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Canada

DOMINION OF CANADA
DEPARTMENT OF AGRICULTURE
DOMINION EXPERIMENTAL FARMS

EXPERIMENTAL STATION

SWIFT CURRENT, SASK.

REPORT OF THE SUPERINTENDENT

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

FOR THE YEAR 1925

Twelve-foot cultivator drawn by eight horses. Cultivates twenty-six to thirty acres per day.

Printed by Authority of the Hon. W. R. Motherwell, Minister of Agriculture, Ottawa, 1926

DOMINION EXPERIMENTAL STATION, SWIFT CURRENT, SASK.

REPORT OF THE SUPERINTENDENT, J. G. TAGGART, B.S.A.

NOTES ON THE SEASON

The outstanding feature of the crop season of 1925 was the large carry-over of soil-moisture from the previous autumn. The unusually heavy rainfall of October, 1924, made a very important contribution to the 1925 crops.

The heavy snowfall of early winter disappeared rapidly during the first week of April. Disking and similar work on the land began on April 11; wheat-seeding was started on April 17 and concluded on May 2. April rainfall was above the average, but the distribution was such that work was not seriously delayed.

Although the May rainfall was light, moisture and temperature conditions were favourable to very rapid growth, with the result that all crops made excellent progress during the early part of the season. The probability of very heavy crops gradually diminished with continued hot, dry weather during June and July.

Wheat-cutting started on July 31 and was concluded on August 11. Harvest weather on the whole was favourable, so that cutting, threshing, silo-filling, and stacking feed proceeded rapidly until all such work was completed on the Station on September 20. Yields of most crops were fairly satisfactory. Wheat yields ranged from 14 to 28 bushels per acre, oats from 30 to 50, rye 18 to 24; sunflowers yielded from 8 to 12 tons per acre, and corn yields ranged from 6 to 10 tons. Due to the abundance of moisture in the early spring, tame hay crops were unusually good; yields ranged from one to two and a half tons per acre.

The month of October was one of the worst harvest months ever known in Saskatchewan. Rain, snow, and low temperatures prevailed for the greater part of the month, so that farmers who had not completed their threshing early in the season experienced serious delay and loss. The greater part of November and December proved to be fine, so that threshing was eventually finished, but in most cases with a loss of one or two grades and an additional deduction for tough or damp grain.

METEOROLOGICAL RECORD FOR SWIFT CURRENT, SASK., 1925

Month	Temperature			Precipitation	Evaporation	Sunshine	Wind
	High	Low	Mean	10" snow = 1" rain			Total miles
	°F	°F	°F	inches	inches	hours	
January	44	−30	16·8	0·15	.....	90·0	
February	43	−16	29·6	0·14	.....	97·7	
March	56	−17	20·5	0·83	.....	141·5	
April	75	24	43·5	2·18	.....	196·3	
May	87	18	53·0	0·91	4·72	241·8	5,722
June	86	37	58·0	1·30	4·65	234·3	5,357
July	97	38	66·0	1·54	6·79	271·0	4,807
August	93	40	63·0	1·68	6·57	239·7	5,360
September	87	24	55·0	1·99	3·21	143·0	4,767
October	60	−05	29·0	0·65	.....	99·7	5,167
November	55	−11	27·7	0·06	.....	104·5	
December	53	−23	19·6	0·01	.....	69·5	
Totals	.....	.....	.....	11·44	25·94	1,929·0	31,180

Last spring frost ..... May 15
First fall frost ..... Sept. 20.
Frost-free period ..... 128 days.
Rainfall during April, May, June and July, ... 5·93 inches.

DATES OF FARM OPERATIONS, 1925

—	Began	Finished
Work on land (first and last dates)	April 11	Oct. 14
Seeding wheat	April 17	May 2
Seeding oats	May 4	May 7
Seeding sunflowers	May 22	May 22
Seeding corn	May 21	May 25
Seeding fall rye	Aug. 3	Aug. 4
Spring ploughing	April 13	May 2
Ploughing summer-fallow	May 28	June 16
Cutting hay	July 11	July 14
Cutting fall rye	July 18	July 20
Cutting wheat	July 31	Aug. 11
Cutting oats	Aug. 14	Aug. 22
Operating Combine	Aug. 20	Aug. 28
Cutting corn	Sept. 10	Sept. 14
Cutting sunflowers	Sept. 10	Sept. 10
Threshing	July 30	Sept. 3
Fall ploughing	Sept. 28	Oct. 14

ANIMAL HUSBANDRY

HORSES

Early in 1925, a driver and two work horses were purchased, bringing the total number up to twenty-two. Shortly after spring work started, an epidemic of influenza broke out among the horses, resulting in the death of two good, young horses. The epidemic was checked by the inoculation of all the horses with a combination serum.

Apart from the time of the influenza and an occasional lameness, there was no loss of working time among the horses.

Fall work was finished somewhat earlier than usual this year, and all idle horses were turned into the stubble-fields. At the end of the year, the horses are still running outside, getting only what feed they can pick up.

CATTLE

The Shorthorn herd now numbers fourteen; of which seven are cows and heifers of breeding age, three are bulls, and four calves. During the year two young bulls and two heifers were sold for breeding purposes, and ten old cows and young animals unsuitable for breeding were sold for beef.

In June, eight head of Holsteins were transferred from the Central Farm at Ottawa to this Station. A young bull and three of the females are pure-bred; the other females are grade. It is the intention to build up a small herd of strictly dairy cattle. Records of costs and returns will be kept and surplus stock will be sold to farmers for breeding purposes.

STEER-FEEDING

Twenty-four three-year-old steers were purchased from James MacDougald, of Maple Creek, on October 22, 1924. The steers were shipped to Swift Current and were pastured in the stubble-fields until December 1. They were then put into the feeding-corral and were fed ensilage, oat straw, and grain consisting of equal parts by weight of oats, barley, rye, and wheat screenings. The wheat screenings consisted largely of cracked and shrunken wheat which was cleaned out of seed wheat.

The feeding-corral is surrounded by a board fence eight feet high, and at one end there is a straw shelter with an eight-foot opening on the south side. The shelter is large enough to allow all the steers to lie down in it at once. The shelter was bedded with wheat straw.

The weather was extremely cold and windy during the early part of the season. This caused the steers some discomfort and evidently had an adverse effect on the rate and economy of gain.

Feed-racks were kept filled with oat straw, while the ensilage and chop were mixed and fed twice a day.

On March 25, the steers were shipped to Winnipeg, where they were assembled with other Experimental Farm cattle and shipped to Manchester, England.

The following table presents the data on costs, weights, gains, returns and profits:—

21 steers	24,140 lbs. at $4.50	$ 1,086 30
3 steers	3,750 lbs. at $4.25	159 35
Total weight	27,890 lbs. cost	$ 1,245 65
Freight, Maple Creek to Swift Current		33 75
Cost of 24 steers at Swift Current		$ 1,279 40

WINTER FEEDING COST

83 tons ensilage at $3.50	$ 290 50
6 tons oat straw at $3	18 00
25,536 lbs. grain at 1½c	383 04
Cost of feed	$ 691 54
All charges 20 steers Swift Current to Manchester, at $49.05	981 00
Total	$ 2,951 94
Weights and Gains—	
Average gain per steer	138·3 lbs.
Total gain	3,320·0 lbs.
Gross weight when shipped	31,210 lbs.
Returns—	
4 steers sold at Swift Current	$ 210 22
20 steers sold at Manchester	2,884 80
	$ 3,095 02
Total cost	2,951 94
Profit	$ 143 08
Profit per head	5 96

SWINE

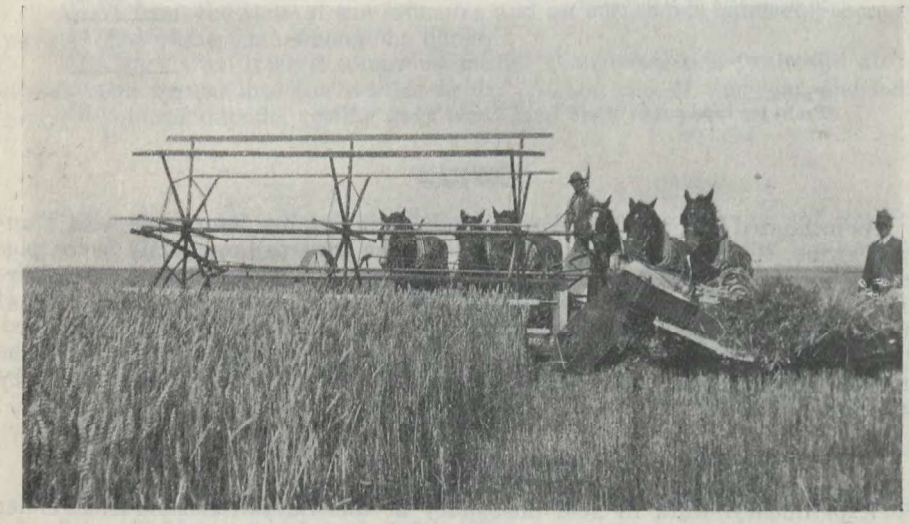
As intimated in the 1924 report, a small beginning has been made with Tamworth swine. Owing to the failure of one of the sows to breed, only seven pigs were raised, of which two were sows. Two boars were castrated and three were raised and sold to farmers for breeding purposes. Early in November, one of the original sows produced a litter of thirteen pigs, all of which have been raised. The two young sows have been bred to farrow in the early spring. With the numbers now on hand, there will be a good-sized herd of Tamworths in a very short time.

FIELD HUSBANDRY

Experimental work in field husbandry at this Station is conducted under three sets of conditions. Each of these will be briefly described here in order that the data which follow may be more intelligible.

As mentioned in previous reports, rotations, costs of producing crops, and cultural methods for wheat-production are being investigated in fields varying in size from two to seven acres. In addition to the work on field-areas, a great

Three-furrow 14-inch gang-plough drawn by eight horses. Ploughs seven to eight acres per day.



Push binder. This machine will harvest twenty-five to thirty acres per day.

variety of field husbandry problems are being studied by the use of fiftieth-acre plots. On the plots, all the field work is repeated; in addition, there are many other experiments for which larger space is not available.

The third set of conditions is found on a farm which is rented for the purpose of studying methods of controlling weeds, soil-drifting and related troubles, on land which has been cropped to wheat for twenty years. A full description of the conditions and of the work on this farm is contained in one section of this report.

In attempting to make a comparison of yields, the reader of this report must keep in mind the fact that, as outlined here, the experiments are being conducted under a variety of conditions, hence the yields given for one experiment must not be compared with those given for another experiment even though the crops are grown under the same cultural treatment.

SEVEN-YEAR ROTATION—9-ACRE FIELDS

Summary of Yields, value and profit and loss, per acre

Rotation Year	Crop	Yield per acre		Value of Crop, 1925	Cost of Production 1925	Profit or loss per acre	
		1925	Average 3 years			1925	Average 3 years
		tons	tons	$ cts.	$ cts.	$ cts.	$ cts.
1	Corn	5·34	6·5	18 69	13 93	4 76	4 99
		bush.	bush.				
2	Wheat	22·2	23·5	29 97	12 60	17 37	16 32
		tons	tons				
3	Hay	0·93	1·18	9 30	6 50	2 80	3 25
4	Hay	0·55	.....	5 50	3 26	2 24	.....
4 (a)	Fallow following hay	.....	.....	.....	.....	.....	.....
		bush.	bush.				
5	Wheat	24·0	24·1	32 40	15 40	17 00	14 65
6	Fallow	.....	.....	.....	.....	.....	.....
		bush.	bush.				
7	Fall rye	24·0	24·5	18 00	16 34	1 66	3 62
	Average, per acre	.....	.....	16 26	9 72	6 55	6 12

Field 1.—Corn was grown on land which produced a crop of fall rye in 1924. A considerable amount of volunteer rye grew up with the corn, and its eradication added to the cost of the corn.

Field 2.—Garnet wheat seeded on corn stubble. A mixture of western rye, brome and sweet clover was seeded with the wheat.

Field 3.—The stand of hay was fairly good. The heavy rain of October, 1924, was without doubt the decisive factor, as there was very little precipitation during the growing season.

Field 4.—The second-year hay crop was cut late in June and the sod ploughed up immediately. Sweet clover, being a biennial crop, did not grow, and thereby reduced the yield.

Field 5.—Garnet wheat grown on fallow. In 1924, the second-year growth of hay was very poor, so the land was ploughed early in June.

Field 7.—Fall rye grown on fallow. The costs of the fallow have been charged to the crop.

THREE-YEAR ROTATION—FALLOW, WHEAT, WHEAT

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

Rotation Year	Crop	Yield per acre		Value of Crop 1925	Cost of Production 1925	Profit or loss per acre	
		1925	Average two years			1925	Average two years
				$ cts.	$ cts.	$ cts.	$ cts.
1	Fallow						
2	Wheat	20·5	27·55	27 68	14 96	12 72	21 15
3	Wheat	13·5	20·5	18 23	13 15	5 08	15 18
	Average, per acre			15 30	9 37	5 93	12 11

The three-year rotation (wheat, wheat, fallow) covers an area of thirty-six acres. The costs of fallowing are charged to both wheat crops; two-thirds of the costs to the crop succeeding the fallow and the remaining one-third to the other wheat crop.

TWO-YEAR ROTATION—FALLOW, WHEAT

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

Rotation Year	Crop	Yield per acre		Value of Crop 1925	Cost of Production 1925	Profit or loss per acre	
		1925	Average three years			1925	Average three years
				$ cts.	$ cts.	$ cts.	$ cts.
1	Fallow (cost charged to wheat crop)						
2	Wheat	16·6	26·2	22 41	15 96	6 45	13 60
	Average, per acre			11 21	7 98	3 23	6 80

The two-year rotation, (wheat, fallow), has an area of ten acres. The soil is not as good as the average on the farm and accounts for the comparatively poor showing made by this rotation.

TWO-YEAR ROTATION—FALLOW, FALL RYE

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

Rotation Year	Crop	Yield per acre		Value of Crop 1925	Cost of Production 1925	Profit or loss per acre	
		1925	Average three years			1925	Average three years
		bush.	bush.	$ cts.	$ cts.	$ cts.	$ cts.
1	Fallow						
2	Fall rye	25	23·8	18 75	16 50	2 25	3 26
	Average, per acre			9 38	8 25	1 13	1 63

The fall rye and fallow rotation occupies an area of fourteen acres. The average return per acre over the whole area, for three years, is **$1.63.**

YIELDS OF WHEAT ON PACKED AND UNPACKED LAND

Field	Packer used	Treatment	Yield per acre	
			1925	Average three years
			bush.	bush.
1	Cultipacker	Fallow ploughed, packed, cultivated throughout season, seeded, harrowed and packed	25·71	28·57
2	No packer	Fallow ploughed, no packer, harrowed, cultivated throughout season, seeded and harrowed	25·48	27·33
3	Surface Packer	Fallow ploughed, packed, cultivated throughout season, seeded, harrowed and packed	22·28	26·26
4	Cultipacker	Spring-ploughed, harrowed, packed, seeded and packed	20·56	23·27
5	No packer	Spring-ploughed, harrowed, seeded and harrowed	16·00	20·50
6	Surface packer	Spring-ploughed, harrowed, packed, seeded and packed	18·86	20·39

This experiment is conducted on an area of 18 acres, in a three-year rotation of fallow, wheat, wheat. Apart from the use of two distinct types of packers, all fields, both fallow and stubble, are given uniform, standard treatments.

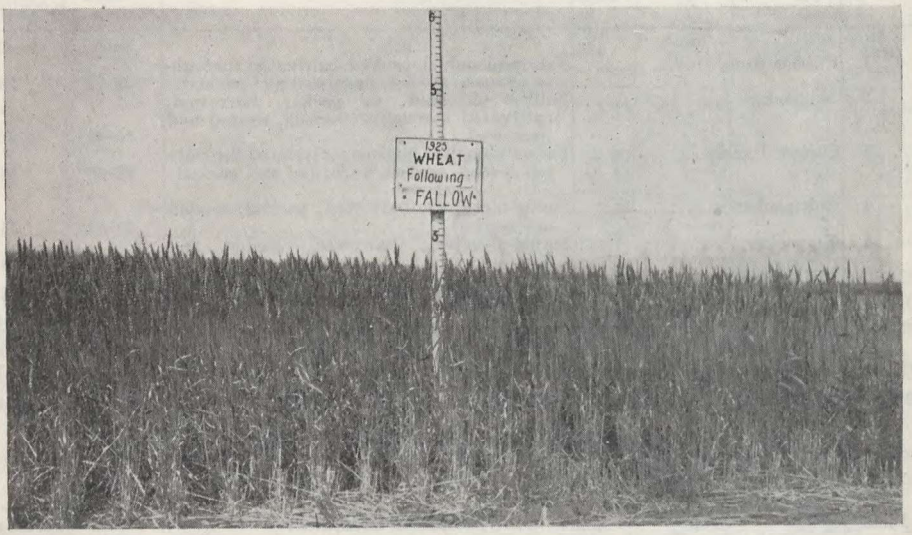
STUBBLE TREATMENTS FOR WHEAT-PRODUCTION

Field	Crop	Stubble Treatment	Yield per acre	
			1925	Average three years
			bush.	bush.
1	Wheat	Fall-ploughed, spring-harrowed, seeded, harrowed	14·00	20·68
2	Wheat	Fall-disked, spring-ploughed, harrowed, seeded and harrowed	16·50	22·99
3	Wheat	Spring-ploughed, harrowed, seeded and harrowed	18·50	23·23
4	Wheat	Previous crop cut by Combine, spring-burned and seeded	17·30	20·33
5	Wheat	Previous crop cut by Combine, spring-burned, disked and seeded	17·50	21·46
6	Wheat	Spring-burned, disked, seeded and harrowed	15·66	22·58
7	Wheat	Spring-burned, ploughed, harrowed, seeded and harrowed	16·33	24·36
8	Wheat	Spring-disked, seeded and harrowed	13·80	19·60

This experiment covers an area of 72 acres. The three-year rotation: fallow, wheat, wheat, is followed. A uniform treatment is given in the fallow year, all the plots being ploughed early in June and cultivated throughout the season.

SUMMER-FALLOW TREATMENTS FOR WHEAT-PRODUCTION

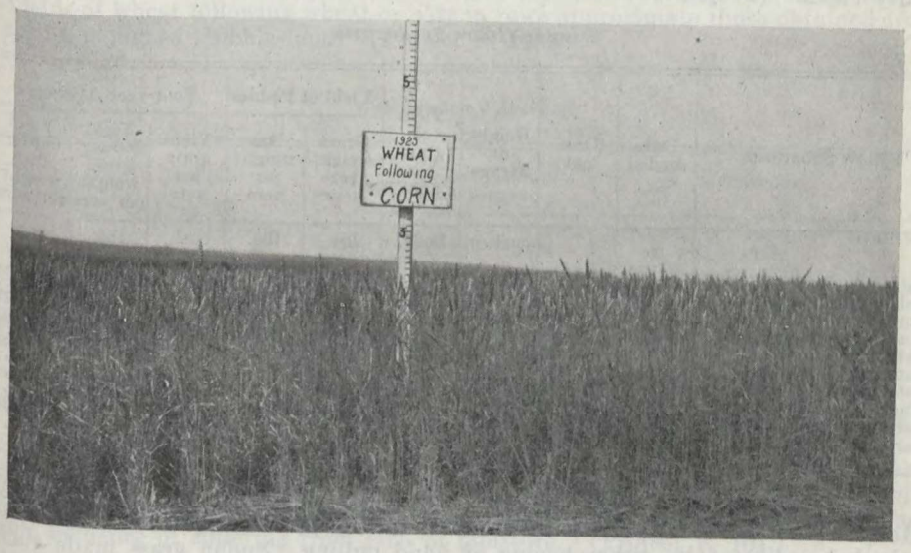
Field	Crop	Fallow Treatment	Yield per acre	
			1925	Average two years
			bush.	bush.
1	Wheat	Fall-ploughed, cultivated during fallow year.	20·00	20·50
2	Wheat	Fall-disked, cultivated during fallow year...	21·25	22·50
3	Wheat	Cultivated only during fallow year	21·00	25·75
4	Wheat	Cultivated till July 15; ploughed	21·00	26·50
5	Wheat	Ploughed 6" deep June 15, cultivated during fallow year	20·52	23·88
6	Wheat	Sweet clover seeded with crop previous to fallow, ploughed June 15, cultivated during fallow year	19·44	22·22



Wheat following summer-fallow.

Wheat following wheat, planted in double rows forty-two inches apart.

Wheat following sunflowers.



Wheat following corn.

This experiment is conducted in a three-year rotation on a total area of thirty-six acres. Each field of the rotation is subdivided into six plots of two acres each. In the fallow year each plot receives the treatment given in the preceding table. For the second year the treatment is uniform. For 1925 the area seeded to second-year wheat was fall-ploughed.

SUMMER-FALLOW TREATMENT FOR WHEAT-PRODUCTION

One-fiftieth-acre plots—triplicated

Treatment	Height of crop when cut	Yield of grain per acre
	in.	bush.
Fall-plough, cultivate only during fallow year	32	20·5
Fall-disk, cultivate only during fallow year	32	21·2
Cultivate in spring (after seeding) and as required until July 15. Plough, leave untilled	32	21·6
Plough 6″ June 10, cultivate as required	32	20·8
Cultivate only during fallow year	32	20·8
Seed with second wheat crop, 5 lb. sweet clover, treat as No. 4	32	20·0
Burn stubble early spring, disk at once, plough June 10, cultivate as required	32	22·8
Early disk (before seeding) plough June 10, cultivate as required	32	22·0
Plough June 10, 4″, cultivate as required	32	21·6
Plough June 10, 8″, cultivate as required	32	21·5
Plough June 10, 6″, subsoil 4″, cultivate as required	32	21·1
Plough May 15, cultivate as required	32	20·8
Cultivate *only* both fallow and stubble crops	32	

Wheat yields on these variously-treated fallow plots are so nearly alike that it cannot be said that there are any significant differences. In all treatments the work of preparing the fallow was started in good time and all plots were kept clean during the fallow year. All crops grown on these plots were fairly clean. (Project F. 144.)

SUMMER-FALLOW SUBSTITUTES

Fallow Substitute	Date seeded	Date cut	Height at harvest	Yield of grain per acre	Yield of Fodder		Four-year Average		
					Green weight per acre	Dry weight per acre	Yield grain per acre	Yield fodder green weight per acre	Yield fodder dry weight per acre
			inches	bush.	lbs.	lbs.	bush.	lbs.	lbs.
Potatoes—Rows 42″ x 42″	June 15	.....	.....	.....	7,233	.....	.....	10,717	.....
Sudan grass, double rows	" 17	.....	.....	.....	.....	.....	.....	7,383	.....
Sunflowers, single rows	" 4	.....	72	.....	20,730	3,753	.....	25,149	4,077
Corn, single rows	" 10	.....	60	.....	10,766	2,806	.....	15,686	3,165
Oats, triple rows	May 8	Aug. 15	32	32·59	.....	.....	46·7	.....	.....
Oats, double rows	" 7	" 15	32	37·74	.....	.....	41·1	.....	.....
Oats, solid, 2 bu. per acre	" 8	" 15	32	23·76	.....	.....	44·0	.....	.....
Wheat, double rows	" 6	" 18	30	11·66	.....	.....	12·5	.....	.....
Oats, sown solid for hay	June 6	.....	.....	.....	.....	.....	.....	10,983	3,630
Barley, double rows	May 12	" 13	27	21·52	.....	.....	20·5	.....	.....

All crops in rows received two cultivations during the growing season. Many weeds, however, principally Russian thistle, grew in the rows and could only be eradicated by either hoeing or hand pulling. Sudan grass made such slow growth that the weeds almost choked it out. The factor of weed growth which cannot be removed from rows except by hand labour constitutes one of the most serious objections to row-crops under southwestern Saskatchewan conditions. (Project F. 145.)

WHEAT FOLLOWING FALLOW AND VARIOUS FALLOW SUBSTITUTES

Crop 1925	Previous crop	Yield of previous crop			Freedom from weeds at harvest	1925 crop			Three year average yield of wheat following fallow or substitutes, per acre
		Fodder per acre green weight	Fodder per acre dry weight	Grain per acre		Condition of stand at harvest	Height at harvest	Yield grain per acre	
		lbs.	lbs.	bush.	100 points		inches	bush.	bush.
Wheat	Potatoes, rows 42"x 18"	11,450	.....	.....	85	Normal	28·7	19·0	23·3
"	Sudan grass, doub. ro.	5,616	1,411	.....	77	Normal	26·0	15·9	17·4
"	Sunflowers, sing. rows.	21,866	4,341	.....	85	Thin	25·3	14·8	15·6
"	Fallow.....	.....	.....	.....	95	Thick	30·0	22·5	26·3
"	Corn, single rows.....	16,466	2,854	.....	85	Normal	28·0	18·5	20·0
"	Oats, triple rows.....	.....	.....	51·5	73	Normal	28·0	16·1	16·9
"	Oats, double rows.....	.....	.....	42·3	70	Normal	27·3	14·5	14·1
"	Oats, ½ bush. per acre.	.....	.....	49·7	70	Thin	26·6	12·8	12·0
"	Wheat, double rows...	.....	.....	12·8	66	Normal	26·6	12·8	18·2
"	Oats for green feed....	8,016	2,611	.....	77	Thin	27·3	16·4	12·7
"	Barley, double rows...	.....	.....	20·2	66	Normal	27·3	12·2	17·4

All fallow-substitute plots were double disked April 15, harrowed April 22, seeded April 29, and harrowed again afterwards to destroy weeds. A considerable percentage of volunteer grain grew where wheat followed a crop of either oats or barley sown in rows.

If judgment is based on the above data, crops grown in rows in general cannot be considered as adequate substitutes for fallow. Yields of wheat following potatoes or corn are fairly good, though they do not equal yields on fallow. Yields of wheat following wheat or oats in rows approximate those obtained from spring-ploughed stubble-land. (Project F. 145.)

CONTINUOUS WHEAT

Crop	Previous yields of grain per acre		1925 crop		
	1923	1924	Height at harvest	Yield grain per acre	Quality of grain
	bush.	bush.	inches	bush.	
Sown continuously on disked stubble....	10·5	10·41	26	9·89	No. 2
Sown continuously on spring ploughing...	7·0	11·97	26	9·16	No. 2

NOTE—One-fiftieth-acre plots duplicated. Sown May 2. Seventy pounds seed per acre. Ripe Aug. 4.

A very heavy crop of Russian thistle had to be raked off and burned in the spring before any other cultural work could be done. By midsummer, weeds, chiefly Russian thistle, had become very thick, and the wheat showed considerable evidence of suffering from lack of moisture. (Project F. 101.)

PLACE IN ROTATION TO SEED FALL RYE

Cultural method	Date ripe	Height at harvest	Grain yield per acre
		inches	lbs.
Seed on fallow	July 18...	44	21·39
Seed on ploughed barley stubble	" 21...	40	14·88
Seed on ploughed sod (*)	" 19...	44	22·16
Seed on wheat stubble	" 21...	40	13·38
Seed on fallow	" 18...	44	17·41
Seed with oats	" 20...	41	11·08
Seed after sunflowers cut	" 18...	40	16·51
Seed rye after rye	" 19...	..	15·18
Seed on fallow	" 19...	45	19·04
Sede after corn cut	" 20...	43	14·42
Seed one month after oats sown (conbination crop)	" 20...	41	12·04
Seed between rows of corn	" 21...	40	13·91
Seed between rows of sunflowers	" 20...	39	14·80

*NOTE.—Grass failed; seeding of rye was made on fallow.

This experiment is laid out in the form of a series of rotations so designed that the rye crop follows a variety of crops and treatments. While the best yields have been obtained from fallow, fairly good yields have been produced by some other preparations. (Project F. 153.)

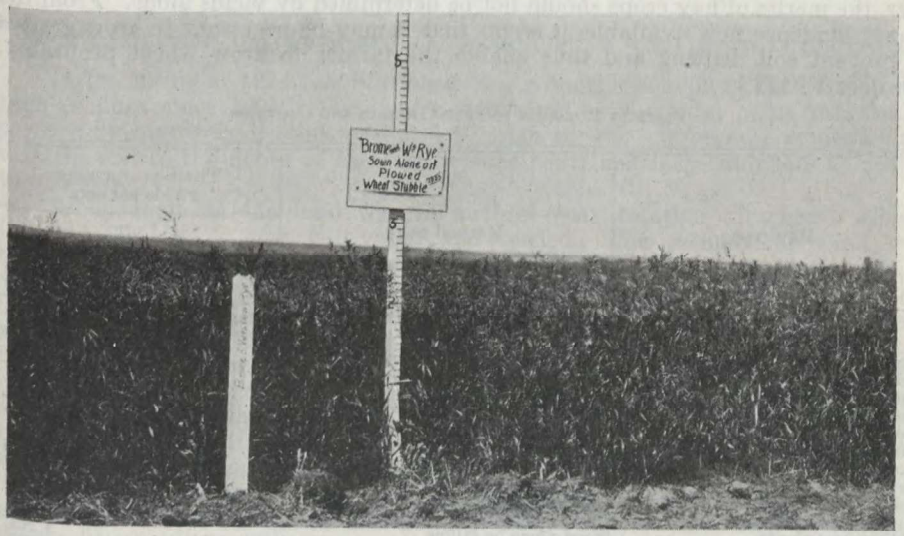
RATES AND DATES OF SEEDING FALL RYE*

Rate sown. Bush. per acre	Date sown	Date of ripening	Height at per acre	Yield of grain harvest
			inches	bush.
¾ bushels	July 15...	July 19...	45	18·60
1 "	" 15...	" 16...	43	18·66
1¼ "	" 15...	" 16...	41	20·39
1½ "	" 15...	" 16...	41	19·11
1 "	Aug. 1...	" 17...	43	23·95
¾ "	" 15...	" 17...	45	24·69
1 "	" 15...	" 19...	45	23·13
1¼ "	" 15...	" 18...	45	27·08
1½ "	" 15...	" 18...	46	33·44
¾ "	Sept. 1...	" 17...	46	22·16
1 "	" 1...	" 23...	45	19·63
1¼ "	" 1...	" 18...	45	16·29
1½ "	" 1...	" 17...	44	19·56
1 "	" 15...	" 17...	43	19·86
1 "	Oct. 1...	" 19...	43	24·39

*Determined from three 1/50-acre plots.

As in previous years, the July sowing produced an abundant fall growth, but resulted in a decreased yield of grain the following year. Fall rye sown on August 15 gave the highest yields. (Projects F. 157 and F. 163.)

Brome and western rye grass seeded with wheat on fallow.



Brome and western rye grass seeded alone on spring-ploughed wheat-stubble.

GRASSES, LEGUMES AND MIXTURES GROWN WITH A NURSE-CROP OF WHEAT

Yields of first year hay crop

Hay crop	Yield of cured hay on basis of 12% moisture content			
	1923 per acre	1924 per acre	1925 per acre	Three year average per acre
	lbs.	lbs.	lbs.	lbs.
Brome and western rye (check)	3,087	1,774	2,674	2,512
Brome grass	3,064	1,853	2,109	2,342
Western rye grass	4,397	2,227	2,380	3,001
Timothy	Failed	1,518	2,869	1,462
Brome and western rye (check)	2,418	1,843	2,307	2,189
Kentucky blue grass	Failed	791	1,666	819
Western rye and sweet clover	2,043	2,784	2,470	2,432
Brome and sweet clover	2,987	2,142	1,803	2,310
Brome and western rye (check)	4,248	1,957	2,220	2,808
Western rye and alfalfa	2,495	1,645	2,493	2,211
Grimm alfalfa	4,748	3,017	1,927	3,230
Variegated alfalfa	1,604	3,862	2,290	2,585
Brome and western rye (check)	1,952	2,404	2,205	2,187
Red clover	Failed	1,243	Failed	414
Yellow sweet clover	2,522	2,745	2,542	2,603
White sweet clover	2,391	3,312	1,883	2,529
Brome and western rye (check)	2,576	2,183	2,662	2,477

The most obvious conclusion to be drawn from this experiment is that certain grasses and legumes, such as timothy, Kentucky blue grass, and red clover, are not satisfactory hay crops. No crop in this trial produced what might be considered a good crop of hay, and this despite the fact that in the seasons of the test the moisture conditions were more favourable than the average. However, the merits of hay crops should not be determined by yields alone. From the scanty evidence now available, it seems that it may be necessary to grow grasses to prevent soil drifting and thus enable the farmer to grow wheat profitably. (Project F. 172.)

PLACE IN ROTATION TO SEED GRASSES AND CLOVERS

Hay crop	Method used	Three-year average yields per acre		
		Grain per acre	Corn green weight per acre	Cured hay per acre
		bush.	lbs.	lbs.
Brome and western rye (check)	Seed with first-year wheat	31·8	.....	3,318
Brome and western rye	Seed between rows of corn	.....	18,566	Failed*
Brome and western rye	Seed alone on fallow	.....	.....	5,345
Brome and western rye	Seed alone on spring ploughing	.....	.....	1,954*
Brome and western rye (check)	Seed with first-year wheat	32·9	.....	3,218
Brome and western rye	Seed in spring on fall rye	25·7	.....	3,375
Brome and western rye	Seed with second-year wheat	16·2*	.....	1,885*
White sweet clover	Seed with first-year wheat	32·8	.....	4,405
Brome and western rye (check)	Seed with first-year wheat	34·4	.....	3,410
White sweet clover	Seed between rows of corn	.....	16,283	2,992
White sweet clover	Seed alone on fallow	.....	.....	3,265
White sweet clover	Seed alone on spring ploughing	.....	.....	3,175
Brome and western rye (check)	Seed with first-year wheat	35·7	.....	2,795
White sweet clover	Seed in spring on fall rys	28·7	.....	2·868
White sweet clover	Seed with second-year wheat	15·7*	.....	2,036*
Brome and western rye	Seed with first-year wheat	.....	.....	3,014

* Two-year average.

While the above data are insufficient to justify any definite conclusions, it is worth observing that grasses yielded considerably greater crops when seeded alone on fallow than when seeded by any other method. With clover this difference is not apparent. In general, high yields of grain, either in the nurse crop or one preceding it, tend to reduce the subsequent hay crop. While both the probability of getting a catch and the yield of hay are greater when the grass is seeded alone, this method is open to the objections that a year's crop is lost and that weeds grow abundantly in the grass during the first season. For these reasons is probably better to seed grass or clover with a grain crop and take chances on a poor stand and a light yield. (Project F. 154.)

DATES OF PLANTING SUNFLOWERS

Crop	Determined from four 1/170-acre plots						Three-year average	
	Date planted	Date emerged	Height at harvest	Stage cut	Green weight per acre	Dry weight per acre	Green weight per acre	Dry weight per acre
			inches		lbs.	lbs.	lbs.	lbs.
Russian Giant sunflowers.....	May 1...	May 20...	96	Full bloom.	39,185	7,115	31,335	5,333
	" 10...	" 23...	94	"	26,987	5,480	25,487	4,338
	" 20...	June 2...	96	"	33,532	6,438	28,191	4,583
	" 30...	" 10...	84	80% bloom.	24,032	4,880	22,444	3,803
	June 9...	" 18...	72	50% "	17,255	3,486	17,429	2,598

As in other seasons, the earlier-seeded sunflowers gave the highest yields. The difference in favour of early seeding this season was less marked than usual, due to uneven germination of the first and second seedings. Weather and soil conditions happened to be less favourable to immediate germination than they were at the later dates. (Project F. 156.)

CROP PRODUCTION ON OLD WEEDY LAND COINCIDENT WITH WEED ERADICATION

In the spring of 1924 this Station leased a quarter section of land which has been cropped since 1905. The land had become very weedy, being practically covered by a growth of stinkweed and Russian thistle. It became evident later that the soil to the depth of the furrow slice contained large numbers of viable weed seeds.

When acquired the land was in a three-year rotation of wheat, wheat, fallow. The fallow was cultivated and seeded. The second-crop land was burnt, a portion being ploughed, harrowed and seeded and the remainder disked and seeded. There was a very profuse growth of weeds on all the area seeded. In some places the weeds completely choked out the growing wheat, leaving areas as large as twenty feet square without a single head of wheat. The spaces between the drill-rows were in every case filled with weeds. When threshed, certain portions of the fallow crop yielded 20 bushels per acre and the average yield was 12.5 bushels. The second-crop wheat yielded an average of 10 bushels. On the Station, the average yields for 1924 were 35 bushels for fallow and 24 bushels for crops on fallow.

The portion of the land fallowed in 1924 was ploughed early in June, before any of the mat of stinkweed had gone to seed. It was cultivated as required during the season. The last cultivation was in October, two days before freeze-up.

Beginning on May 4, 1925, the entire summer-fallow was cultivated. A seven-year rotation in four-acre fields was laid down on the west side of the quarter. The greater portion of the remainder is used for cultural treatments in two-acre fields, using a three-year rotation.

CULTURAL TESTS—WHEAT GROWN ON OLD WEEDY LAND, STUBBLE TREATMENTS

Field	Treatment	Yield
		bush.
1	Spring-ploughed, harrowed, seeded and harrowed	15·50
2	Spring-disked, seeded and harrowed	16·00
3	Spring-burnt, (Stubble-burner) disked, seeded and harrowed	15·75
4	Spring-burnt, (harrow) disked, seeded and harrowed	16·50
5	Spring-burnt (harrow) disked, cultivated 15 days later, seeded and harrowed	12·75

The fallow crops corresponding to the above fields were all cultivated on May 4 and seeded immediately with one bushel of wheat per acre. The average yield on 10 acres was 21.65 bushels per acre.

In all cases the stubble after harvesting was reasonably free from weeds, excepting the second-year crop on field 5. This field was quite weedy.

FALLOW TREATMENTS

Field	Treatment	Yield
		bush.
1	Fallow ploughed before June 15, 1924, cultivated as required; cultivated May 4, 1925, seeded (1 bush. wheat), harrowed	22·25
2	Cultivated only during fallow year; cultivated May 4, 1925, seeded (1 bush. wheat), harrowed	22·50
3	Ploughed, harrowed, oats seeded in triple rows 42" apart in 1924, cultivated, seeded (1 bush. wheat) 1925, harrowed	19·75

Field 3 was fairly weedy. Fields 1 and 2 were practically clean. The second-year crop of wheat corresponding to the fallow crops reported in the table were spring ploughed, harrowed, seeded and harrowed. The average yield was 14.08 bushels.

DEFERRED SEEDING ON FALLOW AND STUBBLE

Field	Crop	Treatment	Yield
			bush.
1	Oats	Fallow cultivated May 4; cultivated and 2½ bush. oats seeded on May 25	36·00
2	Wheat	Fallow cultivated May 4; cultivated and 1 bush. wheat seeded May 25	20·25
3	Wheat	Fallow cultivated May 4; cultivated and 1½ bush. wheat seeded May 25	22·25
4	Oats	Spring ploughed and harrowed May 8, cultivated and 2½ bush. oats seeded on May 27	24·50
5	Wheat	Spring ploughed and harrowed May 8, cultivated and 1 bush. wheat seeded on May 26	6·50
6	Wheat	Spring ploughed and harrowed May 8, cultivated and 1½ bush. wheat seeded on May 26	12·00

Both fallow and second-year oats were very weedy. Wheat seeded 1½ bushels per acre was fairly clean; wheat seeded 1 bushel per acre was dirty, particularly in the second year, which gave the most weedy crop and lowest yield on the quarter section. Compare these yields with yields in two preceding tables.

HARROWING GROWING WHEAT CROPS

Field	Treatment	Yield
		bush.
1	Fallow cultivated, seeded, harrowed before crop was up	21·75
2	Fallow cultivated, seeded, harrowed when crop was 4″ high	26·25
3	Fallow cultivated, seeded, harrowed immediately	26·00
4	Spring ploughed, harrowed and seeded, harrowed before crop was up	14·00
5	Spring ploughed, harrowed and seeded, harrowed when crop was 4″ high	14·50
6	Spring ploughed, harrowed and seeded, harrowed immediately	11·50

In all cases the rate of seeding was 1½ bushels per acre. The fields which were harrowed when 4 inches high were remarkably free from weeds. It is evident that the harrowing did more damage to the weeds than to the growing crop. It must be remembered that the soil in this case was very firm and there was practically no wheat covered by the harrowing. Harrowing a crop growing in dry, loose soil would probably cause considerable damage to the crop.

Corn cultivated twice and hoed twice.

SEVEN-YEAR ROTATION (OLD WEEDY LAND)

Rotation year	Crop	Yield per acre 1925	Value of crop	Cost of production	Profit or loss per acre 1925
			$ c.	$ c.	$ c.
1	Corn	ton 1·55	5 43	11 10	−5 67
2	Wheat (grass seeded)	bush. 15·63	21 09	11 59	9 50
3	Hay (failure) oats and peas seeded	ton 1·20	12 00	11 68	0 32
4	Fallow				
5	Wheat	bush. 18·60	25 11	16 33	8 78
6	Fallow				
7	Fall rye	25·25	18 94	16 47	2 47
	Average per acre		11 79	9 59	2 20

18230—3½

Corn grown in this rotation was a very poor crop. The great growth of weeds made frequent cultivation necessary.

The hay crop was a failure. The ground was spring-ploughed and seeded to a mixture of oats and peas.

The crop of fall rye, while it does not show much profit, was efficient in choking out weeds. Around the edges of the field where the rye was partially winter-killed there was a rank growth of stinkweed. Where the rye was not winter-killed there was practically no stinkweed. Early in the spring there were abundant evidences of stinkweed over the entire field.

The foregoing statements cover only one year's work, and no definite conclusions can be drawn from them. As far as this year's work is concerned, however, it is apparent that early spring cultivation of fallow, followed by a heavy seeding of wheat, is more likely to give a good return, combined with suppression of weeds, than any other crop or treatment. It must be noted that the fallow in this case was ploughed before any weeds went to seed, and the subsequent cultivations were timed to prevent seeding.

The average yields of wheat on this land were 21.65 on fallow and 13.48 on stubble. On the Station, fallow-wheat averaged 23.4 bushels, and stubble-wheat, 16.5 bushels.

THE COMBINE

The experience of three seasons indicates that the combined reaper-thresher can harvest and thresh wheat at a much lower cost per acre than can the binder and grain-separator. Reports on experiments with the Combine in the years 1922, 1923, and 1924 will be found in the Annual Reports of this Station for those years.

EXPERIMENTS, 1925.—It was realized that the period elapsing between binder-harvesting and combine-harvesting was the principal factor preventing the more general adoption of this means of harvesting; therefore, an attempt was made to shorten this period. An area of one hundred acres of Marquis wheat was secured for the purpose. The reaper-thresher was started six days later than the date on which the binder would be used. Similar areas were cut at intervals until the crop was undoubtedly fit to be cut by the reaper-thresher without any subsequent handling of the grain. These various cuttings were handled in the following ways:—

(1) Placed in heaps on the ground; turned over whenever necessary.
(2) Placed in ventilated bins.
(3) Passed through a blower.

Before commencing this work, the International Harvester Corporation brought a grain-dehydrating plant to Swift Current, which was set up on the Station and used in this work. This dehydrator was a large, expensive affair and was undoubtedly as efficient an apparatus for drying grain without using artificial heat as any that the average farmer would be likely to use.

The first cutting was made on August 27. It was quite evident that the moisture content was high; therefore, only 80 bushels were harvested. Half of this quantity was dumped in a conical heap on the ground, and the remaining half in the dehydrator. The grain had a moisture content of 24.9 per cent. After being passed through the dehydrator fifteen times the moisture was reduced to 23.5 per cent. The fifteen operations took place between August 28 and September 8.

The grain placed in a heap on the ground, turned over repeatedly, covered with canvas when the weather was wet, showed so little reduction in moisture that it finally moulded and became unfit for sale.

The second cutting was deferred to September 3. Three hundred bushels were put in the dehydrator and 300 in the ventilated bin. After eight dehy-

drations the moisture was reduced from 20.5 per cent to 19.5 per cent. The ventilated bin made a slightly poorer showing. Within four days the moisture-content of the grain standing in the field fell from 20.5 per cent to a point where the average was below 15 per cent. This grain would have kept in good condition in any case. All the grain above 15 per cent of moisture contained 3 per cent or more of green kernels. When the moisture-content was below 21 per cent these green kernels lost their excess moisture to the riper kernels, becoming shrivelled in appearance, but retaining the green colour. Even in grain which was low enough in moisture for the dehydrator to reduce to, or below, the critical 14.5 per cent, the presence of the 3 per cent of dry green kernels caused the elevators to reduce the grade from No. 1 to No. 3. It is evident that by using special bins or other drying apparatus the reaper-thresher can only be used four or five days earlier than would otherwise be possible, and there is a great probability of losing one or two grades on the wheat, and a possibility of having it graded as feed.

These results strongly indicate that the idea of cutting wheat, before it is ripe enough to be safely stored, and drying it in a bin or drier is not feasible and should not be attempted by users of the Combine.

Co-incident with the foregoing experiment an attempt was made to determine the comparative loss of wheat by reaper-thresher and binder. A twelve-acre field was divided into six equal areas. The alternate areas were cut by the binder, stooked and threshed. The remaining three were cut by the reaper-thresher. Before harvesting with the binder there were some signs of sawfly damage in the field. Unfavourable weather delayed the reaper-thresher to such an extent that when it was used the crop was badly damaged. There were differences in favour of the binder ranging from two to seven bushels per acre. The same fields were raked and threshed by the separator after the reaper-thresher had been used. The highest amount of grain recovered was 2½ bushels per acre. Straw and all tailings going over the end-board of the reaper-thresher were collected. These yielded one-half bushel per acre. These figures do not disclose the cause of loss on the reaper-thresher fields. It must have resulted from the raking and handling of the wheat which was cut by the sawfly. In many cases the heads were broken off with very little straw attached. These heads cannot be picked up by a rake. On another field where the sawfly damage was very slight the reaper-thresher harvested 14.8 bushels, and the binder 14.16 bushels, per acre.

The presence of sawfly in wheat makes the operation of the reaper-thresher difficult and wasteful. In the case already mentioned, in order to pick up as much as possible of the fallen grain the sickle was equipped with special lifting guards and the table lowered almost to the ground. This caused the machine to pick up all the green Russian thistle and other weeds growing in the crop. Some of the green seeds and portions of the bruised stems of the weeds were heavy enough to pass through the screens with the threshed grain. In the case of grain which had a moisture-content near the danger point the presence of these portions of weeds, even in small quantities, would be enough to cause the grain to spoil.

The only reaper-thresher in the immediate vicinity of Swift Current, other than the one on the Station, was not operated this year because sawfly damage necessitated cutting the crop while it was still fairly green.

Questionnaires were sent to seventeen operators of reaper-threshers in Saskatchewan and Alberta. Eleven were returned. The estimated saving over binding, stooking and threshing in nine cases averaged 15.6 cents per bushel. In two cases the machine cut and threshed for the cost of cutting and stooking. These figures take no account of depreciation on the machine or interest on the investment. In only one case was there enough sawfly damage to make any difficulty. It was partly overcome by using lifting guards.

In only one case was reaper-thresher wheat graded lower than binder-cut wheat. One operator reported less dockage on reaper-thresher wheat. Eight machines were used after the snowfalls beginning September 26. In two cases better grades were obtained for this wheat than for wheat threshed from the stook. Two reported trouble with green pigweed and one with Russian thistle. Two operators cut weedy flax after the storms. The weeds were dry and caused no trouble. All operators who used the Combine for harvesting flax reported it as being very satisfactory and economical for the purpose.

The districts in which reaper-threshers have been successfully used constitute a northern continuation of the short-grass region of the Western States. A line drawn from the International Boundary near Estevan through Moose Jaw, thence north to Saskatoon and westward to Calgary, would enclose all the reaper-threshers which have been used in Canada. This area may be extended in future years, but climatic and geographic conditions would seem to indicate that their use will be confined to this area.

SUMMARY.—1. The Combine can be used to harvest wheat in districts where crops ripen early and fields are reasonably level. The use of the Combine on this Station has been confined to wheat crops. Farmers report that it has been successfully and economically used to harvest flax. One operator used the machine on oats.

2. The wheat crop must be allowed to ripen to such a degree that the average moisture content is below 15 per cent before cutting with the Combine is started. This degree of ripeness is usually obtained in ten to fifteen days after cutting with the binder is started.

3. No serious loss from shelling has occurred during this ten to fifteen day ripening-period.

4. The only important loss in any year resulted from the failure of the Combine to pick up wheat which had been cut by sawfly and was blown down while the crop was ripening. Cutting with the binder would partly obviate this loss.

5. Crops which have been injured by sawfly or which contain bulky weeds such as Russian thistle or pigweed are not handled satisfactorily with the Combine.

6. Clean crops, either short or tall, and heavy, tangled crops have been handled more satisfactorily with the Combine than with the binder.

7. Dependent upon yields per acre and other factors which may affect the speed of operation, the saving effected by the Combine over the binder and separator is 10 to 15 cents per bushel. These figures include interest, depreciation and repairs as well as operating-costs on both types of equipment.

HORTICULTURE

Despite the rather dry season, the garden crops generally were more satisfactory than usual. This fact is probably to be attributed to the excellent condition of the garden soil. The land was well summer-fallowed in 1924; consequently, it was free from weeds and was well supplied with moisture in the early spring. The tomato varieties were the most conspicuously successful of all the crops grown in the garden. All varieties produced some ripe tomatoes and one variety ripened all its fruit.

VEGETABLES

BEANS—VARIETY TEST

Variety	Source of seed	Date ready for use	Yield string beans from 30-foot row	
			lbs.	oz.
Dwarf French, Bountiful	Wills	July 17	15	11
Masterpiece	Vaughan	" 18	11	6
Pencil Pod Black Wax	Burpee	" 21	10	6
Wardwell Kidney Wax	Graham	" 24	9	13
Hodson Long Pod	Rennie	Aug. 20	9	5
Masterpiece	Sutton	July 18	9	5
Round Pod Kidney Wax O. 6875	C.E.F	" 29	9	5
Yellow Eye O. 6950	C.E.F	Aug. 1	9	5
Giant Stringless Green Pod	Burpee	" 4	8	11
Stringless Green Pod, O. 6877	C.E.F	July 18	7	6
Interloper Chall. Black Wax O. 6876	C.E.F	" 18	6	13
No. 1 Pole, O. 3209	C.E.F	Aug. 8	7	6
Hodson Long Pod, O. 6904	C.E.F	" 8	5	12
Refugee, 1000 to 1	Steele, Briggs	" 20	5	2

Fourteen varieties of beans were planted on May 18, spaced 4 inches apart in the row, rows 30 inches apart. Nearly all showed through the ground 18 days after planting, and germination was even throughout. While the yields were fair, there were considerable coarse, fibrous pods, which may be partially attributed to the dry summer months. (Project H. 61.)

BEANS—DIFFERENT DISTANCES OF PLANTING

Variety	Distance sown apart in rows	Date ready for use	Yield string beans per 30-foot row	
	inches		lbs.	oz.
Round Pod Kidney Wax	2	July 25	11	12
Round Pod Kidney Wax	4	" 25	10	12
Round Pod Kidney Wax	6	" 25	10	4
Stringless Green Pod	2	" 28	11	0
Stringless Green Pod	4	" 28	11	2
Stringless Green Pod	6	" 28	11	7

The close spacing of plants resulted in higher yields, but the size of the pods was uniformly larger on the plants spaced 4 inches and 6 inches apart, and these also retained their crispness longer, which might be attributed to the greater share of available moisture. (Project H. 58.)

BEETS—VARIETY EXPERIMENT

Three varieties, or strains, namely, Detroit Turnip (Graham), Detroit Dark Red, 0.6650 (C.E.F.) and Detroit Dark Red Turnip (McDonald), were sown on April 21 and showed through the ground 20 to 25 days after. All were ready for use on July 16. For quality, Detroit Dark Red, 0.6650 was considerably superior, as indicated by its dark, even colour and fine texture. (Project H. 68.)

BEETS—DIFFERENT DATES OF SEEDING

Variety	Date Sown	% Germination	Date ready for use	Remarks
Detroit turnip	April 21	20	July 15	Attacked in early stages of growth by cutworms.
"	May 1	55	" 15	" " "
"	" 11	90	" 20	
"	" 20	95	" 24	Suitable for winter storage.
"	" 30	90	.....	Suffered considerably in early stages from drouth.
"	June 11	90	.....	" " "

(Project H.65)

BORECOLE OR KALE—VARIETY EXPERIMENT

Variety	Source of Seed	Ready for use	Height	Yield of three 30-foot rows
			inch	lbs
Kale—Tall Scotch curled	McDonald	Aug. 30	30	147
Borecole, Dwarf Green curled	Rennie	Aug. 20	18	141

(Project H.69)

BRUSSELS SPROUTS—VARIETY EXPERIMENT

Two varieties, Imperial Dwarf and Paris Market, were sown in flats on March 24, pricked out April 14, and planted in the garden May 14. Both varieties grew an abundance of stem and leaves. Small sprouts appeared on the Imperial Dwarf variety about July 20, but suffered considerably from insect damage, though pyrethrum powder was used freely. The Paris Market variety was too late in forming sprouts. (Project H. 70.)

CAULIFLOWER—VARIETY EXPERIMENT

Two varieties were under test, Henderson Snowball and Extra Early Dwarf Erfurt. The latter produced the first few heads on August 2. Henderson Snowball followed on August 25. The majority of the heads, however, were small and few of the fair-sized ones were of the desired close, compact type. (Project H. 88.)

CABBAGE—VARIETY EXPERIMENT

Variety	Source of Seed	Date ready for use	Average Yield of Cabbage per 30-foot row
			lbs.
Glory of Enkhuizen	Rennie	July 25	118
Succession	Ewing	" 20	109
Early Ballhead Novelty	Steele, Briggs	" 18	96
Kildonan	Steele, Briggs	Aug. 5	85
Danish Ballhead Intermed	Harris	Sept. 28	83
Golden Acre	Harris	July 15	83
Danish Ballhead—Solid Emperor strain	Harris	Sept. 20	83
Copenhagen Market Novelty	James	July 14	79
Early Summer	Rennie	" 20	78
Summer Ballhead	Harris	Aug. 1	77
Danish Roundhead	Dupuy & Ferguson	July 20	75
Danish Ballhead	Rennie	Sept. 20	67
Northern Favourite	McKenzie	.....	66
Danish Ballhead—Short stem	Harris	Sept. 20	59
Copenhagen Market	Graham	July 20	58
True Danish Ballhead	Burpee	Sept. 20	51
Early Jersey Wakefield	McDonald	July 15	47
Ex. Am. Danish Ballhead, O. 3422	C.E.F.	Sept. 20	44
Brandon Market	McKenzie	.....	42
Early Paris Market	McDonald	.....	35
Early Winningstadt	Steele, Briggs	Killed by frost May 9	

Cabbage varieties were sown in flat boxes March 23, pricked out from the 9th to the 13th of April, and transplanted to the garden from the 6th to the 7th of May.

All varieties, with the exception of Early Winnigstadt, which was killed by frost on the 9th of May, made strong, even growth from the date of planting; Early Jersey Wakefield, Golden Acre, Early Summer and Copenhagen Market are among the best early varieties. Glory of Enkhuizen, Succession, and Kildonan are among the best late varieties. (Project H. 77.)

CABBAGE—DIFFERENT DATES OF SOWING FOR STORAGE PURPOSES

Variety	Source of seed	Date of sowing	Date of germination	Per cent germination	Ready for use	Number of heads harvested per 30-foot row	Weight of heads	Remarks
				%			lbs.	
Copenhagen Market.	James....	April 22..	May 12..	85	Aug. 25..	8	62	Very large; all heads split.
" ..	"	May 1..	" 12	85	" 25..	12	89	Very large; some split.
" ..	"	" 11..	" 25..	90	" 30..	15	78	All quite large.
" ..	"	" 20..	" 30..	90	Sept. 9..	18	90	"
" ..	"	June 5..	June 15..	90	" 10..	14	51	Good size for storing.
Extra Amager Danish.	C.E.F....	April 22..	May 12..	30	" 13..	10	50	Some quite large.
Ballhead, O.3422	"	May 1..	" 12..	80	" 13..	14	56	Mostly small.
" 3422	"	" 11..	" 28..	85	.....	14	49	All small.
" 3422	"	" 20..	June 4..	85	.....	11	26	Very small.
" 3422	"	June 5..	" 15	90	.....	.....	.....	Heads not formed.

All seed sown on or before May 20 germinated very unevenly. Not until after the showers of May 22 did nearly all the seed grow. This resulted in very patchy rows, and plants had to be transplanted to fill in the gaps. (Project H. 72.)

CARROTS—DIFFERENT DATES OF SEEDING

Date sown	Date of Germination	Ready for Use	Average Yield per 30-foot row	
			lbs.	oz.
April 21	May 18	July 15	43	0
May 1	" 19	" 15	31	4
May 11	" 25	" 20	18	12
May 20	June 11	" 25	17	8
June 10	" 18	Aug. 15	18	12

The first sowing required twenty-seven days before it showed above ground. This was due to the cool spring weather. Seed sown on the 20th May required twenty-two days before it came through the ground. The surface soil was dry at the time of sowing.

The first two sowings produced good, suitable-sized roots for summer use; carrots suitable for winter storage were obtained from seed sown on the 11th and 20th of May. Carrots sown on the 10th of June were all too small. (Project H. 79.)

CELERY—VARIETY EXPERIMENT

Variety	Source of Seed	Weight of 60 plants	Remarks
		lbs.	
Paris Golden Yellow New Giant.	Steele, Briggs.....	85	Well blanched—medium to large stalks.
Golden Self Blanching O. 3410....	C.E.F.....	68	Well blanched.
Easy Blanching Garrahan.....	Graham.....	65	Stalks, tall thick.
Evans Triumph.....	Dupuy & Ferguson..	64	Stalks medium to thin—fairly well blanched.
White Plume.....	Graham.....	63	Hearts and inner leaves blanched only.
Gold Plume Novelty.....	Morse.....	60	Fairly well blanched.
Easy Blanching.....	Graham.....	58	Tall, thin stalks—fairly well blanched.
Fordhook New Emperor.....	Vaughan.....	57	Stalks thick—blanching nearly complete.
Paris Golden Yellow.....	Dupuy & Ferguson..	56	Stalks medium—blanching nearly complete.
New Golden Novelty.....	Ferry.....	55	Stalks thick and heavy—fairly well blanched.
Golden Self Blanching.....	Stokes.....	50	Stalks medium—well blanched—quality very good.

The celery varieties were sown in flat boxes on March 24, pricked out about the middle of May, and planted on June 11 in double rows 6 inches apart and plants spaced 6 inches apart in the row, in trenches 15 feet long, one foot wide and one foot deep, having a 6-inch layer of manure in the bottom. The earth thrown out when digging the trenches was thrown back gradually when the plants were ready for blanching. (Project H. 94.)

CELERY—BLANCHING EXPERIMENT

Method of planting	Method of blanching	Yield of celery per 30 plants	Remarks
		lbs.	
Grown on level bed 6 feet square—plants spaced 6″ x 6″.....	Earth covering.....	14½	Mostly small—Unblanched.
Grown on level in fifteen-foot rows plants 6 inches apart.....	Earth covering.....	29	Plants small—Unblanched, not edible.
Grown on level in double rows, rows 6″ apart, plants spaced 6″ apart in row.....	Ready roofing covering.	19½	Plants small—Unblanched, not edible.
Grown in trench 6″ deep, plants 6″ apart.....	Earth covering.....	42	Fairly large—Blanched, edible.
Level rows—plants 6″ apart.....	Board blanching.....	25	Green—Stumpy—Not edible.

The celery plants were dug on October 14. Up to this time there had been a few light frosts. Those grown in the trenches were not damaged; those grown on level ground were caught. Plants grown on level land did not make sufficient growth for the blanching test to be made properly. (Project H. 90.)

CORN—SUCKERING EXPERIMENT

Variety	Suckers left on or removed	Date ready for use	Weight of corn on the cob per 20 hills
			lbs.
Golden Bantam	left on	Aug. 28	93¾
Golden Bantam	removed	" 28	66
Early Malcolm	left on	" 23	66
Early Malcolm	removed	" 23	43½

In this experiment, not only did the removal of suckers depreciate the yield of cobs, but there was exhibited a tendency to reduce the size of the cob. (Project H. 101).

LETTUCE—VARIETY EXPERIMENT

Variety	Source of seed	Type	Average yield per thirty-foot row
			lbs.
Early Curled Simpson	Dreer	Loose	47¼
Grand Rapids	McKenzie	Loose	43¾
Black Seeded Simpson	Vaughan	Loose	39
Iceberg	Ewing	Cabbage	38¾
Black Seeded Simpson	Ewing	Loose	36¾
Extra Curled Simpson	Harris	Loose	35½
New York	McKenzie	Cabbage	35
Denver Market	Vaughan	Cabbage	22½
All Seasons	Vaughan	Cabbage	13½

The loose-leaf varieties produce a large amount of leaf freely, but are apt to become bitter in taste in a short time in a dry season. Among the cabbage-head varieties, Iceberg and New York are to be recommended. (Project H. 116).

MUSKMELON—VARIETY EXPERIMENT

Eight hills each of Tip Top and Page Early varieties were planted on May 19. Page Early produced the first few ripe melons on September 15. Tip Top followed ten days after. In yield, however, Tip Top was much superior, producing 23 pounds as compared with the yield of 11 pounds of Page Early. Both varieties were covered at night during the latter part of September to protect them from frost. (Project H. 122).

ONIONS—VARIETY EXPERIMENT

Onions have not been successfully grown. Seed of twenty-four varieties was sown on April 28 and all emerged from the 15th to the 18th of May. At that time the first few inches of soil were dry and occasional hot winds came from the southwest which gave the small seedling a serious setback. The test in future will be made by early planting of onion seed in flat boxes and transplanting as early as possible in the spring. (Project H. 138).

ONION SETS—VARIETY EXPERIMENTS

Red onion sets and yellow onion sets were planted out April 28 and showed up strongly above ground one week later. These stood the dry summer much better than the varieties grown from seed, although the yields were only fair. The yield per 30-foot row of yellow onions was 10¼ pounds, and 8½ pounds for the red variety, the first onion being a little larger than the second. (Project H. 378).

PARSNIPS—DIFFERENT DATES OF SEEDING

Date sown	Date germinated	Date ready for use	Average yield per thirty-foot row
			lbs.
April 21	May 2	Aug. 30	15
May 1	June 15	" 30	16
May 10	" 15	Sept. 15	17½
May 20	" 18	" 15	15
May 30	" 20	" 30	13½
June 14	" 28		0

As in previous years, early seeding of parsnips gave the maximum results in points of yield, size and quality of roots. (Project H. 142).

PEAS—DIFFERENT DISTANCES OF PLANTING

Variety	Distance between plants in row	Date ready for use	Size of pod	Number of peas per pod	Length of stem	Average yield per thirty-foot row	
	inches		inches		inches	lbs.	oz.
Thomas Laxton	3	July 14	3½	7	30	7	6
Thomas Laxton	2	" 14	3	5	30	7	11
Thomas Laxton	1	" 14	3	5	30	8	15
Stratagem	3	" 26	3½	7	20	8	1
Stratagem	2	" 26	3½	7	20	10	10
Stratagem	1	" 26	3½	6	20	10	6
English Wonder	3	" 4	3	7	16	10	8
English Wonder	2	" 4	2½	6	15	10	7
English Wonder	1	" 4	2½	6	15	10	12

From the test it would appear that early peas may be sown closer together than late peas. In the case of the English Wonder, the earliest of the varieties in the test, there appears no appreciable difference in yields, but the size and number of peas per pod were larger when plants were grown 3 inches apart. Stratagem, the latest of the varieties, produced the highest yield, with large, well-filled pods, when grown 2 inches apart. Thomas Laxton is a medium early variety. (Project H. 148).

POTATOES—VARIETY TEST

Variety	1925 crop average yield		Average yield for three years test
	Per seventy-foot row	Per acre	Per acre
	lbs.	bush.	bush.
American Wonder	88½	254	391
Epicure	84½	242	375
Ashleaf Kidney	78	223	370
Burnaby Mammoth	83	237	355
Houghton Rose	67	192	351
Wee McGregor	82½	236	348
Carter Favourite	70½	202	332
Duchess of Norfolk	78	223	328
Extra Early Eureka	65½	187	328
Irish Cobler	70½	202	320
Country Gentleman	60½	173	294
King Edward	58	166	292
Early Ohio	75	215	259
Duke of York	47½	135	240

The yield for potatoes was not so good as for the two previous years. The American Wonder variety and Epicure have been the highest yielders for the past three years. The first, however, is a large, rough potato; the latter is a fairly large and smoother variety. The Irish Cobbler, while not so good in yield, possesses excellent cooking qualities. The Duke of York, a very smooth, medium to small variety, with a thin skin of russet colour, is a very early variety and is very suitable for early summer use. (Project H. 186).

POTATOES—DIFFERENT DATES OF PLANTING

Variety	Date planted	Date emerged	Average yield per thirty-foot row	Remarks
			lbs.	
Irish Cobbler	April 28	May 20	44	All good size.
Irish Cobbler	May 11	" 24	41½	All good size.
Irish Cobbler	" 23	June 15	32	Many small.
Irish Cobbler	June 10	" 20	.....	Very poor.
Early Ohio	April 28	May 28	24½	All good size.
Early Ohio	May 11	" 29	31½	Some small.
Early Ohio	" 23	June 15	39	Many small.
Early Ohio	June 10	" 22	.....	Very poor.

The test indicates that, in order to secure potatoes of a good size, the seed should be planted early. (Project H. 162).

RADISH—VARIETY EXPERIMENT

Of the eight varieties that were tested, the following are to be recommended: Scarlet Turnip, White Tip, a medium-sized, round variety of mild flavour; French Breakfast, red, fairly large and oval in shape; Icicle, white, long, and very mild in flavour. (Project H. 192).

SQUASH AND PUMPKIN—VARIETY EXPERIMENT

Golden Hubbard, Long White Bush, Kitchenette, Table Queen, and Perfect Gem squash were grown in this test. Six seeds were planted in a hill and later thinned to three plants per hill. The hills were prepared by excavating a hole one foot deep and putting a 6-inch layer of well-rotted manure in the bottom and filling in to the ground level with good soil and leaving the surface saucer-shaped. The Kitchenette and Long White Bush grew fast and made large foliage. The remainder were slow germinating and by July 20 they had made very little progress. Three hills of Kitchenette yielded 92 pounds of squash. Three hills of Long White Bush yielded 50 pounds, and one hill of Golden Hubbard yielded 55 pounds.

Four hills of three plants each of Sugar Pumpkin produced 297 pounds of fruit, the first of which was ripe September 5. (Project H. 201).

SWISS CHARD—VARIETY EXPERIMENT

Fordhook Giant was the only variety grown. This was sown April 21 and was ready to use on July 20. The plants grew to a height of 20 inches. The average yield from a 30-foot row consisting of twenty-four plants was 52 pounds.

RHUBARB—DEVELOPMENT FROM SEED

Ruby No. 45 was used for this test. The seed planted this year did not germinate well, due to dry weather, and when seedlings were transplanted in the fall they killed out. Seed that was sown and transplanted in 1924 made good progress this year but had not become sufficiently established to enable it to produce many stalks fit for use. (Project H. 356).

TURNIPS—VARIETY EXPERIMENT

Extra Early Purple Milan, Golden Ball, Red Top Strapleaf and Early Purple Top Milan were sown on April 22. The first two were ready for use on May 25 and the last two about a week later. All yielded well. (Project H. 214).

TOMATOES—VARIETY EXPERIMENT

Variety	Source of seed	Date of ripening of first few ripe fruit	Yields per 16 plants in thirty-foot row	
			Green tomatoes	Ripe tomatoes
			lbs.	lbs.
Abbotsford Argo	A. H. Horn Abbotsford, B.C.	July 28	.....	42½
IXL Extra Early	Rennie	Aug. 24	42	28½
Danish Export	Wibolt	July 27	32	24½
Alacrity O-6-6-1	C.E.F. O. 5465	Aug. 17	44	22
Bolgiana Novelty	Bolgiana	" 15	42	19
Burbank	Bruce	" 14	49	18½
Pink No. 1	C.E.F. O. 5463	" 17	32	18
Alacrity x Hipper	C.E.F. O. 5485	" 21	38	15½
Alacrity x Earlibell	C.E.F. O. 5455	" 17	42	15½
Alacrity O-10-5-1	C.E.F. O. 5468	" 14	41	14½
Wayahead Novelty	Bruce	" 24	47	14
Manyfold Novelty	Livingstone	" 16	42	12½
Chalks Early Jewel	Burbank	" 17	51	11½
Sparks Earliana	Burpee	" 17	52	11½
First and Best Novelty	Bruce	" 14	49	10½
Monumental Novelty	Bolgiana	" 17	44	10
N. Dakota Earliana	Wedge	" 14	44	9
Bonny Best	Stokes	" 15	39	8½
Burbank Novelty	Burbank	" 24	47	7½
Bonny Best—Standard Strain	Stokes	" 14	38	6½
Favourite Novelty	Livingstone	" 28	36	5½
Greater Baltimore	Stokes	" 24	51	4½
Self Pruning	Burpee	" 24	34	4½
Rosy Morn	Livingstone	" 17	38	4½
John Bear	Burbank	Sept. 10	33	4
Beauty Novelty	Livingstone	Aug. 24	43	3
Early Detroit	Ferry	Sept. 20	29	2½
San Jose Canner	Morse	" 5	38	2
Earliest Market	Burpee	" 10	36	1

Due to the long frost-free period this season, the ripening period of tomatoes lasted from the 14th August to the 24th September, when the entire crop was picked before any serious frost occurred. All plants were pruned to one stem and tied with raffia to stakes, spaced 42 inches by 30 inches. Occasional hot south winds caused some scalding. Blossom-end rot appeared at the end of the season. (Project H. 211.)

TOMATOES—METHODS OF TRAINING

Variety	Method used	Date of ripening first few fruits	Average yield of tomatoes per thirty-foot row of 16 plants		
			Green and ripe	Green	Ripe
			lbs.	lbs.	lbs.
Bonny Best	Single stem not headed back	Aug. 14	50	35	15
Bonny Best	Single stem stopped at first fruit truss	" 16	8½	1½	6½
Bonny Best	Single stem stopped at second fruit truss	" 13	28½	18	10½
Bonny Best	Single stem stopped at third fruit truss	" 13	51¼	31	20¼
Alacrity, O. 661	Single stem not headed back	" 7	63¼	38	25¼
Alacrity, O. 661	Single stem stopped at first fruit truss	" 7	12¼	4	8¼
Alacrity, O. 661	Single stem stopped at second fruit truss	" 16	23½	6	17½
Alacrity, O. 661	Single stem stopped at third fruit truss	" 14	47½	25	22½

Contrary to what is usually considered good practice, pruning of tomato plants has resulted in slightly later ripening of fruit and a corresponding material decrease in yield of both green and ripe tomatoes, according to the severity of the pruning. (Project H. 207.)

TREES AND SHRUBS FOR SHELTER AND ORNAMENTAL PURPOSES

An additional number of trees and shrubs was planted out in the shelter-belts and ornamental places; they were: 100 elm, 3 to 4 feet high; 100 ash, 2 to 3 feet high; 200 laurel leaf willows, 2 to 3 feet high; 100 Scotch pine; 200 white spruce; and a considerable number of lilac, flowering currant, *Rosa rugosa,* and Tartarian honeysuckle.

Russian poplar planted in the spring of 1923 made excellent growth this year. The average height in the spring was about 5 feet; by fall they averaged 8 feet in height.

Elms, 3 feet high when planted out in the spring of 1924, came through the winter well, leafed out early in the spring and are now well established to make good growth.

Green ash, were 2 to 3 feet high when planted out in the shelter-belts, 1924. Many of these did not winter well and were very late in leafing out.

Manitoba maple. Two-year-old plants planted in shelter-belts 1924 killed back considerably and tend to assume a scrubby appearance.

Scotch pine. Plants 10 inches high were planted in shelter-belts and at various points for ornamental purposes. It was observed that a few of these dropped their needles in the spring, due to a fungous infection; nearly all, however, made good growth.

White spruce. Plants 8 to 10 inches high were planted in the shelter-belts and in ornamental groves in 1923. A few died in the winter and were replaced in 1924. Only a very few failed to come through the winter of 1924 and 1925.

Flowering shrubs showed considerable bloom during late spring and early summer months. The following appear in the order in which they bloomed:—

Name	Began to bloom	Bloom over
Flowering Currant	May 18	June 28
Caragana frutescens	" 20	" 15
Caragana arborescens	" 21	" 12
Caragana pygmaea	" 24	" 10
Common lilac	" 25	" 22
Spirea, Van houteii	" 27	" 12
Tartarian honeysuckle	" 28	" 26
Spiraea aruncus	" 28	" 25
Siberian dogwood	" 30	" 20
Potentilla fruticosa	June 3	" 28
Albert Regal honeysuckle	" 5	" 23
Rosa rugosa	" 18	Sept. 10

PERENNIALS—VARIETY EXPERIMENT

A large number of perennials was sown in flat boxes early in the spring and some in outdoor beds in late spring. Those which made sufficient growth were planted out about the first of June. The more slow growing varieties were planted out in September. These are being used to replace many of the annual flower-beds.

ANNUALS—VARIETY EXPERIMENT

Due to the dry season, the annuals did not germinate readily, and consequently did not make so good a showing as they did the previous year. The following made the best showing this year:—

Hardy Annuals (53 varieties or strains in test): alyssum, Virginian stock, candytuft, calendula, mignonette, gypsophila, coreopsis, helichrysum, asperula, shirley poppies, and various sunflowers.

Half Hardy Annuals (21 varieties or strains). These were all started in flat boxes indoors March 27 and planted out about the 16th of June: Ten-weeks stock, *Statice sinuata,* French marigold, African marigold, and *Kochia trichophila,* were the best varieties. Cosmos did not bloom well till late in the season. (Project H. 261.)

SWEET PEAS—VARIETY TEST

As was the case with all other annuals, sweet peas did not bloom nearly so profusely as they did last season. Many began to bloom on the 12th of July and practically ceased by August 18, when considerable rain fell, and all began to bloom again and continued till September 20.

The following are among the best this season:—

Hawlmark Pink, King Mauve, King White Improved, Mrs. C. P. Tomlin, Mrs. Collier, Royal Purple, Royal Scot, Constance Hinton, Mrs. Tom Jones, and Picture.

TULIPS—VARIETY EXPERIMENT AS ANNUALS

Thirty-nine varieties were planted 6 inches deep, bulbs 8 inches apart, in good soil in outdoor beds about October 15. All were protected over winter with a 6-inch covering of short, rotted manure. Nearly all came through the winter and made good growth in the spring.

The following are among those making the best showing:—

Early Single Tulips.—Vermilion Brilliant (vermilion), Artus (scarlet), Duchesse de Parma (flame), La Reine (white), Proserpine (pink).

Early Double Tulips.—Murillo (white), Couronne D'or (golden yellow).

Darwin Tulips.—La Candeur (white), Rev Ewbank (violet), Dream (lilac).

May Flowering Tulips.—Picotee (white), Mrs. Moon (gold yellow). (Project H. 290.)

CEREALS

Cereal investigation methods in 1925 have followed very closely those described in the 1924 Report. Provision has been made for testing barley and oat varieties on both fallow and second-crop land. Rod-row and head-row work have been increased, though, unfortunately, sawfly damage in the rod rows was so great that the value of the work was very much diminished. Fifty acres of Garnet wheat were grown in some of the field rotations. Yields varied from 17 to 26 bushels per acre, conforming fairly closely to yields of Marquis under the same conditions.

COMMON SPRING WHEAT—TEST OF VARIETIES OR STRAINS
1/50-acre Plots—Triplicated. Sown on Fallow May 1

Swift Current Number	Variety	Date ripe	Number of days maturing	Height at Harvest	Sawfly damage	Yield grain per acre
				(inch)	%	bush.
37	Kitchener	Aug. 12	104	28	15	27·98
101	Early Red Fife	" 12	104	32	15	27·21
39	Supreme	" 10	102	30	15	26·79
31	Garnet	" 1	93	30	5	26·53
33	Producer O. 197	" 6	98	28	15	26·44
28	Ruby	" 3	95	34	5	23·59
40	Golden	" 9	101	30	15	23·39
103	Marquis, O. 15	" 7	99	32	15	23·33
38	Early Triumph	" 7	99	30	15	23·33
10	Kota	" 6	98	30	15	22·56
11	Reward O. 928	" 3	95	31	10	22·01
12	Brownie O. 191	" 3	95	31	15	21·73

In comparing yields per acre of the different varieties of wheat it should be remembered that in different years the varieties stand in different orders of value. This fact is probably due to several factors. The first of these is that the varying weather conditions from season to season do not affect all varieties alike; that is, a certain set of weather conditions may have a greater effect, either favourable or adverse, on one variety or another. Then there is a degree of error in all experiments which can be overcome only by repeated trials over a period of years. For these reasons, final appraisal of the merits of the different varieties must await the completion of several years' tests. (Project Ce. 1.)

SPRING WHEAT—VARIETIES AND STRAINS
Comparative Yields for a Number of Years

Variety	Yield of grain, bushels, per acre						Comparative Yields in per cent of Marquis for same years
	1922	1923	1924	1925	Average for years grown	Average for Marquis for same years	
	bush.	bush.	bush.	bush.	bush.	bush.	%
Kitchener	38·00	22·60	19·92	27·98	27·12	25·34	107·02
Kubanka O. 37	37·33	26·00	19·78	24·51	26·90	25·34	106·15
Supreme	32·00	26·00	18·25	26·79	25·76	25·34	101·65
Marquis	32·00	27·50	18·55	23·33	25·34	25·34	100·00
Ruby	31·33	25·70	19·52	23·59	25·03	25·34	98·77
Early Red Fife	30·66	22·30	18·57	27·21	24·68	25·34	97·39
Early Triumph	27·33	21·30	20·41	23·33	23·09	25·34	91·12
Kota	.....	25·40	15·79	22·56	21·25	23·32	83·85

In the preceding table an effort is made to present a statement of the relative yielding powers of some of the more common varieties of spring wheat, based on trials covering four years. Two limitations of the tabular data must be kept in mind when making comparisons between varieties: the first is that the trials should be extended over a longer period before definite conclusions are drawn. The second limitation is that yield alone is not always a true indication of the value of a variety. In this table, Kubanka, though not a bread wheat, is included with the others for purposes of comparison. While Kubanka has yielded six per cent more than Marquis, it is probable that the average value per acre of the Kubanka crop would be less than that of Marquis. Kitchener wheat has outyielded Marquis by seven per cent, but Kitchener is open to the objection that it frequently grades lower than Marquis, and requires an extra six days to mature. Supreme and Marquis are almost equal in yield. The quality of Marquis is slightly better, and it shows less of a tendency to shatter.

It would seem advisable for farmers in southwestern Saskatchewan who are now growing Marquis to continue to grow that variety until something distinctly better is available.

DURUM WHEAT—TEST OF VARIETIES OR STRAINS

1/50-acre plots, triplicated. Sown May 1 on Fallow, 70 lb. per acre

Swift Current Number		Date ripe	Number of days maturing	Average length of straw including head	Yield grain per acre
				inch	bush.
34	Acme	Aug. 15	107	32	26·09
24	Kubanka O. 37	Aug. 15	107	36	24·51

(Project Ce. 3)

OATS—TEST OF VARIETIES OF STRAINS GROWN ON FALLOW

1/100-acre plots—triplicated. Sown May 9

Swift Current Number	Variety	Date ripe	Number of days maturing	Length of straw	Strength of straw on scale of ten points	Stand	Yield grain per acre
				inch			bush.
73	Banner	Aug. 14..	99	36	9·0	Thick....	65·2
62	Gold Rain	" 12..	97	37	9·0	" ..	63·4
73	Banner	" 12..	97	36	9·3	" ..	63·2
19	Leader	" 12..	97	34	8·8	Normal..	63·0
3	Gerlach	" 12..	97	34	8·8	Thick....	61·7
13	O.A.C. No. 72	" 14..	99	36	9·0	" ..	58·6
61	Victory	" 10..	95	33	9·1	Normal..	56·6
18	Abundance	" 14..	99	35	9·1	" ..	55·9
15	Longfellow	" 11..	96	34	9·1	Patchy...	55·1
63	Daubeney	July 31..	85	28	5·3	Normal..	48·0
2	Cole	" 31..	85	28	9·0	" ..	44·6
24	Alaska	Aug. 9..	94	33	7·0	" ..	41·5
14	Laurel	" 9..	94	31	8·5	" ..	36·7
23	Liberty	" 10..	95	33	8·6	Patchy...	19·6

(Project Ce 5)

OATS—TEST OF VARIETIES OR STRAINS

GROWN ON SPRING-PLOUGHED OAT-STUBBLE

1/100-acre plots—triplicated. Sown May 9

Swift Current Number	Variety	Date ripe	Number of days maturing	Length of straw	Strength of straw on scale of ten points	Stand	Yield grain per acre
				inch			bush.
73	Banner	Aug. 12..	97	29	8·8	Normal..	52·2
61	Victory	" 10..	95	28	8·8	" ..	51·4
19	Leader	" 12..	97	30	8·8	" ..	47·4
2	Cole	" 8..	93	26	6·6	" ..	46·3
63	Daubeney	" 10..	95	27	7·1	" ..	43·3
18	Abundance	" 14..	99	29	8·8	" ..	41·5
62	Gold Rain	" 12..	97	32	9·0	" ..	39·2
13	O.A.C. No. 72	" 14..	99	32	8·8	" ..	38·9
3	Gerlach	" 12..	97	30	8·6	" ..	38·7
15	Longfellow	" 13..	98	30	8·1	Thin and Patchy	36·3
14	Laurel	" 11..	96	26	8·0	Normal..	31·2
24	Alaska	" 10..	95	28	7·0	Thin.....	25·9
23	Liberty	" 10..	96	28	8·0	" ..	14·0

(Project Ce 5)

OATS—VARIETIES AND STRAINS—COMPARATIVE YIELDS FOR A NUMBER OF YEARS

Variety	Yield of grain, bushels per acre						Comparative yields in per cent of Banner for same years
	1922	1923	1924	1925	Average for years grown	Average for Banner for same years	
	bush.	bush.	bush.	bush.	bush.	bush.	%
Gerlach	.....	68·5	51·8	61·7	60·6	53·1	114·1
Victory	.....	55·0	59·5	56·5	57·0	53·1	107·3
Gold Rain	70·6	53·5	52·3	63·4	59·9	58·5	102·3
Banner	74·8	60·3	33·8	65·2	58·5	58·5	100·0
O.A.C. No. 72	71·6	58·3	43·3	58·6	57·9	58·5	98·9
Leader	63·5	63·9	.....	63·0	63·4	66·7	95·0
O.A.C. No. 3	51·6	55·7	47·0	.....	51·4	56·3	91·4
Cole	.....	.....	45·0	44·4	44·7	49·5	90·3
Abundance	.....	44·3	42·7	55·9	47·6	53·1	89·6
Daubeney	68·0	50·4	42·2	48·0	52·1	58·5	89·0
Longfellow	.....	.....	32·2	55·1	43·6	49·5	88·0
Laurel	.....	.....	.....	36·7	36·7	61·7	59·4
Liberty	48·0	42·5	.....	19·6	36·7	66·7	55·0

(Project Ce 5)

Oat varieties are tested on both fallow and stubble-land. On an average, oat varieties grown on spring-ploughed stubble-land yielded 22 per cent less than when grown on fallow. As will be seen in the table of comparative yields for a number of years, Gerlach, Victory, Gold Rain, and Banner are highest in yield in the order mentioned.

Gerlach.—A selection made by the University of Saskatchewan from a variety grown by Mr. Paul Gerlach, ripening about two days earlier than Banner and weighing, on an average for the past three years, 37½ pounds per measured bushel.

Victory.—A Swedish variety, kernels somewhat shorter than Banner, usually ripens with Banner, and weighing, these past three years, an average of 39½ pounds per bushel.

Gold Rain.—Ripens usually about two days earlier than Banner, weighs well per measured bushel, having a three-year average weight of 43 pounds per bushel. The dull yellow colour of the hull is its chief objection with some people.

Laurel, O. 474.—A new, hulless variety which grows a larger kernel than Liberty, another hulless, more commonly grown and better-known variety.

The early varieties yield considerably less than the late varieties at this Station.

BARLEY GROWN ON FALLOW—TEST OF VARIETIES AND STRAINS

1/100-acre plots—Triplicated. Sown May 12.

Swift Current Number	Variety	Date ripe	Number of days maturing	Length of straw	Strength of straw on scale of ten points	Stand	Yield grain per acre
				inch			bush.
15	Hannchen	Aug. 10..	91	28	8·83	Fairly thick	44·5
2	Bearer O. 475	Aug. 14..	95	31	8·5	Thick	39·6
22	Charlottetown No. 80	" 11..	92	28	8·0	"	39·3
10	Duckbill	" 12..	93	25	9·0	Normal	38·2
23	Trebi	" 9..	90	25	9·2	"	36·9
20	Junior O. 471	" 11..	92	31	9·0	"	34·8
16	O.A.C. No. 21	" 11..	92	32	9·0	"	34·3
17	Bark's	" 17..	98	23	9·5	"	33·8
9	Chinese O. 61	" 11..	92	31	9·0	"	32·5
14	O.A.C. 21 (Sask. 228)	" 11..	92	31	9·0	"	31·0
25	Guymayle	" 8..	89	24	8·0	"	26·9
16	Albert	" 3..	84	28	8·8	"	26·1
13	Feeder O. 561	" 10..	91	32	9·0	"	17·5

(Project Ce 6)

BARLEY—GROWN ON SPRING-PLOUGHED STUBBLE—TEST OF VARIETIES OF STRAINS

1/100-acre plots—triplicated. Sown May 12

Swift Current Number	Variety	Date ripe	Number of days maturing	Length of straw	Strength of straw on scale of ten points	Stand	Yield grain per acre
				inch			bush.
15	Hannchen	Aug. 14	89	26	8·5	Normal	33·8
22	Charlottetown 80	" 17	98	24	8·3	Fair	21·8
21	Bearer O. 475	" 15	96	24	9·0	"	21·3
23	Trebi	" 11	92	23	8·8	"	20·9
16	Albert	" 8	89	26	8·5	"	20·0
10	Duckbill	" 14	95	26	9·0	Fair to Normal	18·7
20	Junior O. 471	" 11	92	30	9·0	Fair	18·0
17	Barks	" 19	100	18	9·0	Patchy	18·0
25	Gymayle	" 9	90	20	9·0	"	17·8
19	Feeder O. 561	" 10	90	33	9·0	Fair	16·6
16	O.A.C. 21	" 11	92	29	9·0	"	16·6
14	O.A.C. 21 (Sask. 228)	" 8	92	29	8·8	"	14·6
9	Chinese O. 61	" 11	92	29	8·8	"	13·5

(Project Ce 6)

Barley varieties are grown on both fallow and stubble-land. Some varieties show a difference in yield of as much as 40 per cent in favour of the fallow land.

Barley varieties, like other cereals, vary considerably from year to year in relative yields. For this reason, it is very important to collect data over a period of years before making any decision as to the most suitable varieties.

Hannchen.—A Swedish two-rowed selection out of an Austrian variety called Hanna. Under favourable moisture conditions it will lodge badly.

Bearer, O-475.—A six-rowed, awned variety from a cross made in 1903 between Blue Longhead and Gordon, the latter a cross from Baxter's Six-row and Duckbill.

Charlottetown No. 80.—A two-rowed, bearded selection made at the Experimental Station, Charlottetown, P.E.I., from Old Island Two-rowed. It has a tendency to drop its awns before and during harvest.

PEAS—TEST OF VARIETIES—SOWN MAY 14 ON PLOUGHED CORN-STUBBLE

1/50-acre plots—triplicated.

Swift current number	Variety	Date ripe	Average of triplicates	
			Length of straw	Yield peas per acre
			inches	bush.
11	Carleton	Aug. 27	27	31·4
4	Golden Vine	" 27	32	29·1
23	Chancellor	" 14	26	26·2
12	Golden Vine Sask. No. 625	" 15	30	26·2
13	Arthur O. 18	" 19	27	25·1
7	Canadian Field	" 15	33	24·5

While the pea crop was not so successful as it was in 1924, all the varieties made good growth and produced good yields of vines as well as grain. (Project Ce. 7).

FLAX—TEST OF VARIETIES—SOWN ON DISKED CORN-STUBBLE MAY 13

1/50-acre plots—triplicated

Swift current number	Variety	Date ripe	Number of days maturing	Length of straw including head	Yield of grain per acre	
					1925	Three-year average
				inches	bush.	bush.
2	Novelty	Aug. 10	90	24	8·9	14·0
4	Common	" 10	90	24	7·6	14·5
1	Premost	" 10	90	26	7·3	12·7
3	Crown	" 6	86	24	7·1	12·4

This year, yields of all varieties of flax were somewhat lower than usual. Differences in yield have not been sufficient to justify any claim of marked superiority of one over the others. Flax wilt has not been observed in any of the flax plots. (Project Ce. 9).

FALL RYE—TEST OF VARIETIES SOWN ON FALLOW SEPT. 2, 1924

1/50-acre plots.

Swift current number	Variety	Date ripe	Length of straw including head	Yield grain per acre
			inches	bush.
8	Rosen Sask. No. 299	July 21	46	26·7
6	Advance	" 19	44	25·8
10	Common	" 21	41	25·6
7	N. Dakota No. 295	" 21	44	23·7
9	N. Dakota No. 959	" 18	42	21·5
5	Swedish Sask. No. 669	" 19	44	21·1

All varieties made strong growth in the fall and went into winter well rooted. The varieties reported in the table were grown in an area which was covered with snow a good part of the winter, and very little winter-killing resulted. Other plots of Swedish, Advance, and N. Dakota 959, not reported in the table, were located in an area on which the snow did not lie during the winter. This was apparently the cause of considerable winter-killing on these plots. (Project C. 11.)

WHEAT AND FLAX—COMBINATION CROP SOWN MAY 4 ON FALL-PLOUGHED LAND

1/50-acre plots—triplicated.

Crop	Rate seeded per acre		Length of straw including head		Yield of grain per acre	
	Wheat	Flax	Wheat	Flax	Wheat	Flax
	lbs.	lbs.	inches	inches	bush.	bush.
Wheat alone	70	.....	24	.....	19·7	.....
Flax alone	.....	30	.....	22	.....	4·2
Wheat and flax	50	10	24	15	5·6	1·3
Wheat and flax	35	15	24	15	5·6	1·4
Wheat and flax	25	20	24	15	4·5	1·4

In this test, plots which were seeded wholly or partly to flax were somewhat more weedy than those which were seeded to wheat alone at the normal rate of seeding. This fact accounts for the low yields of both flax and wheat when grown in combination. (Project C. 58.)

FORAGE CROPS

The forage-crop work is carried out along the lines laid down in previous years. The object in view is the discovery of the most productive and best-adapted fodder crops for southwestern Saskatchewan. Methods of growing forage crops are also under investigation, with a view to discovering those methods which will lead to the highest possible degree of certainty of feed-supply in dry seasons.

CORN—VARIETY TEST FOR GRAIN PRODUCTION

Variety	Source of seed	% Stand	Height of plant at harvest	Date ripe	Yield of ears per acre		
					Unripe ears	Ripe ears	% Ripe ears by weight
			inches		lbs.	lbs.	
Improved Squaw	Home-grown selection	92	30	Aug. 15	.....	2,380	100
Burleigh County Mixed	G. H. Hoffman, Maple Creek	94	39	Sep. 18	.....	1,870	100
Gehu	" "	98	46	.....	1,190	1,360	53
Gehu	Home-grown select.	98	48	Oct. 1	.....	1,530	100
N. Dak. White Flint	A. E. McKenzie Seed Co	90	58	Sep. 25	510	2,380	82
" "	G. H. Hoffman, Maple Creek	93	52	" 20	510	3,400	86
" "	Home-grown select.	94	36	Aug. 12	.....	2,380	100
Manitoba Hard Flint	G. H. Hoffman, Maple Creek	94	44	.....	1,360	510	27
Twitchell's Pride	Exp. Stn., Fredericton, N.B.	94	48	.....	1,190	1,020	46
Quebec 28	Macdonald College	88	54	.....	1,445	850	37
Minnesota 13	Home-grown select.	98	56	.....	1,360	2,216	11

All corn varieties were allowed to stand till late in October in order to learn to what extent the different varieties would produce ripe ears. While a light frost was recorded on October 4, no severe freezing occurred until late in October. This gave the corn a chance to ripen. (Project Ag. 2.)

DATES OF PLANTING CORN FOR GRAIN PRODUCTION

Variety	Date planted	Date emerged	Height at harvest	Yield of grain (corn and cob) per acre		
				Unripe	Ripe	% Ripe
			inches	lbs.	lbs.	
N. W. Dent	May 1	May 23	54	2,295	1,224	34·7
"	" 10	" 25	54	2,771	697	20·0
"	" 20	June 4	54	2,040	459	18·3
"	" 30	" 13	52	3,094	306	9·8
"	June 9	" 21	50	1,904	.....	.....
Improved Squaw	May 1	May 23	36	.....	3,485	100·0
" "	" 10	" 25	36	.....	3,570	100·0
" "	" 20	June 4	36	.....	4,250	100·0
" "	" 30	" 13	36	.....	3,400	100·0
" "	June 9	" 21	36	.....	3,910	100·0

In the case of Northwestern Dent, yields of ripe corn decreased from the first to the last date of sowing. With Improved Squaw, on the other hand, all dates of seeding produced good yields of ripened ears.

CORN—ROWS VS. HILLS FOR FODDER PRODUCTION

Variety	Method	Spacing or plants per hill	Height when cut	Determined from 3 plots		
				Green weight per acre	% dry matter	Dry weight per acre
		inch.	inch.	lbs.	%	lbs.
N. W. Dent	Rows 42" apart	3	64	14,242	19·73	2,809
"	Rows 42" apart	6	64	17,975	23·93	4,301
"	Rows 42" apart	9	64	18,833	24·12	4,542
"	Rows 42" apart	12	64	18,833	27·64	5,205
"	Rows 42" apart	18	64	11,711	23·44	2,745
		plants				
"	Hills 42" by 42"	1	64	13,642	20·70	2,823
"	Hills 42" by 42"	2	64	13,599	28·32	3,851
"	Hills 42" by 42"	3	64	14,371	25·68	3,690
"	Hills 42" by 42"	4	64	15,015	24·90	3,738
"	Hills 42" by 42"	5	64	14,586	25·00	3,646
		inches				
N. D. White Flint	Rows 42" apart	3	50	11,154	26·17	2,919
"	Rows 42" apart	6	50	10,810	28·52	3,083
"	Rows 42" apart	9	50	10,810	27·64	2,987
"	Rows 42" apart	12	50	13,599	24·80	3,372
"	Rows 42" apart	18	50	12,741	30·37	3,869
		plants				
"	Hills 42" by 42"	1	50	12,655	24·51	3,101
"	Hills 42" by 42"	2	50	12,870	29·39	3,782
"	Hills 42" by 42"	3	50	13,942	25·19	3,398
"	Hills 42" by 42"	4	50	12,741	25·78	3,284
"	Hills 42" by 42"	5	50	13,427	27·05	3,632

In this test all rows were spaced 42 inches apart and hills were checked at 42-inch intervals. Due to the suckering habit of the varieties used in this test, there is a tendency for the thinly planted plots to approximate the thickly planted ones in number of stalks per acre. This growth habit to some extent destroys the difference in yield which might be expected to result from different spacings of plants; however, it can be seen that some spacings produce considerably higher yields of dry matter than others. (Project Ag. 4.)

SUNFLOWERS—TEST OF VARIETIES

Variety	Source of seed	% stand	Date of bloss'g	Height at harvest	Average yield of triplicates		
					Green weight per acre	% dry matter	Dry weight per acre
		%		inches	lbs.	%	lbs.
Russian Giant	Dak. Imp. Seed Co.	98	Aug. 25	70	22,646	20·73	4,677
Mammoth Russian	C.P.R.	95	" 15	54	14,560	19·39	2,828
Mammoth Russian	K. McDonald	98	" 29	50	15,032	18·20	2,781
Mixed	C.P.R.	93	" 26	46	13,875	18·29	2,532
Manchurian	C.P.R.	99	" 12	46	14,562	17·41	2,524
Black	C.P.R.	94	" 10	42	13,474	18·62	2,508
Manteca	C.P.R.	95	" 18	42	12,613	17·52	2,202
Ottawa No. 76	C.E.F.	96	" 15	48	11,123	18·75	2,075
Mennonite	C.P.R.	96	" 3	36	9,172	18·81	1,725

The yield per acre, both in green weight and dry matter, of Giant Russian far exceeded all other varieties. (Project Ag. 76.)

SUNFLOWERS—HILLS VS. ROWS

Method	Spacing or plants per hill	Height when cut	Thickness of stems when cut	Green wt. per acre	Per cent dry matter	Dry wt. per acre
	in.	in.	in.	lb.	lb.	lb.
Rows 42" apart	3	52	⅜	20,077	23·93	4,804
"	6	257	½	19,605	23·05	4,518
"	9	63	¾	20,592	24·51	5,047
"	12	65	1	17,674	22·66	4,004
"	19	63	1¼	15,229	23·94	3,644
	plants					
Hills 42" by 42"	1	75	1½	11,583	25·10	2,907
"	2	73	1¼	12,312	23·53	2,897
"	3	70	1	13,513	25·39	3,430
"	4	65	¾	12,441	25·00	3,110
"	5	66	½	14,500	24·90	3,610

This test is conducted on spring-ploughed wheat-stubble land. All row plantings considerably outyielded hill plantings of corresponding density. The hill crops were more easily kept clean during the summer, but the thicker plantings in rows were handled much more easily at harvest time. Considering ease of handling and relatively high yield, fairly thick planting is preferable. (Project Ag. 46.)

ALFALFA—TEST OF VARIETIES

Sown on fallow, 1923

Variety	Source of seed	1924 Crop		1925 Crop			Total yield for 1924 and 1925	
		Green wt. per acre	Dry wt. per acre	Height when cwt.	Green wt. per acre	Dry wt. per acre	Green wt. per acre	Dry wt. per acre
		lb.	lb.	in.	lb.	lb.	lb.	lb.
M. falcata	Paramount Alfalfa Farm	14,550	4,115	19	6,950	2,436	21,500	6,551
*Shoobut	S. Argentine	8,500	2,358	.....	.....	.....	8,500	2,358
Cossack	Paramount Alfalfa Farm	8,550	2,713	16	3,750	1,556	12,300	4,269
Grimm	McCannus	6,250	2,116	20	3,600	1,405	9,850	3,521
Grimm	Commercial	4,300	1,439	11	2,375	1,125	6,675	2,564
Grimm	Lyman	4,650	1,607	10	1,975	917	6,625	2,524
Turkestan	Steele, Briggs	4,260	1,262	9	1,525	729	5,785	1,991
Variegated	"	2,850	951	13	2,525	1,053	5,375	2,004
Variegated	McFayden Seed Co.	2,550	977	10	2,050	995	4,600	1,972

*Failed in 1925, due to winter-killing.

Some varieties showed partial winter-killing, with consequent unevenness of stand and weediness. M. falcata, Cossack, and McCannus Grimm Alfalfa proved entirely winter-hardy. These varieties naturally outyielded those which were partly winter-killed. (Project Ag. 126.)

ALFALFA—VARIETY TEST

Sown on Fallow, 1924

Variety	Source of Seed	Height when cut	Average of duplicates	
			Green wt. per acre	Dry wt. per acre
		in.	lb.	lb.
Cossack	A. E. McKenzie Co	16	3,000	1,152
Grimm	L. B. Lyman	16	2,750	953
Baltic	A. E. McKenzie Co	14	2,550	803
Cossack	Paramount Alfalfa Farm	16	2,100	750
Grimm	Steele, Briggs Seed Co	14	2,000	724
Turkestan	A. E. McKenzie Co	16	1,650	574
Variegated	Harris McFayden Seed Co	10	1,000	324

(Project Ag. 126).

SWEET CLOVER—TEST OF VARIETIES

Sown on fallow, 1924

Variety	Source of Seed	Height when cut	Green wt. per acre	Dry wt. per acre
		in.	lb.	lb.
Dwarf	Univ. of Saskatchewan	29	6,600	1,902
Arctic	A. E. McKenzie Seed Co	26	5,940	1,622
Yellow	" "	24	4,860	1,538
Zouave No. 778	Univ. of Saskatchewan	28	5,040	1,524
White	Steele, Briggs Seed Co	34	5,580	1,514
Grimsby County	A. E. McKenzie Seed Co	24	5,160	1,451
Arctic	Univ. of Saskatchewan	36	4,440	1,244
Maccor	M. A. C., Winnipeg	18	4,020	1,115

While Dwarf sweet clover has been tried at this Station only one year, the yield and type of growth indicate it to be a promising sort. Arctic sweet clover has generally given good results. (Project Ag. 161.)

FIELD CARROTS—VARIETY TEST

Variety	Source of seed	Per cent stand	Green wt. per acre	Per cent dry matter	Dry wt. per acre
		per cent	lb.	per cent	lb.
Large White Vosges	Graham Bros., Ottawa	100	12,960	11·23	1,455
Champion	Harris McFayden, Winnipeg	100	12,480	11·62	1,387
Mammoth Half Long White	A. E. McKenzie, Brandon	100	16,560	12·11	2,005
Long Orange Belgian	" "	100	14,640	11·43	1,673
Half Long White	General Swedish Co	100	16,560	12·60	2,086
Danish Champion	C. E. F., Ottawa	100	17,760	11·03	1,958
Danish Champion	Hjalmur Hartman, Copenhagen	100	14,640	12·79	1,872
White Belgian	" "	100	16,080	13·28	2,135

(Project Ag. 36)

MANGELS—TEST OF VARIETIES

Variety	Source of seed	Per cent stand	Yield of roots, green wt.	
		%	ton	lb.
Danish Sludstrup	Graham Bros., Ottawa	90	5	80
Giant Sugar Rose	" "	94	7	1,840
Giant White Feeding Sugar	Steele, Briggs, Toronto	94	11	560
Prize Mammoth Long Red	" "	96	9	960
Giant Yellow Intermediate	" "	94	9	1,920
Giant Yellow Oval	" "	96	8	320
Giant Yellow Globe	" "	97	10	160
Red Tankard	K. McDonald & Sons, Ottawa	97	9	480
Select Giant Rose Inter-sugar	Wm. Ewing, Montreal	98	14	80
Yellow Eckendorfer	General Swedish Co	98	11	1,520
Red Eckendorfer	" "	99	12	1,440
Svalof Original Rulne	" "	98	10	400
Svalof Original Alfa	" "	98	9	960
Elevetham Mammoth	Hjalmar Hartman	99	9	1,200
White Red Rop Half Sugar	" "	91	9	960
Fjerritslev Barres	" "	99	14	80
Rosted Barres	" "	97	14	1,520
Taaroje Barres	" "	93	14	320

(Project Ag. 16).

FIELD TURNIPS—VARIETY TEST

Variety	Source of seed	Per cent stand	General colour of top	Yield of roots per acre green wt.		Remarks
				tons	lb.	
Invictus Bronze Top	Wm. Ewing, Montreal	100	Purple	14	560	85% small
Laing's Purple Top Swede	" "	100	"	6	1,200	100% small
Hall's Westbury Swede	" "	100	"	11	320	95% small
Imperial Swede	A. E. McKenzie Co., Brandon	100	"	6	240	100% small
Monarch Swede	" "	99	"	10	880	90% small
Hazard's Improved Swede	Steele, Briggs, Toronto	100	Bronze	12	720	82% small
Halewood's Bronze Top	" "	99	"	11	1,760	90% small
Selected Purple Top	" "	100	Purple	11	320	85% small
Selected Westbury	" "	100	"	11	560	75% small
Canadian Gem	" "	100	Bronze	10	1,600	86% small
Bangholm 1322	Trifolium Seed Co., Copenhagen	100	Purple	8	800	91% small
Shepherd 1283	" "	100	Bronze	8	1,040	93% small
Ditmars Swede	H. M. McNutt	100	"	8	320	88% small
Improved Yellow Swedish	General Swedish Co.	100	"	8	320	92% small
Kangaroo	A. E. McKenzie Co., Brandon	100	"	7	1,120	95% small
Superlative	" "	100	Purple	8	1,760	89% small
Hartleys Bronze Top	J. A. Bruce, Hamilton	100	Bronze	6	960	94% small
Bangholm Club Root Resistant	Exp. Stn., Charlottetown	100	Purple	9	.....	93% small
Shepherds Golden Globe	Hjalmar Hartman, Copenhagen	99	Bronze	8	320	92% small
Olsguard Bangholm	" "	100	Purple	11	560	83% small

(Project Ag. 51).

SUGAR BEETS—VARIETY TEST

Variety	Source of seed	Per cent stand	Green wt. per acre	Per cent dry matter	Dry wt. per acre
			lb.		lb.
Rabbethge & Giesecke	Dom. Sugar Co., Chatham	94	10,320	25·10	2,590
Dr. Bergman	" "	92	13,200	23·44	3,094
Dieppe	" "	92	11,040	24·22	2,673
Shriber & Sons	" "	99	11,040	24·02	2,651
Henning & Harving	" "	95	16,560	23·83	3,946
Home grown	" "	99	13,920	22·46	3,126
Horning	" "	99	14,400	21·48	3,093
Vilmorin's Improved 'B'	Vilmorin Andrieux, Paris	98	7,440	24·71	1,838

FIELD ROOTS

During seasons of normal or less than normal rainfall, field roots produce poor yields. It would seem, therefore, that they can have little place in the agriculture of this district because it is in such seasons that productive feed crops are most needed.

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