4	29·5	33·0*	9 100	2 606	2 53
Yellow sweet clover, alfalfa and tall oat	28·0	22·6	29·9	8 950	2 534	1 1,990
Yellow sweet clover, alfalfa and red top	28·9	21·7	.....	8 1,100	2 533	1 1,989
Yellow sweet clover, alfalfa and western rye grass	25·9	19·2	25·0*	8 550	2 531	1 1,987
Yellow sweet clover, alfalfa and Canada blue	28·1	21·4	.....	8 600	2 528	1 1,985
Yellow sweet clover, alfalfa and brome	27·9	20·5	33·3	8 650	2 511	1 1,969
Yellow sweet clover and alfalfa	27·7	20·7	.....	8 100	2 509	1 1,968
Arctic sweet clover and alfalfa	36·4	25·7	.....	8 200	2 380	1 1,854
Arctic sweet clover, alfalfa and brome	38·4	28·4	40·9	8 750	2 347	1 1,825
Arctic sweet clover, alfalfa and western rye grass	35·4	26·2	37·3	7 800	2 58	1 1,571
Arctic sweet clover, alfalfa and Canada blue	33·0	24·0	.....	7 1,300	1 1,974	1 1,497
Arctic sweet clover, alfalfa and red top	35·0	24·0	.....	6 1,250	1 1,610	1 1,177

*This grass in one plot only.

HORTICULTURE

The season of 1930 was unusual in several respects. The previous winter had been long and cold, but the permanent snow came so early that the ground was frozen for only a few inches; hence, there was very little root injury of any kind. On the other hand, the previous season had been very dry, and 1930 was dry except during June, which, together with the cold winter, resulted in considerable killing of buds and twigs of many trees and shrubs. Part of this injury was seen early in the spring, but much more developed as the season progressed.

Because of the brief rainy period during early summer, the salad types of vegetables which matured during or immediately after this period were particularly fine. This was followed by very dry weather, which caused the late summer and fall vegetables to be poor. However, a few crops which delight in warm growing conditions were greatly benefited by this hot, dry period, producing crops which have not been equalled for a number of years.

FRUITS

APPLES.—The apple crop was very conspicuous by its absence. The crop of the previous year had been one of the heaviest in the history of the farm, which resulted in a very small number of fruit buds being set in the fall of 1929. This, combined with poor weather at pollination time caused the crop to be so small that there was scarcely enough fruit to produce two pounds of apple seed.

PLUM.—The crop was good on the seedling plums, making it possible to test the various seedlings for quality and season. Those which were too late or poor in quality were discarded.

The named varieties of plums did not do as well this year; the trees are still young, they bore heavily last year and there was considerable winter injury to the buds. New varieties are constantly being added to the orchard, which will give us some idea of their relative value, but at present we can say nothing regarding these recent introductions.

STRAWBERRIES.—In 1930 there was no fruiting strawberry patch, as the dry weather of the previous year killed most of the plants. A collection of about a dozen varieties was obtained and set out in an area where it will be possible to water them. When sufficient stock has accumulated it is planned to set out two beds of each variety, one to be watered and one to be dry farmed (the plants in the latter being set out much farther apart). It is hoped that it will be possible to increase our knowledge of this fruit for both the country and city dweller for this region by this means.

RASPBERRY.—The raspberry crop was poor, due to the dry weather of the previous year and the presence of some red spider.

CURRANTS.—In 1930 the Red and White currants all did very well, and the Black currant crop was a failure. Holland yielded 52 pints and Victoria yielded 50 pints of fruit, which was much higher than any other red fruited variety. The results from the White currants were surprisingly good, when one considers the past performance of these varieties; White Dutch yielded 65 and Large White yielded 51 pints.

The Black currant had a fair amount of blossom, but the activity of the Currant Fruit Fly, the dry weather and the tremendous crop of the previous season caused the crop to be almost nil. The average was less than one pint of fruit per bush.

VEGETABLES

The vegetable garden was much closer to normal in 1930 than in the previous year, though the early vegetables were the fine ones; those later in the season suffering in varying degrees from drouth.

When the supply of moisture in the soil is below normal, it would seem to be desirable to plant the vegetables much farther apart than is done normally. If weeds are controlled under these conditions, a partial summer-fallow is created enabling fine vegetables to be produced, where a crop failure would have been the normal result.

ASPARAGUS.—This is a vegetable that is well worth growing, provided there be plenty of land available. True, when plants are set out in the spring, a year must elapse before one may even taste creamed asparagus, and two years before any appreciable amount may be cut. The first cutting here was made on April 30, and the vegetable was harvested regularly for over six weeks. Mary Washington is the best variety, because it is resistant to disease.

BEANS—VARIETY TEST.—The results from this year's crop agree fairly well with results in the past. Interloper Challenge Black Wax, Princess of Artois and Davis White Wax were among the best varieties. Masterpiece also was productive but it proved to be susceptible to Bacterial Blight, which destroyed over half the crop in some of the plots.

BEETS—VARIETY TEST.—Two long, and a number of short varieties were tested in 1930. The long varieties are not adapted to our heavy soil, and they

are despised by the cooks. Early Model, Black Red Ball, Crosby Egyptian and Detroit Dark Red produced good crops, and were of fine quality.

BORECOLE OR KALE—VARIETY TEST.—This crop is usually very successful in this region. However, there are so many other vegetables of high quality that are available during the season of borecole that it seems to be a waste of time to bother with it.

CABBAGE—VARIETY TEST.—The early cabbages had a special advantage this year, due to the moist May and June and the very dry, hot July and August. Hence, Golden Acre, while being the first to mature, also produced the heaviest heads in the patch. Such varieties as Danish Ballhead and Danish Cannonball which are used for winter storage made rather poor heads.

CAULIFLOWER—VARIETY TEST.—The early varieties were much the best in 1930, because of the season's vagaries, and because the later ones were damaged less by the larvae of the cabbage butterfly. Three different strains of Snowball, and two of Early Dwarf Erfurt gave satisfactory yields having satisfactory quality.

CARROTS—VARIETY TEST.—Chantenay and Nantes, both half long types, produced nice shapely roots that could be used during the summer or could be stored for winter. The long varieties are not very satisfactory in our heavy soil; they require so much careful work to dig.

CORN—VARIETY TEST.—The year 1930 was favourable to corn; plenty of early moisture, high night temperatures, and no killing frost until a much later date than usual. These conditions enabled the later varieties to produce far better crops than they normally would have done.

Pickaninny was the outstanding variety, being early, and yet possessing very high quality. It is a true sugar corn, even though it is dark in colour. Golden Gem, which ripened about the same time, is another sugar corn, but Early Adams is not of this type, and is not recommended unless Pickaninny should not succeed.

CORN—DATES OF SOWING.—Good crops of corn have been raised for two consecutive years from seed planted during the first week in May. The early varieties will sometimes produce a crop when sown as late as June 11 (1930 experience) but in other years June 1 (1929 experience) is the very latest safe time for planting. Banting was the variety used.

CUCUMBERS—VARIETY TEST.—Little can be said at the present time about the cucumbers. Early Russian gave the heaviest yield for the first picking, but afterwards differed very little from the other varieties. China was the best quality cucumber grown, but it is so late that it is of doubtful value unless started in a hotbed. The following table shows the results from five hills of each variety.

RESULTS WITH CUCUMBERS, 1930

Variety	Seedsman	Date of sowing	Yield during week of August 18 to 23	Yield during week of August 25 to 30	Yield during September	Total yield	Average weight of fruit
			lb. oz.	lb. oz.	lb. oz.	lb. ox.	oz.
1. Davis' Perfection	Graham	June 12	21 8½	20 9½	8 4½	50 6½	6·06
2. Early Russian	Burpee	June 12	20 3½	17 5½	8 7½	46 0¾	3·51
3. XXX Table	Rennie	June 12	16 14¾	22 8	13 4¼	52 11	8·00
4. Giant Pera	D. & F.	June 12	19 2¾	19 3½	13 8¾	51 15	6·54
5. Early White Spine	Harris	June 12	16 12½	35 13¾	9 4½	61 14½	5·93
6. Early White Spine	Bruce	June 12	26 11	21 5½	15 11¼	63 11¾	4·78
7. Long Green	Rice	June 12	19 0¼	19 12¼	12 0¾	50 13	5·02
8. China	Harris	June 12	2 10	5 0¾	12 2¾	19 13	5·86

HERBS—VARIETY TRIALS.—As in past years, lavender, rosemary, and thyme were failures, while horehound, sage and summer savory produced very satisfactory crops.

KOHL RABI—VARIETY TEST.—This vegetable may be sown in the hotbed and grown in the same manner as one would grow its close relative the cabbage, except that the plants are placed about 6 inches apart in rows 2 feet apart, or the seed may be sown directly in the garden. Quality is highest when the bulb-like stems reach the size of tennis balls. They are then used as a substitute for cauliflower, for which purpose it serves extremely well.

LETTUCE—DATES OF SOWING.—To produce head lettuce one must have plenty of moisture. Good heads were produced from seed sown as late as July 5, but this practice is not to be generally recommended; the experience here has been that results are not certain after June 1.

LETTUCE—VARIETY TRIALS.—Grand Rapids still appears to be the best variety of leaf lettuce. Tranion Cos is an unusual type of heading lettuce. It possesses a flavour all its own, and is worth a trial. Head lettuce seed was sown on May 6, and the last records of the crop were taken on July 26.

RESULTS WITH HEAD LETTUCE, 1930

Variety	Seedsman	Per cent plants edible on July 26
Wonderful	Wills	30
New York	Graham	10
Salamander	McDonald	90
Iceberg	Ewing	5
Crisp-as-Ice	Wills	20
Prize Head	Burpee	70
Brittle Ice	Burpee	75
Big Boston	Graham	60
Giant Crystal Head	Vaughan	5
California Cream Butter	Brand	65

It will be seen that Giant Crystal Head was in eatable condition longer than the other varieties. As this has been the experience in the past five years, this variety is recommended for general use.

MUSKMELON—VARIETY TRIAL.—Five varieties of muskmelons were grown from seed sown outside. None produced fruit that was eatable though many fruits reached full size. As 1930 was such a satisfactory year for other warm season crops, it must be concluded that it is almost hopeless to try to grow the muskmelon, on our heavy land, from seed sown outside. But if a variety, such as Golden Champlain, be started in the hotbed about the first of May and grown to maturity there, as fine a crop should be produced as can be grown anywhere.

ONIONS—VARIETY TEST.—As in other years, only one variety, Early Flat Red, was fully matured in time for storage. The other varieties may rate higher in quality and appearance, but for winter storage they are seldom successful unless started early and transplanted.

PARSNIPS—VARIETY TRIALS.—Hollow Crown, Guernsey, and Champion are still the recommended varieties with very little to choose between them. Parsnip seed should be fresh, otherwise almost certain failure awaits the gardener, as germination will be very poor.

PEAS—VARIETY TRIALS.—Due to the efforts of plant breeders, we now possess varieties of peas which vary widely in their picking season. In the table is shown the date when half the crop of a variety has been sent to the kitchen. Remarks regarding the picking season are needed in only three cases: One of the strains of Alaska is much later than are the strains from other sources, Thos. Laxton has a particularly long picking season for so early a pea, particularly a sugar pea, Stratagem is so late as to be valuable in the production of a late crop.

In sowing peas, one should remember that the smooth seeded varieties, like Alaska, will withstand considerable cold raw weather, but they are not as sweet as are the wrinkled ones. Hence it would be wise to make a few *very* early sowings of, say, Alaska, and follow these with sowings of the wrinkled varieties.

DATE WHEN HALF THE TOTAL CROP OF PEAS WAS PRODUCED

Variety	Seedsman	July																			Yield from 30-foot rows	
		10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	lb.	oz.
Alaska	Burpee		x																				12	14¼
Thos. Laxton	McDonald			x																			15	7¼
Alaska	Dupuy & Ferguson			x																			15	8½
Six Weeks	Childs				x																		16	7¼
Eldorado	Sharp					x																	13	9½
Laxtonian	Graham						x																15	15
Pioneer	Gregory						x																13	5¼
Director	Invermere							x															14	9½
Invermere No. 6	Invermere									x													18	9¼
Kootenay	Invermere										x												11	8
Blue Bantam	Graham										x												15	5
Alaska	Steele, Briggs										x												13	8¾
McLean Advancer	Ferry												x										15	14½
Sutton Excelsior	Dreer												x										19	5¾
Bruce	Invermere													x									12	9¾
Invermere No. 42	Invermere													x									18	10
Lincoln	Sharp													x									18	8
Admiral Beatty	Sharp													x									15	1½
Telephone	Dupuy & Ferguson														x								17	0¾
Senator	Dupuy & Ferguson														x								20	15¾
Stratagem	Graham																				x		14	13¼

PEPPER—VARIETY TEST.—The pepper is not usually very successful in this district, but 1930 was so favourable to warm season crops that a moderate crop was produced. It will be seen in the table that certain varieties, even under such good conditions, produced very little fruit.

RESULTS WITH PEPPERS, 1930

Variety	Seedsman	Date sown	Number of plants	Weight produced per 30-row row		Average weight per fruit
				lb.	oz.	oz.
Golden Queen	Burpee	Mar. 31	8	5	15¾	1·100
Monstrous	Herb	" 31	8	4	0½	1·240
Harris' Earliest	Harris	" 31	8	3	15¾	0·873
Sweet Gnome	Herb	" 31	8	3	13¾	1·810
Verticus	Herb	" 31	8	3	0½	0·630
Long Red Sweet	Herb	" 31	8	1	6¾	1·420
Giant of China	Herb	" 31	8	1	2¼	0·630
Capsicum	Herb	" 31	8		9¼	0·355

POTATOES—VARIETY TRIALS.—This season, the Federal Division of Botany of the Experimental Farm co-operated with their potato trials, planting all the varieties in one field. The results from this work are shown in the following table.

It will be seen that the three leading varieties are not very common (their yields were calculated from only two plots each) but the next three varieties have all been tried by time and found good. When one considers that the results of this group are calculated from ten or more plots each, it must be concluded that Irish Cobbler, Early Ohio and Bovee are still equal to the best. Wee McGregor and Bliss Triumph are two old favourites that did not show up quite as well this year, but they have done too well in the past to be criticized.

YIELDS OF MARKETABLE POTATOES

Variety	Number of plots	Yield per acre
		bush.
Rochester Rose	2	255·89
White Ohio	2	243·79
Epicure	2	240·79
Irish Cobbler	18	232·71
Early Ohio	16	230·96
Bovee	10	230·96
Carter Early Favorite	2	229·27
Lady Lewellyn	6	229·08
Burpee Early	2	227·48
Gold Nugget	6	218·82
Green Mountain	6	218·38
Earliest of All	2	206·28
Wee McGregor	4	196·60
Peerless	2	194·81
Bliss Triumph	4	188·47
Ashcroft	2	188·13
Gold Coin	2	158·51
Dooley	2	154·25
Golden Russet	2	150·04
Burbank	8	149·12
Carman No. 3	2	111·90
Early White Prize	1	84·70
Manistee	2	61·08

PUMPKIN—VARIETY TESTS.—Four varieties were grown: one of the large fruited types and three of the smaller fruited types. For general use it will be found that the smaller varieties are the most satisfactory; they do not bruise as easily, they are a handier size for the kitchen which results in less waste, and usually a much larger proportion of the crop matures by picking time.

RESULTS WITH PUMPKINS—1930

Variety	Seedsman	Number of hills	Date of sowing	Average weight of fruits	Number of fruits	Total weight
				lb.		lb.
Connecticut Field	McD	3	June 12	10·45	22	230
Small Sugar	Graham	3	June 12	3·33	26	86½
Pie	Brand	3	June 12	3·1	25	77½
Sweet, or Sugar	0-11015	3	June 12	3·3	31	102

RADISH—VARIETY TEST.—Most of the early radishes produced crops of good quality. Slightly later than these varieties, but of very high quality is the Long White Icicle. This variety remains edible during the hot dry weather for a much longer period than do the other varieties.

The winter radishes, such as Long Black Spanish, Round Black Spanish, etc., are not usually very successful in this locality because of maggot infestation.

RESULTS WITH RADISHES, 1930

Variety	Seedsman	Date of sowing	First ready	Per cent edible on June 24
Scarlet Turnip White Tipped	Graham	May 3	June 15	60
Long White Icicle	D. & F.	May 3	June 15	95
XXX Scarlet Oval	Rennie	May 3	June 15	55
Improved French Breakfast	Rennie	May 3	June 12	88
Saxa	Rice	May 3	June 14	45
Saxa	McKenzie	May 3	June 14	48
Scarlet Globe	S.B.	May 3	June 15	33
Twenty-day	Vaughan	May 3	June 14	66
Long Scarlet Chantier	Ewing	May 3	June 16	none

SPINACH—VARIETY TRIALS.—This crop was particularly good in 1930 because of the rainy June. But even in conditions, such as these, there was a great variation between the varieties in their tendency to go to seed, as is shown in the table. During the latter part of the summer New Zealand spinach (which is not a true spinach) was the only one of value, for it thrives during very hot weather, practically never goes to seed in this climate, and lasts until frost.

RESULTS WITH SPINACH—1930

Variety	Seedsman	Length of row	Date of sowing	Condition on June 25
		ft.		
Giant Leaf	Stokes	25	May 6	None showing seedstalks.
Princess Juliana	Rice	25	May 6	None showing seedstalks.
King of Denmark	Harris	25	May 6	All still fit for table use.
Juliana	Harris	25	May 6	Just a trifle too far gone for use.
King of Denmark	Graham	25	May 6	About half the plants gone to seed.
Victoria	McDonald	25	May 6	Eighty per cent gone to seed.
Bloomsdale or Longstanding	McDonald	25	May 6	Ninety per cent gone to seed.
Big Crop	Harris	25	May 6	Almost all plants gone to seed.
New Zealand	Graham	25	May 6	This was ready for use about July 28 and lasted until frost.

SQUASH—VARIETY TRIALS.—There is such a tremendous variation in quality among the various types of squash, that yield details mean very little. For summer use, the Long White Bush produces very large crops of fair quality fruit. For winter use, the various strains of Hubbard, such as Golden Hubbard, Delicious, Kitchenette, as well as the true Hubbard all produce good crops of very high quality, which can be stored until spring.

Another high quality type, which is used during the late fall and winter, is the Table Queen or Des Moines. As they are so tiny, rarely weighing over $1\frac{3}{4}$ pounds, they are of little value for regular cooking, but if they are cut in half lengthwise, baked in the oven with a trace of brown sugar and butter and served on the half shell, they will be found to be very delicious with a flavour resembling sweet potatoes.

TOMATO—VARIETY TEST.—Tomato seed was sown under glass on April 15 and the plants were transplanted from the flats to the field on June 10. This was the only time during the season that the plants were watered. The large crops that were obtained in a year with insufficient moisture for many late summer crops, is partly attributed to the greater than normal planting distance: 4 feet by 4 feet.

The plants were pruned to a single stem, the side branches being removed from the axils of the leaves when only an inch or two in length. The single stems

were tied to stakes, and when three trusses of blossoms and fruit had been formed, the growing point was pinched out. The plants at this time were slightly more than 4 feet tall.

In the table, the results are totalled for fortnightly periods, though the fruit was picked from the eight uniformly distributed plants at two or three-day intervals. Particular attention should be paid to the first column of the table, as this gives one an idea of the earliness of the crop; in fact, one would be foolish to grow any variety, in our conditions, which came lower than the first dozen or so in this list. The exact relationship of these dozen will probably be changed in other years, but all should stand very high in the early yields.

The last variety in the table, Wonder of Italy, should be noted. It is absolutely useless as far as ripe fruit is concerned; it ripens so late. The fruit is somewhat similar to other small fruited varieties, is very small and neat, weighing about $\frac{3}{4}$ ounce each. It is of value for pickles, preserves where the fruits may be used in the whole condition.

RESULTS WITH TOMATOES—1930

Variety	Seedsman	Amount of fruit ripe					
		Aug. 4-16		Aug. 18-30		Sept. 1-13	
		lb.	oz.	lb.	oz.	lb.	oz.
Herald	0-9726	11	1¾	8	15¼	9	2¼
I. x L.	Patmore	9	14	9	5	8	5
Burbank	Stark	9	12½	9	8½	10	11¾
Earliana	Moore	9	3¾	7	15¼	9	13½
Prosperity	Patmore	8	12	7	15¾	5	14½
Penn. State Earliana	Stokes	8	11½	7	2¾	10	11¼
Wayahead	Bruce	8	3¾	6	15¼	9	4¼
Canadian	McK	7	15½	6	1½	9	6¼
Gregory	Gregory	7	9½	8	0	8	7¼
Earliana Gr. No. 2	Langdon	6	9¾	8	6¼	6	15
Alacrity	0-6305	6	0¾	7	11¼	8	10
Sparks Earliana	McD	5	15¾	10	8½	7	9¾
Earliana	McKenzie	5	14¼	6	14¾	10	2½
Alacrity x Earlibell	0-11385	5	13¾	10	2¼	13	11¼
Express	Herb	4	12½	10	6¼	11	4¾
Beauty of Lorraine	Herb	4	10¾	11	11½	9	11½
John Baer	S.B	4	9¼	8	0¼	8	12¾
Avon Early	Dreer	4	6¼	10	6¼	7	15¾
Viking	U. of N.D.	3	1¼	11	3¼	9	14¾
Langportonian	Kelway	2	13	12	9¼	7	6¼
Alacrity x Bonny Best	0-11389	2	12	9	6¾	7	2½
Chalks Early Jewel	S.B	2	10½	5	5½	8	1
Pink No. 2	0-9730	2	7¾	12	1¾	6	2¼
Fargo	U. of N. D.	2	6	10	4¼	8	7
Bonny Best	Stokes	2	4	7	11¾	9	8¼
Livingston Globe x Bonny Best	0-1813	2	3½	12	1	8	1¾
Marvana	Rice	2	2½	10	3¾	9	8
Snowe	Herb	2	1½	5	4¼	6	10
Pink No. 1	0-9731	2	0	7	5½	10	1
Paris Market	Herb	1	15½	6	5½	9	2¾
Bloomsdale	Landreth	0	14¼	2	15¾	7	15¼
Jewel	Langdon	0	12¾	3	12¾	9	10¾
First of Best	Bruce	0	9	4	5¾	8	3½
Marglobe	Stokes	0	5	1	2	8	1¾
Wonder of Italy	Herb	0	3½	2	10¾	11	6¼

TURNIPS—VARIETY TEST.—The summer turnip has not proved to be very popular here because it enters into competition with many higher quality vegetables when grown as a spring crop, and it competes with its close relative of high quality, the Rutabaga, when grown as a fall crop.

MULCHING FOR VEGETABLES.—Several different methods of moisture control were tried in 1930. Mulch paper, which resembles tar paper, but is odourless, was compared with regular garden cultivation for Swede turnips, cucumbers and

two varieties of corn. Increases in crop varied from 25 per cent to 45 per cent. The differences in the ability to withstand drying winds were very marked, those plants under the mulch paper rarely wilted and this occurred frequently in the other plot. Whether or not this method of culture will pay for itself is still in doubt; the paper is moderately expensive and the work of laying it is considerable. Against this we find a moderate increase in crop and no weeds to pull.

The above is an extension of an experiment in which Swede turnips were grown under mulch paper, straw, garden mulch and no cultivation (but weeds all pulled). The yields were as follows:—

	Yields per 30 foot row
Weeds pulled by hand, no cultivation	159 pounds
Check, clean cultivation	173½ "
Strawy manure, 6 inches thick	207½ "
Paper mulch	227¾ "

FLORICULTURE

Two general types of annual flowers were grown. Some hardy and half hardy ones were started in the greenhouse and later transplanted into beds. The Snapdragon, Schizanthus, Stock, Phlox, Helichrysum, Petunia, Pansy, Dimorphoteca, etc., all did well, but they required considerable care, so their value is questioned, unless watering facilities are very convenient.

Many hardy annuals were sown outside under vegetable garden conditions; they received no water but produced considerable bloom. Sweet Sultan, Mignonette, Scabiosa, Leptosyne, Shirley Poppy, African Marigold, Cornflower (*Centaurea cyanus*), Love-in-a-mist (*Nigella*) all did well under these conditions. Self sown plants of *Phacelia campanularia, Bartonia aurea* and the California poppy were noticed in a number of places. These did particularly well, but whether or not self sown seedlings will do as well in another year is open to question.

The sweet peas did not do well early in the season, but later they were one of the chief attractions, lasting until frost. They required little care, except watering, because the soil where they were grown had been well trenched the previous fall. Where there is protection from drying winds, and a rich moist soil, the flower which seems to be the favourite of everyone is the sweet pea.

The gladioli corms were planted in the open on May 14. First blossoms were noted on July 19 and by August 8 the beds had become very beautiful. They remained in this condition for a couple of weeks, when the season of some came to a close. However, many of the varieties were still blooming when cut down by frost.

The tulips for bedding have done fairly well every year at the Farm; their beauty and length of season has depended upon the amount of hot dry weather during blossoming time. The plantings which were naturalized under trees, hedges, and in borders have done particularly well here. Some of these plantings have not been disturbed for many years, and the clumps are still expanding. These tulips were much showier than those in the formal beds due to their great number, and they were in blossom for a much longer season because of the variation in environment.

The peony bed was the showiest spot on the Farm during the three weeks or so that the plants were in blossom. All herbaceous varieties, as far as we know now, are hardy in our climate, although some are much more vigorous than are others. The desirability of a variety, which depends upon plant and flower characteristics, is shown by the American Peony Society's rating, which is quoted in a large number of nursery catalogues. It would be foolish for anyone to buy a variety having a rating less than 7·5 (out of 10) as there are hundreds which have ratings above this.

The perennial borders showed in a marked degree the effects of the previous hot, dry summer. Water was applied at frequent intervals, which improved growth considerably, but the borders were only fair, even when at their best. There was only one species which caused enough comment to warrant mentioning in this report, namely, *Dianthus deltoides* or Maiden Pink. This was covered with a mass of tiny pink flowers for nearly two months.

SYLVICULTURE

The hedges (including the sample hedges) and windbreaks that had been set out during recent years did fairly well. However, the mature windbreaks showed the effects of several dry summers; a great many branches were dead, and many others appeared as if they would be dead before another year had passed. The other woody plants were in a similar condition to the windbreaks; some which had originated in dry climates seemed to be almost normal, while others which had originated in moister climates appeared to be in a very weak condition.

POULTRY

POULTRY PLANT

The breeding of White Wyandotte and Light Sussex poultry is being carried on with improvement in egg-production, egg-size and type of bird as the principal considerations. Progress is being made along these lines by means of the keeping of careful trap-nest and progeny records, the introduction of males of high-producing ancestry, and severe culling of poor type as well as low producing birds.

Two pens of White Wyandotte pullets were entered for registration in the Eleventh Saskatchewan Contest which is conducted at this Farm. Four birds laid the required number of eggs for registration requirements but owing to minor standard disqualifications, only one bird registered.

Better results were obtained in hatching during the spring of 1930, than have been experienced for many years. Chicks hatched in March and April proved to be stronger and more thrifty than those hatched in May and June, and matured much earlier in the fall.

THE SASKATCHEWAN EGG LAYING CONTEST

The Eleventh Saskatchewan Egg Laying Contest opened on November 1, 1929, with the contest house of forty pens filled. During the contest period of fifty-one weeks, three pens were withdrawn owing to poor performance. Entries received, according to breeds were: Barred Rocks 20 pens, White Leghorns 10 pens, White Wyandottes 7 pens, Rhode Island Reds 2 pens, Single Comb Anconas 1 pen. At the close of the contest the breeds were represented as follows: Barred Rocks 19 pens, White Leghorns 9 pens, White Wyandottes 6 pens, Rhode Island Reds 2 pens and Single Comb Anconas 1 pen.

As in former years, many birds which entered the contest were affected with colds upon arrival. This condition was probably brought about during transportation to the contest, crates in many instances being on exposed station platforms for several hours previous to loading. The colds spread through many of the pens, and in conjunction with the severe weather conditions which prevailed during December and January, caused a considerable reduction in production during this time.

Production during the contest varied from the minimum of 9·64 per cent for the opening week to the maximum of 69·5 per cent for the twenty-fifth week which ended April 24. Average production for the entire period of fifty-one weeks was 44·63 per cent. This was 0·09 per cent higher than the maximum for last year.

A pen of White Leghorns owned by Mrs. L. W. Draper of Welwyn, Sask., stood in top place at the conclusion of the Eleventh Contest with 1,916 eggs and 2,178·7 points. Bird No. S.L.C.—K279, owned by W. S. McAlpine of Creston, B.C., was high individual with 253 eggs and 289·8 points to her credit.

The accompanying prize list shows high pens, high individuals and high number of birds registered per pen. Full details are also given for all birds which qualified for registration in the contest.

PEN PRODUCTION

Award	Pen	Owner and address	Breed	Totals	
				Eggs	Points
1st	31	Mrs. L. W. Draper, Welwyn, Sask.....	W.L.	1,916	2,178·7
2nd	1	Miss H. M. Purdy, Balcarres, Sask.....	B.P.R.	1,995	2,156·0
3rd	39	N. R. James, Strasbourg, Sask.....	W.L.	1,854	2,116·0
4th	5	T. Hampson, Birch Hills, Sask.....	B.P.R.	1,783	2,075·3

BIRD PRODUCTION

Award	Bird	Owner and address	Breed	Totals	
				Eggs	Points
1st	S.L.C.—K279	W. S. McAlpine, Creston, B.C.....	R.I.R.	253	289·8
2nd	S.L.C.—K 11	Miss H. M. Purdy, Balcarres, Sask....	B.P.R.	240	279·0
3rd	S.L.C.—K175	W. S. McAlpine, Creston, B.C.....	R.I.R.	248	271·4
4th	S.L.C.—K 13	Miss H. M. Purdy, Balcarres, Sask....	B.P.R.	226	266·5

NUMBER OF BIRDS REGISTERED

Award	Pen	Owner and address	Breed	Totals	
				Birds	Points
1st	1	Miss H. M. Purdy, Balcarres, Sask.....	B.P.R.	5	1,259·6
2nd	8	A. Baxter, Eversfield Farm, Borden, Sask.....	B.P.R.	4	966·5
3rd	31	Mrs. L. W. Draper, Welwyn, Sask.....	W.L.	4	964·1
4th	3	H. Barton, Davidson, Sask.....	B.P.R.	4	820·4

Pen No. 7 owned by the Dominion Experimental Station, Scott, Sask., was in second place at the close of the Eleventh Contest with 1,973 eggs and 2,167·7 points. Bird No. 4 of this pen came third with 271 eggs and 278·8 points. In number of birds registered pen No. 7 also stood in second place with 4 birds totalling 983·9 points. Owing to this being a Government owned pen the pen and bird standings are not given on the prize list above, as Government pens are barred from competition.

RECORDS OF INDIVIDUALS WHICH QUALIFIED FOR REGISTRATION IN THE ELEVENTH SASKATCHEWAN EGG LAYING CONTEST 1929-30

Bird No.	Owner	Breed	Date first egg	Date last egg	Days in production	Total eggs laid	Per cent production	Average egg weight per dozen
S.L.C.								
K 11	Miss H. M. Purdy, Aspenridge Farm, Balcarres, Sask.	B.P.R.	Nov. 2	Oct. 13	346	240	67·2	25·5
K 12	" " "	"	" 4	" 23	354	243	68·1	24·3
K 13*	" " "	"	" 2	" 16	349	226	63·3	25·5
K 16	" " "	"	" 18	" 23	340	207	58·0	24·4
K 19	" " "	"	" 1	" 5	339	229	64·1	24·3
K 24	Experimental Station, Lethbridge, Alta.	B.P.R.	Nov. 5	Oct. 16	346	208	58·3	24·0
K 32*	H. Barton, Davidson, Sask.	B.P.R.	Mar. 2	Oct. 23	235	200	56·0	24·0
K 37*	" "	"	Jan. 6	" 23	290	200	56·0	24·0
K 38	" "	"	Nov. 1	" 23	357	226	63·3	24·1
K 40*	" "	"	Feb. 26	" 23	239	200	56·0	24·1
K 41	Mrs. Aimee Williams, 3104 Marine Dr. E., Vancouver, B.C.	B.P.R.	Nov. 6	Sept. 3	302	201	56·3	24·8
K 53	T. Hampson, Birch Hills, Sask.	B.P.R.	Dec. 28	Oct. 20	296	206	57·7	25·7
K 56	" "	"	" 28	" 20	296	237	66·4	24·0
K 61	Mrs. Jas. Byrne, Welwyn, Sask.	B.P.R.	Nov. 1	Oct. 22	356	243	68·1	24·0
K 65	" "	"	" 2	" 22	356	208	58·3	24·0
K 70	" "	"	" 2	" 19	352	232	65·0	24·2
K 72	Experimental Station, Scott, Sask.	B.P.R.	Nov. 3	Oct. 20	352	210	58·8	24·3
K 74	" " "	"	" 13	" 23	345	271	76·9	24·1
K 77	" " "	"	" 8	Sept. 28	325	222	62·2	24·3
K 79	" " "	"	Dec. 16	Oct. 23	312	223	62·5	24·7
K 84	A. Baxter, Borden, Sask.	B.P.R.	Dec. 30	Oct. 22	296	220	61·6	24·7
K 85	" "	"	Jan. 14	" 26	275	211	59·1	24·1
K 87	" "	"	Nov. 26	" 19	328	223	62·5	25·1
K 88	" "	"	" 20	" 15	330	218	61·1	25·4
K104	Mrs. W. J. Thompson, Birch Hills, Sask.	B.P.R.	Jan. 2	Oct. 22	293	232	65·0	24·0
K105	" " "	"	Nov. 15	" 23	343	234	65·5	24·0
K110	" " " "	"	" 13	" 23	345	225	63·0	24·5
K112	Mrs. E. Armstrong, Lockwood, Sask.	B.P.R.	Jan. 28	Oct. 23	268	217	60·8	24·0
K113	" " "	"	Dec. 2	" 16	319	208	58·3	24·0
K126	Mrs. Mel Clark, Waldron, Sask.	B.P.R.	Dec. 8	Oct. 11	308	212	59·4	25·3
K129	" " "	"	Nov. 23	" 20	332	218	61·1	24·9
K134	University of B.C., Vancouver, B.C.	B.P.R.	Nov. 2	Oct. 15	348	205	57·4	24·2
K141	F. Stearn, Yorkton, Sask.	B.P.R.	Nov. 3	Oct. 10	342	219	61·3	24·7
K146	" "	"	Dec. 1	" 22	326	237	66·4	24·8
K163	Experimental Station, Rosthern, Sask.	B.P.R.	Jan. 15	Oct. 22	280	210	58·8	25·2
K170	" "	"	Dec. 16	" 21	310	245	68·6	24·1
K172	W. S. McAlpine, Creston, B.C.	B.P.R.	Nov. 10	Oct. 22	347	209	58·5	24·0
K174	" "	"	" 1	" 22	356	202	56·6	24·0
K175	" "	"	Dec. 4	" 22	323	248	69·5	24·8
K181	Arch Ward, Box 118, Welwyn, Sask.	B.P.R.	Dec. 20	Oct. 12	297	201	56·3	25·0
K183	" " "	"	" 2	" 16	319	212	59·4	25·7
K185	" " "	"	Nov. 27	Sept. 28	306	202	56·6	24·9
K210	Calgary Poultry Farm Co., Cor. 14th Ave. & 26th St. W., Calgary, Alta.	B.P.R.	Jan. 23	Oct. 12	262	206	57·7	24·0
K229	Mrs. W. J. Murray, Leslie, Sask.	W.W.	Nov. 25	Oct. 23	333	201	56·3	24·1
K240	Fred Saunders, Borden, Sask.	W.W.	Nov. 27	Oct. 6	314	202	56·6	24·0
K546	" "	"	" 1	" 23	357	239	66·9	24·9
K246	J. G. Lewthwaite, Box 656, Rosetown, Sask.	W.W.	Nov. 1	Oct. 22	356	231	64·7	24·4
K252	Mrs. T. Thompson, Box 115, Zealandia, Sask.	W.W.	Dec. 23	Oct. 23	305	208	58·3	24·0
K256	" " "	"	" 23	" 22	304	200	56·0	24·8
K257	" " "	"	" 1	" 23	327	210	58·8	24·1
K261	Experimental Farm, Indian Head, Sask.	W.W.	Nov. 3	Oct. 22	354	233	65·3	24·0
K292	Roht. Stacey, Watrous, Sask.	S.C.A.	Jan. 9	Oct. 21	285	201	56·3	24·4
K295	" "	"	Dec. 25	" 23	302	203	56·9	24·5

RECORDS OF INDIVIDUALS WHICH QUALIFIED FOR REGISTRATION IN THE ELEVENTH SASKATCHEWAN EGG LAYING CONTEST 1929-30—*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
S.L.C.								
K312*	Mrs. L. W. Draper, Welwyn, Sask.	S.C.L.	Dec. 9	Oct. 22	318	222	62·2	25·2
K313*	" " "	"	" 30	" 23	297	201	56·3	25·7
K314	" " "	"	" 13	" 15	307	211	59·1	25·1
K315	" " "	"	Jan. 6	" 16	283	203	56·9	25·4
K321	" " "	"	" 8	" 4	269	219	61·3	24·9
K322	" " "	"	Nov. 18	" 14	331	234	65·5	24·5
K324	" " "	"	" 12	" 10	333	213	59·7	25·0
K334	R. North, Palmer, Sask.	S.C.L.	Nov. 2	Oct. 15	348	225	63·0	24·8
K335	" "	"	" 1	" 21	355	204	57·1	25·4
K338	" "	"	" 17	" 13	331	213	59·7	24·1
K344	V. North, Palmer, Sask.	S.C.L.	Nov. 1	Oct. 9	343	209	58·5	24·0
K382	Geo. Rankin, R.R. No. 1, Cloverdale, B.C.	S.C.L.	Nov. 4	Oct. 18	349	220	61·6	25·0
K386	" " "	"	" 6	" 12	341	208	58·3	24·0
K302	N. R. James, Strasbourg, Sask.	S.C.L.	Feb. 20	Oct. 12	234	209	58·5	25·2
K397	" "	"	Nov. 2	" 22	355	222	62·2	24·9
K399	" "	"	" 16	" 13	332	212	59·4	25·5

* Second generation registered birds.

The various feeds and methods of feeding contest birds have been the objects of much interest in previous reports. For this reason information on the subject is again given. The feeds now used for contest birds at this Farm have proved satisfactory in egg-production and egg-weight as well as in the maintenance of body weight and general vigor of the birds. The formula for the dry mash follows:—

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

The following mineral mixture is mixed with the mash at the rate of 45 pounds per 1,000 pounds of mash:—

Bone flour	60 pounds
Calcium carbonate	23 "
Salt	10 "

The following schedule is followed in the feeding of contest birds:—

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.—Wet mash (dry mash wetted with hot water) fed from trough—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 is kept before the birds at all times in hoppers, also oyster shell, grit and charcoal. Green feed or roots are fed daily at the rate of 5 pounds per 100 birds.

Fresh water is provided in every pen and is warmed during winter months.

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