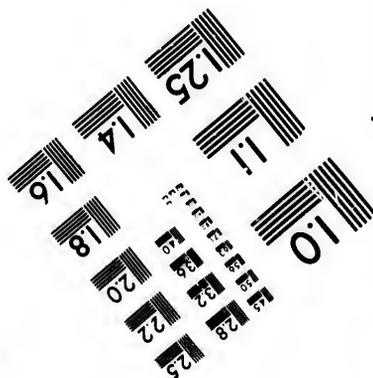
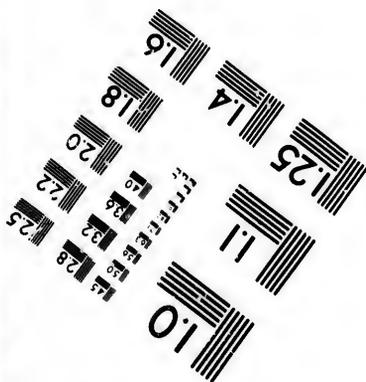
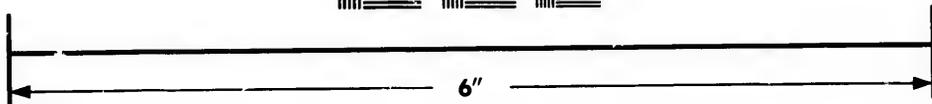
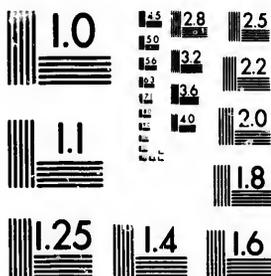


**IMAGE EVALUATION
TEST TARGET (MT-3)**



**Photographic
Sciences
Corporation**

23 WEST MAIN STREET
WEBSTER, N.Y. 14580
(716) 872-4503

**CIHM/ICMH
Microfiche
Series.**

**CIHM/ICMH
Collection de
microfiches.**



Canadian Institute for Historical Microreproductions / Institut canadien de microreproductions historiques

© 1982

Technical and Bibliographic Notes/Notes techniques et bibliographiques

The Institute has attempted to obtain the best original copy available for filming. Features of this copy which may be bibliographically unique, which may alter any of the images in the reproduction, or which may significantly change the usual method of filming, are checked below.

L'Institut a microfilmé le meilleur exemplaire qu'il lui a été possible de se procurer. Les détails de cet exemplaire qui sont peut-être uniques du point de vue bibliographique, qui peuvent modifier une image reproduite, ou qui peuvent exiger une modification dans la méthode normale de filmage sont indiqués ci-dessous.

- | | |
|--|--|
| <input type="checkbox"/> Coloured covers/
Couverture de couleur | <input type="checkbox"/> Coloured pages/
Pages de couleur |
| <input type="checkbox"/> Covers damaged/
Couverture endommagée | <input type="checkbox"/> Pages damaged/
Pages endommagées |
| <input type="checkbox"/> Covers restored and/or laminated/
Couverture restaurée et/ou pelliculée | <input type="checkbox"/> Pages restored and/or laminated/
Pages restaurées et/ou pelliculées |
| <input type="checkbox"/> Cover title missing/
Le titre de couverture manque | <input checked="" type="checkbox"/> Pages discoloured, stained or foxed/
Pages décolorées, tachetées ou piquées |
| <input type="checkbox"/> Coloured maps/
Cartes géographiques en couleur | <input type="checkbox"/> Pages detached/
Pages détachées |
| <input type="checkbox"/> Coloured ink (i.e. other than blue or black)/
Encre de couleur (i.e. autre que bleue ou noire) | <input checked="" type="checkbox"/> Showthrough/
Transparence |
| <input type="checkbox"/> Coloured plates and/or illustrations/
Planches et/ou illustrations en couleur | <input type="checkbox"/> Quality of print varies/
Qualité inégale de l'impression |
| <input type="checkbox"/> Bound with other material/
Relié avec d'autres documents | <input type="checkbox"/> Includes supplementary material/
Comprend du matériel supplémentaire |
| <input type="checkbox"/> Tight binding may cause shadows or distortion
along interior margin/
La reliure serrée peut causer de l'ombre ou de la
distortion le long de la marge intérieure | <input type="checkbox"/> Only edition available/
Seule édition disponible |
| <input type="checkbox"/> Blank leaves added during restoration may
appear within the text. Whenever possible, these
have been omitted from filming/
Il se peut que certaines pages blanches ajoutées
lors d'une restauration apparaissent dans le texte,
mais, lorsque cela était possible, ces pages n'ont
pas été filmées. | <input type="checkbox"/> Pages wholly or partially obscured by errata
slips, tissues, etc., have been refilmed to
ensure the best possible image/
Les pages totalement ou partiellement
obscurcies par un feuillet d'errata, une pelure,
etc., ont été filmées à nouveau de façon à
obtenir la meilleure image possible. |
| <input type="checkbox"/> Additional comments:/
Commentaires supplémentaires: | |

This item is filmed at the reduction ratio checked below/
Ce document est filmé au taux de réduction indiqué ci-dessous.

10X	14X	18X	22X	26X	30X
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12X	16X	20X	24X	28X	32X

The copy filmed here has been reproduced thanks to the generosity of:

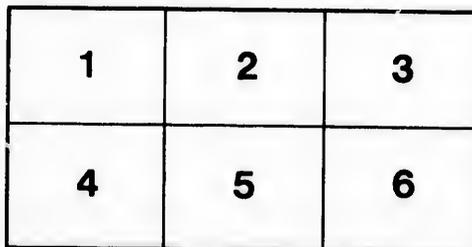
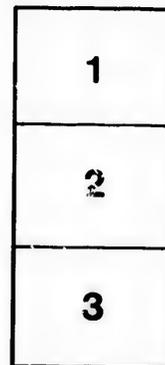
Library
Agriculture Canada

The images appearing here are the best quality possible considering the condition and legibility of the original copy and in keeping with the filming contract specifications.

Original copies in printed paper covers are filmed beginning with the front cover and ending on the last page with a printed or illustrated impression, or the back cover when appropriate. All other original copies are filmed beginning on the first page with a printed or illustrated impression, and ending on the last page with a printed or illustrated impression.

The last recorded frame on each microfiche shall contain the symbol → (meaning "CONTINUED"), or the symbol ▼ (meaning "END"), whichever applies.

Maps, plates, charts, etc., may be filmed at different reduction ratios. Those too large to be entirely included in one exposure are filmed beginning in the upper left hand corner, left to right and top to bottom, as many frames as required. The following diagrams illustrate the method:



L'exemplaire filmé fut reproduit grâce à la générosité de:

Bibliothèque
Agriculture Canada

Les images suivantes ont été reproduites avec le plus grand soin, compte tenu de la condition et de la netteté de l'exemplaire filmé, et en conformité avec les conditions du contrat de filmage.

Les exemplaires originaux dont la couverture en papier est imprimée sont filmés en commençant par le premier plat et en terminant soit par la dernière page qui comporte une empreinte d'impression ou d'illustration, soit par le second plat, selon le cas. Tous les autres exemplaires originaux sont filmés en commençant par la première page qui comporte une empreinte d'impression ou d'illustration et en terminant par la dernière page qui comporte une telle empreinte.

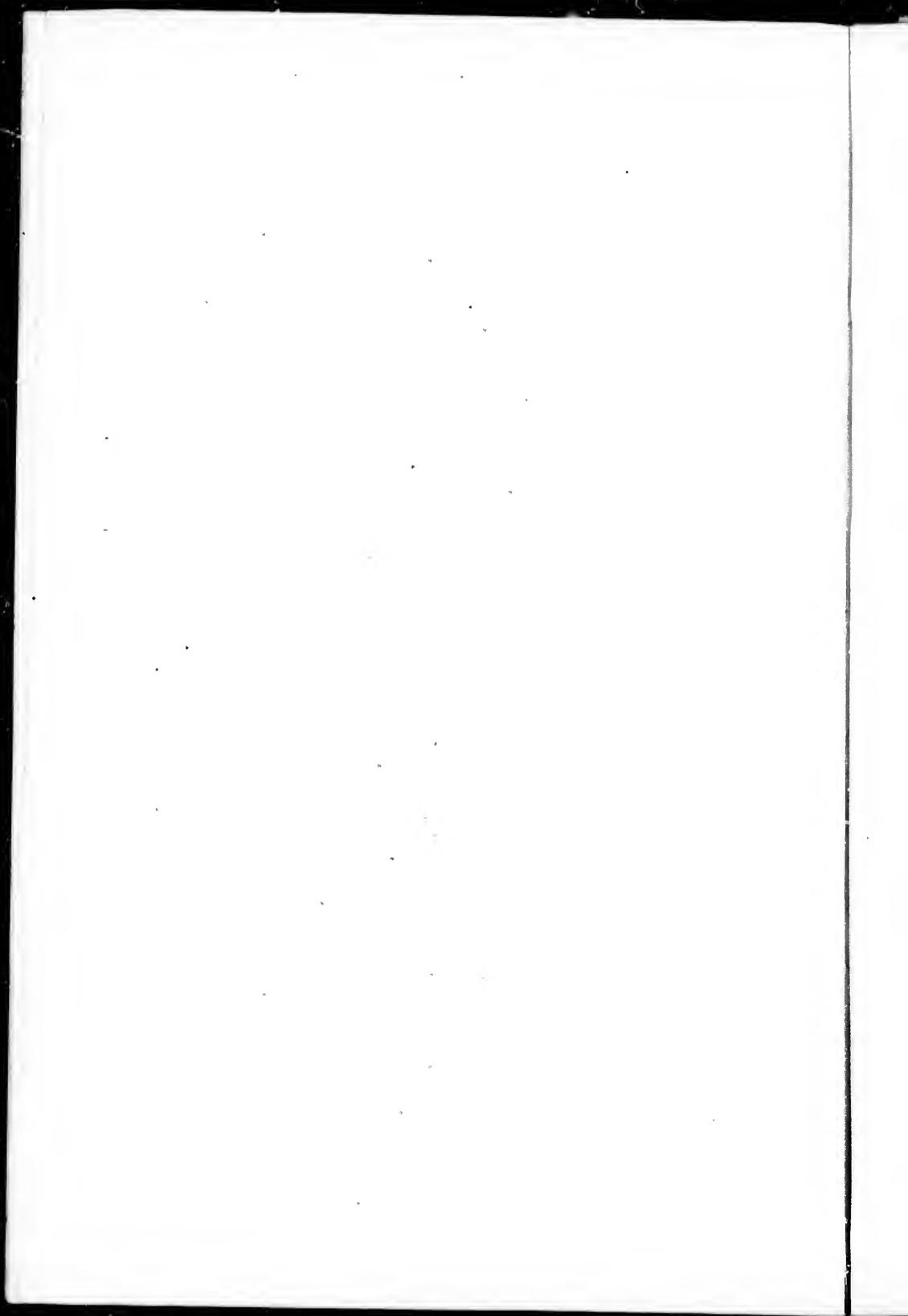
Un des symboles suivants apparaîtra sur la dernière image de chaque microfiche, selon le cas: le symbole → signifie "A SUIVRE", le symbole ▼ signifie "FIN".

Les cartes, planches, tableaux, etc., peuvent être filmés à des taux de réduction différents. Lorsque le document est trop grand pour être reproduit en un seul cliché, il est filmé à partir de l'angle supérieur gauche, de gauche à droite, et de haut en bas, en prenant le nombre d'images nécessaire. Les diagrammes suivants illustrent la méthode.

ails
s du
odifier
une
mage

rrate
o

elure,
à





DEPARTMENT OF AGRICULTURE.

CENTRAL EXPERIMENTAL FARM.

OTTAWA CANADA.

BULLETIN No. 21.

RESULTS OF EXPERIMENTS WITH EARLY, MEDIUM AND LATE
SOWINGS OF GRAIN.

MARCH, 1895.

PUBLISHED BY DIRECTION OF THE HON. A. R. ANGERS, MINISTER OF AGRICULTURE.

To the Honourable

The Minister of Agriculture.

SIR,—I have the honour to submit for your approval Bulletin No. 21 of the Experimental Farm series, which has been prepared by myself, in which are given the results of a number of successive sowings of grain made at intervals of a week during the spring of each year for the past four or five seasons. This work has been undertaken for the purpose of ascertaining the approximate dates when grain can be sown with the greatest profit in different parts of the Dominion.

I trust that the information submitted on this important subject, gathered from carefully conducted experiments at all the Experimental Farms, will be found very useful to farmers everywhere throughout this country.

I have the honour to be

Your obedient servant,

WM. SAUNDERS,
Director Experimental Farms.

OTTAWA, March 12, 1895.

RESULTS OF EXPERIMENTS

— WITH —

Early, Medium and Late Sowings of Grain.

BY WM. SAUNDERS, F.R.S.C., F.L.S., F.C.S.,
Director Experimental Farms.

In Bulletin No. 8, published in January, 1891, the results were given of experiments which had been conducted in 1890, at the Central Experimental Farm, with early, medium and late sowings of barley, oats and spring wheat. These results indicated a great advantage from early sowing. Similar tests have been carried on each year since, not only at the Central Farm, but also on the branch Experimental Farms, with the object of gaining further information on the subject here, and also for the purpose of ascertaining how far differences of climate and location influence the returns, so that some conclusions might be reached as to the best and most profitable time for seeding in different portions of the Dominion. The experience gained by these experiments since 1891, is deemed of sufficient importance to justify the issue of a second bulletin on this subject.

These experiments have been conducted in every instance with two varieties each of barley, oats and spring wheat, and generally the same varieties have been used at each of the Experimental Farms. Five or six successive sowings have been made each year, the first sowing as soon as the land was in fit condition to receive the seed, and the subsequent sowings a week apart. The results obtained from these tests at the Central Experimental Farm will first be considered.

RESULTS OF TESTS AT THE CENTRAL EXPERIMENTAL FARM.

Thirty-six plots of $\frac{1}{4}$ acre each have been devoted to these tests, and the same land has been used for five successive seasons, the arrangement of the plots being changed from year to year so that oats and barley have followed wheat; barley and wheat have followed oats, and wheat and oats have followed barley.

CHARACTER AND TREATMENT OF SOIL.

The soil is a light sandy loam as uniform in character as could be selected. In 1886 when the Experimental Farm was purchased, this land was in sod. A crop of hay was taken from it in 1887 when, finding that it was much exhausted, a coating of stable manure about twenty

tons to the acre was applied to it early in the autumn, and shortly after the manure was ploughed under with the sod. In the spring of 1888, it was again ploughed, then harrowed and sown with wheat and oats in experimental plots. It was ploughed again in the autumn, and in the spring of 1889 it was planted with Indian corn in drills, which was cut in September following for ensilage. Subsequently the land was ploughed again, and early in the spring of 1890 it received a dressing of unleached wood ashes, about 150 bushels to the acre, when the first series of these experimental plots was sown. As the returns of the first harvest were not large, a further dressing of stable manure was given in the spring of 1891, which was lightly ploughed under before seeding. Since that time this land has received no further manuring or fertilizing. The plots have been ploughed each year in the autumn and disc-harrowed in the spring. Immediately before sowing each set of plots, the smoothing harrow has been used so as to destroy any weeds which may have germinated and thus give to each series of plots the same chance at the start as to condition of soil.

EXPERIMENTS WITH OATS.

1890—Varieties sown, Prize Cluster and Early Race-horse.

	Yield per acre. Bush. Lbs.		Yield per acre. Bush. Lbs.	
1st sowing, April 22, Prize Cluster.....	37	2	Early Race-horse.....	omitted.
2nd do do 29 do	33	23	do do	35 5
3rd do May 6 do	30	20	do do	31 26
4th do do 13 do	27	17	do do	28 13
5th do do 21 do	20	10	do do	18 18
6th do do 28 do	17	22	do do	19 4

1891—Varieties sown, Prize Cluster and Banner.

	Yield per acre. Bush. Lbs.		Yield per acre. Bush. Lbs.	
1st sowing, April 21, Prize Cluster.....	59	24	Banner.....	76 1
2nd do do 28 do	84	4	do	79 24
3rd do May 5 do	54	24	do	86 26
4th do do 12 do	33	8	do	87 22
5th do do 19 do	53	3	do	78 18
6th do do 26 do	40	00	do	55 30

1892—Varieties sown, Prize Cluster and Banner.

	Yield per acre. Bush. Lbs.		Yield per acre. Bush. Lbs.	
1st sowing, April 20, Prize Cluster.....	64	14	Banner.....	73 8
2nd do do 27 do	56	26	do	71 6
3rd do May 4 do	44	4	do	68 8
4th do do 11 do	41	26	do	59 24
5th do do 18 do	33	28	do	50 00
6th do do 25 do	33	8	do	39 24

1893—Varieties sown, Prize Cluster and Banner.

	Yield per acre. Bush. Lbs.		Yield per acre. Bush. Lbs.	
1st sowing, May 8, Prize Cluster.....	44	24	Banner.....	49 29
2nd do do 15 do	35	20	do	38 8
3rd do do 22 do	11	6	do	31 6
4th do do 29 do	15	20	do	30 20
5th do June 5 do	6	16	do	16 26
6th do do 12 do	5	00	do	11 28

1894—Varieties sown, Abundance and Banner.

				Yield per acre.		Yield per acre.			
				Bush.	Lbs.	Bush.	Lbs.		
1st sowing,	April 13,	Abundance	.....	39	14	Banner	.....	29	24
2nd do	do	do	.....	34	14	do	.....	30	30
3rd do	do	do	.....	23	18	do	.....	23	8
4th do	May 4	do	.....	19	19	do	.....	17	2
5th do	do	do	.....	25	10	do	.....	23	8
6th do	do	do	.....	7	22	do	.....	6	21

The average yield per acre each year of all the sowings of all the varieties of oats tested at the Central Experimental Farm was as follows:—

				Bush.	Lbs.
1890,	average of eleven sowings	.....	.....	27	8 $\frac{1}{4}$
1891,	do twelve do	.....	.....	65	26 $\frac{3}{4}$
1892,	do do do	.....	.....	53	$\frac{1}{2}$
1893,	do do do	.....	.....	24	25 $\frac{1}{2}$
1894,	do do do	.....	.....	23	27 $\frac{1}{2}$

Average yield of each of the successive sowings of oats, including all the varieties for the whole period of five years.

				Bush.	Lbs.
1st sowing,	average of nine tests	.....	.....	52	23 $\frac{1}{2}$
2nd do	do ten	.....	.....	49	33
3rd do	do do	.....	.....	40	18
4th do	do do	.....	.....	36	3 $\frac{1}{2}$
5th do	do do	.....	.....	33	3 $\frac{1}{2}$
6th do	do do	.....	.....	23	22 $\frac{1}{2}$

In the comparison of the results of these and following tests it will be observed that great variation in the yields occur from year to year. These are due mainly to the favourable or unfavourable character of the season, which is a most important factor bearing on the welfare of the farmer. On comparing the figures given, it will be seen that the year 1891 was the most favourable for oat-growing of the whole series. There was also less uniformity that season in the results of the successive sowings. The crops of 1892 stand next in yield, while 1890, 1893 and 1894 were unfavourable seasons for this grain. The very light yields of Prize Cluster given for the 5th and 6th sowings in 1893 were due to the grain being badly broken down by a severe attack of rust.

EXPERIMENTS WITH BARLEY.

1890—Varieties sown, Prize Prolific two-rowed and Danish Chevalier two-rowed.

				Yield per acre.		Yield per acre.			
				Bush.	Lbs.	Bush.	Lbs.		
1st sowing,	April 22,	Prize Prolific	.....	40	30	Danish Chevalier	.....	33	26
2nd do	do 29	do	.....	24	38	do	do	22	14
3rd do	May 6	do	.....	16	22	do	do	19	38
4th do	do 13	do	.....	14	3	do	do	15	10
5th do	do 21	do	.....	10	15	do	do	10	30
6th do	do 28	do	.....	11	2	do	do	9	28

1891.—Varieties sown, Prize Prolific two-rowed and Baxter's six-rowed.

				Yield per acre.		Yield per acre.		
				Bush. Lbs.		Bush. Lbs.		
1st sowing, April 21,	Prize Prolific	.....	65	10	Baxter's six-rowed	.....	55	35
2nd do do 28	do	.....	55	35	do do	.....	67	4
3rd do May 5	do	.....	50	20	do do	.....	56	32
4th do do 12	do	.....	51	37	do do	.....	42	39
5th do do 19	do	.....	40	40	do do	.....	34	8
6th do do 26	do	.....	37	14	do do	.....	35	30

1892.—Varieties sown, Kinver Chevalier two-rowed and Goldthorpe two-rowed.

				Yield per acre.		Yield per acre.		
				Bush. Lbs.		Bush. Lbs.		
1st sowing, April 20,	Kinver Chevalier	..	42	14	Goldthorpe	.....	44	28
2nd do do 27	do	..	47	24	do do	.....	42	41
3rd do May 4	do	..	31	12	do do	.....	37	4
4th do do 11	do	..	31	12	do do	.....	29	38
5th do do 18	do	..	20	35	do do	.....	22	34
6th do do 25	do	..	17	14	do do	.....	16	32

1893.—Varieties sown, Duck-bill two-rowed and Baxter's six-rowed.

				Yield per acre.		Yield per acre.		
				Bush. Lbs.		Bush. Lbs.		
1st sowing, May 8,	Duck-bill	.....	33	36	Baxter's six-rowed	.....	32	4
2nd do do 15	do	.....	35	10	do do	.....	33	26
3rd do do 22	do	.....	17	34	do do	.....	32	44
4th do do 29	do	.....	25	00	do do	.....	27	4
5th do June	do	.....	10	20	do do	.....	26	02
6th do do 12	do	.....	15	30	do do	.....	36	12

1894.—Varieties sown, Canadian Thorpe two-rowed and Oderbruch six-rowed.

				Yield per acre.		Yield per acre.		
				Bush. Lbs.		Bush. Lbs.		
1st sowing, April 13,	Canadian Thorpe	..	19	4	Oderbruch	.....	31	2
2nd do do 20	do	..	23	6	do do	.....	33	46
3rd do do 27	do	..	16	22	do do	.....	26	42
4th do May 4	do	..	10	40	do do	.....	19	38
5th do do 11	do	..	10	25	do do	.....	25	30
6th do do 18	do	..	7	14	do do	.....	13	26

The average yield per acre each year of all the sowings of all the varieties of barley tested at the Central Experimental Farm was as follows:—

	Bush.	Lbs.
1890, average of twelve sowings	19	1 $\frac{1}{2}$
1891, do do	49	21 $\frac{1}{3}$
1892, do do	32	..
1893, do do	27	6 $\frac{1}{2}$
1894, do do	19	37 $\frac{1}{4}$

Average yield of each of the successive sowings of barley, including all the varieties for the whole period of five years:—

	Bush.	Lbs.
1st sowing, average of ten tests	39	38 $\frac{1}{10}$
2nd do do	38	29 $\frac{2}{10}$
3rd do do	30	27
4th do do	26	36 $\frac{1}{2}$
5th do do	21	9 $\frac{1}{2}$
6th do do	20	1

In the case of the barley also, the season of 1891 was the most favourable, followed by 1892 and 1893. The seasons of 1894 and 1890 were not favourable. In 1891 the results of the 2nd and 3rd sowings of Baxter's barley exceeded that of the 1st sowing, while the 6th sowing yielded a little more than the 5th. In 1892 the crop of Kinver Chevalier was larger from the 2nd than it was from the 1st sowing. In 1893 and 1894 both varieties gave the largest yield from the 2nd sowings, and in 1893 the Duck-bill gave a larger return from the 4th than it did from the 3rd sowing, and larger from the 6th than from the 5th. In 1894 the Oderbruch gave a better yield from the 5th than it did from the 4th sowing. All these irregularities, however, disappear when the average of the whole series is taken, then the losses from late sowing are clearly shown.

EXPERIMENTS WITH SPRING WHEAT.

1890—Varieties sown, Red Fife and Ladoga.

		Yield per acre.		Yield per acre.	
		Bush. Lbs.		Bush. Lbs.	
1st sowing, April 22,	Red Fife.....	11 00	Ladoga.....	10 45	
2nd do do 29	do	9 00	do	9 15	
3rd do May 6	do	8 15	do	8 00	
4th do do 13	do	4 20	do	3 55	
5th do do 21	do	3 00	do	2 50	
6th do do 28	do	2 35	do	2 30	

1891—Varieties sown, Campbell's White Chaff and White Connell.

		Yield per acre.		Yield per acre.	
		Bush. Lbs.		Bush. Lbs.	
1st sowing, April 21,	Campbell's White Chaff.	47 50	White Connell.....	35 50	
2nd do do 28	do	32 50	do	26 40	
3rd do May 5	do	27 30	do	30 00	
4th do do 12	do	29 30	do	23 20	
5th do do 19	do	28 30	do	23 40	
6th do do 26	do	19 10	do	27 10	

1892—Varieties sown, Campbell's White Chaff and Red Fife.

		Yield per acre.		Yield per acre.	
		Bush. Lbs.		Bush. Lbs.	
1st sowing, April 20,	Campbell's White Chaff.	27 20	Red Fife.....	20 20	
2nd do do 27	do	25 00	do	28 30	
3rd do May 4	do	16 50	do	20 30	
4th do do 11	do	13 30	do	12 30	
5th do do 18	do	7 20	do	10 29	
6th do do 25	do	8 10	do	6 40	

1893—Varieties sown, Campbell's White Chaff and Red Fife.

		Yield per acre.		Yield per acre.	
		Bush. Lbs.		Bush. Lbs.	
1st sowing, May 8,	Campbell's White Chaff.	12 15	Red Fife.....	8 50	
2nd do do 15	do	18 10	do	19 10	
3rd do do 22	do	5 20	do	6 20	
4th do do 29	do	10 00	do	5 30	
5th do June 5	do	7 50	do	12 30	
6th do do 12	do	5 50	do	9 35	

1894—Varieties sown, Stanley and Red Fife.

		Yield per acre.		Yield per acre.	
		Bush. Lbs.		Bush. Lbs.	
1st sowing, April 13,	Stanley.....	12 28	Red Fife.....	15 50	
2nd do do 20	do	12 40	do	15 20	
3rd do do 27	do	7 5	do	7 20	
4th do May 4	do	6 55	do	7 5	
5th do do 11	do	5 25	do	5 40	
6th do do 18	do	4 55	do	2 50	

The average yield per acre each year of the sowings of all the varieties of wheat tested at the Central Experimental Farm was as follows :—

	Bush.	Lbs.
1890, average of twelve sowings.....	6	17½
1891, do do	29	20
1892, do do	16	25½
1893, do do	10	5
1894, do do	8	37½

Average yield per acre of each of the successive sowings of spring wheat, including all the varieties for the whole period of five years :—

1st sowing, ten tests.....	20	14 ⁸ / ₁₀
2nd do do	19	39½
3rd do do	13	43
4th do do	11	39½
5th do do	10	43½
6th do do	8	56½

The season of 1891 was quite favourable to wheat production, the crop from these experimental plots that year being nearly double that of the best of any of the other years. Fair crops were produced in 1892, but 1890 and 1894 were very unfavourable years for this grain. The yields from the several successive sowings show much irregularity some years, but the average returns of the series point strongly to the advantages of early sowing.

SUMMARY OF RESULTS FOR THE WHOLE PERIOD.

The following are the averages for the whole of the tests of all the varieties for the five years during which they have been carried on at the Central Experimental Farm.

Oats.	Yield per acre. Bush. Lbs.	Barley.	Yield per acre. Bush. Lbs.	Spring Wheat.	Yield per acre. Bush. Lbs.
1st sowing.....	52 23½	1st sowing.....	39 38 ⁷ / ₁₀	1st sowing.....	20 14 ⁸ / ₁₀
2nd do	49 33	2nd do	35 29 ² / ₁₀	2nd do	19 39½
3rd do	40 18	3rd do	30 27	3rd do	13 43
4th do	36 3½	4th do	26 36½	4th do	11 39½
5th do	33 3½	5th do	21 9½	5th do	10 43½
6th do	23 22½	6th do	20 1	6th do	8 56½

The average crop of each of the different sorts of grain is also submitted, covering all the sowings of all the varieties for the whole period as follows :

	Yield per acre. Bush. Lbs.
Oats, 59 sowings.....	39 4
Barley, 60 sowings.....	29 23
Spring Wheat, 60 sowings	14 9½

COMPARISON OF YIELDS OF VARIETIES OF OATS.

The question of varieties will next claim our attention.

In the tests conducted at the Central Experimental Farm the different varieties of oats have yielded, per acre, as follows:—

PRIZE CLUSTER, FOUR YEARS' TESTS, 24 SOWINGS.

	Bush. Lbs.		Bush. Lbs.		Bush. Lbs.		Average for 4 yrs.	
	1890,	1891,	1892,	1893,	1890,	1891,	1892,	1893,
1st sowing,	37 2	59 24	64 14	41 24	61 16			
2nd do	33 23	84 4	56 26	35 20	52 18½			
3rd do	39 20	54 24	44 4	11 6	35 5½			
4th do	27 17	33 8	41 26	15 20	29 17½			
5th do	20 10	53 3	33 28	6 16	28 14½			
6th do	17 22	40 00	33 8	5 00	23 33			

	Bush. Lbs.	Bush. Lbs.
1890, average of six sowings	27 27	
1891, do do	54 4½	
1892, do do	45 23½	
1893, do do	19 25½	

Average yield for the whole period : 36 bushels, 28¾ lbs. per acre.

BANNER, FOUR YEARS' TESTS, 24 SOWINGS.

	Bush. Lbs.		Bush. Lbs.		Average for 4 yrs.	
	1891,	1892,	1893,	1894,	1891,	1892,
1st sowing,	76 1	73 8	49 29	29 24	57 7	
2nd do	79 24	71 6	38 8	30 30	55 00	
3rd do	86 26	68 8	31 26	23 8	52 17	
4th do	87 22	59 24	36 20	17 2	48 25½	
5th do	78 18	50 00	16 26	28 8	43 13	
6th do	55 30	39 24	11 26	6 21	28 17½	

	Bush. Lbs.	Bush. Lbs.
1891, average of six sowings	77 14½	
1892, do do	60 11½	
1893, do do	29 28½	
1894, do do	22 21½	

Average yield for the whole period, 47 bushels, 18¾ lbs. per acre.

EARLY RACE-HORSE, ONE YEAR'S TEST.

	Bush. Lbs.
Average of five sowings in 1890	26 20

ABUNDANCE, ONE YEAR'S TEST.

	Bush. Lbs.
Average of six sowings in 1894	24 33½

In the very favourable year of 1891 the Prize Cluster averaged 54 bushels 4½ lbs. per acre, covering the whole series of six sowings; the second sowing giving 84 bushels 4 lbs. per acre. The Banner the same year gave an average of 77 bushels 14½ lbs. per acre; the fourth sowing giving the highest yield, 87 bush. 22 lbs. per acre. During the unfavourable season of 1894 the yield of Banner dropped to an average of 22 bush. 21½ lbs. for the six sowings, while the Abundance which has only been tried in these tests one year, gave an average of 24 bush. 33½ lbs. While the Banner during the four seasons has given an average yield in all the tests of 10 bushels 24½ lbs. more than the Prize Prolific, it is possible that the Abundance in future may do quite as well, seeing it has exceeded in yield the six sowings of Banner in 1894 by 2 bush. 12 lbs. per acre.

COMPARISON OF YIELDS OF VARIETIES OF BARLEY.

In the tests conducted at the Central Experimental Farm the different varieties of barley have yielded as follows :—

(Two-rowed sorts.)

PRIZE PROLIFIC, TWO YEARS' TESTS, 12 SOWINGS.

	Bush. Lbs.		Average for the two years.	
	1890,	1891,	Bush. Lbs.	Bush. Lbs.
1st sowing,	40 30	65 10	52 44	
2nd do	24 38	55 35	40 12½	
3rd do	16 22	50 20	33 21	
4th do	14 3	51 37	32 44	
5th do	10 15	40 40	25 27½	
6th do	11 2	37 14	24 8	

The average yields of this barley for each year was as follows :—

	Yield per acre.
	Bush. Lbs.
1890, average of six sowings.....	19 26⅔
1891, do do	50 10
Average yield for the two years.....	34 42½

The other two-rowed varieties have each been sown for one year only.

	Yield per acre.
	Bush. Lbs.
1890, Danish Chevalier, average of six-sowings.....	18 24⅔
1892, Kinver Chevalier, do do	31 34⅔
1892, Goldthorpe, do do	32 13⅔
1893, Duckbill, do do	22 45⅔
1894, Canadian Thorpe, do do	14 26⅔

The average yield of two-rowed barley for the whole period including all the varieties and all the sowings, 42 in all, extending over a period of five years, was 27 bushels 5½ lbs. per acre.

SIX-ROWED BARLEY.

BAXTER'S SIX-ROWED, TWO YEARS' TESTS, 12 SOWINGS.

	Bush. Lbs.		Average of two years.	
	1891,	1893,	Bush. Lbs.	Bush. Lbs.
1st sowing,	55 35	32 4	43 43½	
2nd do	67 4	33 26	50 15	
3rd do	56 32	32 44	44 38	
4th do	42 39	27 4	34 45½	
5th do	34 8	26 2	30 5	
6th do	35 30	36 12	35 45	

The average yield for each year was as follows :—

	Yield per acre.
	Bush. Lbs.
1891, average of six-sowings	48 24
1893, do do	31 31⅔
Average yield for the two years.....	40 3⅔

The other six-rowed variety used in these tests, Oderbruch, has been sown for one year only, 1894; the detailed results of these sowings have already been given; the average of the six sowings was 24 bushels 46 lbs. per acre.

The average yield of the six-rowed barley for the three years, 18 sowings in all, was 35 bushels 3½ lbs. per acre, an advantage of 7 bushels 46 lbs. in favour of the six-rowed sorts tested in these week-apart sowings as compared with the two-rowed.

COMPARISON OF YIELDS OF VARIETIES OF WHEAT.

In the tests conducted at the Central Experimental Farm the different varieties of wheat have yielded per acre as follows :—

RED FIFE, FOUR YEARS' TESTS, 24 SOWINGS.

	Bush. Lbs.	Bush. Lbs.	Bush. Lbs.	Bush. Lbs.	Average for four years. Bush. Lbs.
1st sowing, 1890.	11 00	1892, 20 20	1893, 8 50	1894, 15 50	14 00
2nd do "	9 00	" 28 30	" 19 10	" 15 20	18 00
3rd do "	8 15	" 20 30	" 6 20	" 7 20	10 36½
4th do "	4 20	" 12 30	" 5 30	" 7 5	7 21½
5th do "	3 00	" 10 30	" 12 30	" 5 40	7 55
6th do "	2 35	" 6 40	" 9 35	" 2 50	5 25

The average yield of this wheat for each year was as follows :—

1890, average of six sowings.....	6 21¼
1892, do	16 30
1893, do	10 10⅙
1894, do	9 ⅝

Average yield of Red Fife for the whole period, 10 bushels 31 lbs. per acre.

CAMPBELL'S WHITE CHAFF, THREE YEARS' TESTS, 18 SOWINGS.

	Bush. Lbs.	Bush. Lbs.	Bush. Lbs.	Average for three years. Bush. Lbs.
1st sowing, 1891,	47 50	1892, 27 20	1893, 12 15	29 8⅓
2nd do "	32 50	" 25 00	" 18 10	25 20
3rd do "	27 30	" 16 50	" 5 20	16 33½
4th do "	29 30	" 13 30	" 10 00	17 40
5th do "	28 30	" 7 20	" 7 50	14 33½
6th do "	19 10	" 8 10	" 5 50	11 3½

The average yield of this wheat for each year was as follows :—

1891, average of six sowings.....	30 53⅔
1892, do	16 21¼
1893, do	9 54⅙

Average yield for the three years..... 19 3 per acre.

The other varieties of wheat used in these tests were Ladoga and Stanley, both used for one year only and both in very unfavourable seasons. Ladoga was sown in 1890, when it gave an average for all sowings of 6 bushels 12½ lbs. per acre. Red Fife gave the same year an average of 6 bushels 21¼ lbs. Stanley, which is one of the new cross-bred varieties between Ladoga and Red Fife produced at the Experimental Farm, was tried in 1894 and gave an average yield for all sowings of 8 bushels 14¼ lbs. per acre. Red Fife, the same year, yielded an average of 9 bushels ⅝ lbs., and White Connell, in 1891, which was a favourable season, gave an average of 27 bushels 46¼ lbs per acre.

We shall next consider the results obtained by similar tests at the several branch Experimental Farms.

RESULTS OF TESTS AT THE EXPERIMENTAL FARM, NAPPAN, NOVA SCOTIA.

At all the branch farms the location of these plots for week apart sowings has been changed from year to year, and the preparation of the soil has been the same as that for ordinary crops.

EXPERIMENTS WITH OATS.

1891—Varieties sown, Prize Cluster and Banner.

		Yield per acre.		Yield per acre.	
		Bush. Lbs.		Bush. Lbs.	
1st sowing,	April 30	Prize Cluster.....	52 32	Banner.....	72 2
2nd do	May 7	do	45 10	do	83 3
3rd do	do 14	do	54 14	do	84 31
4th do	do 21	do	61 26	do	55 20
5th do	do 29	do	49 14	do	61 21
6th do	June 5	do	30 30	do	46 26

1892—Varieties sown, Prize Cluster and Banner.

		Yield per acre.		Yield per acre.	
		Bush. Lbs.		Bush. Lbs.	
1st sowing,	April 27	Prize Cluster.....	37 17	Banner.....	67 17
2nd do	May 4	do	45 00	do	67 17
3rd do	do 11	do	42 17	do	75 00
4th do	do 18	do	40 00	do	55 00
5th do	do 25	do	38 00	do	32 00
6th do	June 1	do	34 00	do	30 00

1893—Varieties sown, Prize Cluster and Banner.

(In this instance the records are incomplete, only four sowings having been made.)

		Yield per acre.		Yield per acre.	
		Bush. Lbs.		Bush. Lbs.	
1st sowing,	May 10	Prize Cluster.....	37 14	Banner.....	55 00
2nd do	do 17	do	32 14	do	55 00
3rd do	do 24	do	32 14	do	50 00
4th do	do 31	do	25 00	do	30 00

1894—Varieties sown, Prize Cluster and Banner.

		Yield per acre.		Yield per acre.	
		Bush. Lbs.		Bush. Lbs.	
1st sowing	May 9	Prize Cluster.....	32 12	Banner.....	42 12
2nd do	do 16	do	26 24	do	38 8
3rd do	do 23	do	25 10	do	32 12
4th do	do 30	do	32 32	do	31 26
5th do	June 6	do	24 24	do	31 6
6th do	do 13	do	22 32	do	20 00

The average yield per acre each year of all the sowings of all the varieties of oats tested at the Experimental Farm, Nappan, N.S., was as follows :—

	Bush.	Lbs.
1891, average of twelve sowings.....	58	7 $\frac{3}{4}$
1892, do do	47	00
1893, do eight do	39	22 $\frac{1}{2}$
1894, do twelve do	30	2 $\frac{1}{2}$

Average yield per acre of each of the successive sowings of oats, including all the varieties for the whole period of four years.

	Bush.	Lbs.
1st sowing, average of eight tests.....	49	21 $\frac{3}{4}$
2nd do do	49	5 $\frac{1}{2}$
3rd do do	49	20 $\frac{3}{4}$
4th do do	41	17 $\frac{1}{2}$
5th do six do	39	16 $\frac{1}{2}$
6th do do	30	26

The results of these experiments at Nappan, N.S., show practically no variation between the first three sowings, but there is a considerable average reduction from week to week afterwards. The season of 1891 was the most favourable of the series here also, that of 1894 gave the smallest yields.

EXPERIMENTS WITH BARLEY.

1891—Varieties sown, Prize Prolific two-rowed and Baxter's six-rowed.

	Yield per acre.		Yield per acre.	
	Bush. Lbs.		Bush. Lbs.	
1st sowing, April 30, Prize Prolific.....	45	45	Baxter's six-rowed.....	41 32
2nd do May 7 do	50	25	do do	42 44
3rd do do 14 do	41	32	do do	39 8
4th do do 21 do	35	45	do do	38 26
5th do do 29 do	31	42	do do	32 39
6th do June 5 do	34	8	do do	29 38

1892—Varieties sown, Prize Prolific two-rowed and Baxter's six-rowed.

	Yield per acre.		Yield per acre.	
	Bush. Lbs.		Bush. Lbs.	
1st sowing, April 27, Prize Prolific.....	35	00	Baxter's six-rowed.....	42 24
2nd do May 4 do	47	24	do do	42 24
3rd do do 11 do	42	24	do do	55 00
4th do do 18 do	50	00	do do	40 00
5th do do 25 do	32	24	do do	35 00
6th do June 1 do	25	00	do do	30 00

1893—Varieties sown, Duck-bill two-rowed and Baxter's six-rowed.

[In this instance the records are incomplete only four sowings having been made.]

	Yield per acre.		Yield per acre.	
	Bush. Lbs.		Bush. Lbs.	
1st sowing, May 10, Duck-bill.....	30	00	Baxter's six-rowed.....	32 24
2nd do do 17 do	27	24	do do	17 24
3rd do do 24 do	32	24	do do	27 24
4th do do 31 do	7	24	do do	10 00

1894—Varieties sown, Duck-bill two-rowed and Baxter's six-rowed.

	Yield per acre.		Yield per acre.	
	Bush. Lbs.		Bush. Lbs.	
1st sowing, May 9, Duck-bill.....	23	15	Baxter's six-rowed.....	18 16
2nd do do 16 do	17	24	do do	16 12
3rd do do 23 do	16	32	do do	15 20
4th do do 30 do	19	8	do do	19 28
5th do June 6 do	15	20	do do	14 28
6th do do 13 do	10	00	do do	12 44

The average yield per acre each year of all the sowings of all the varieties of barley tested at the Experimental Farm, Nappan, N.S., was as follows:—

1891, average of twelve sowings.....	Bush.	Lbs.
1892, do do	38	36
1893, do eight do	39	38
1894, do twelve do	23	6
	16	28 $\frac{5}{13}$

Average yield per acre of each of the successive sowings of barley, including all the varieties for the whole period of four years:—

	Yield per acre.	
	Bush. Lbs.	
1st sowing, average of eight tests.....	33	31 $\frac{5}{8}$
2nd do do do	32	34 $\frac{3}{4}$
3rd do do do	33	38 $\frac{1}{2}$
4th do do do	27	23 $\frac{3}{4}$
5th do do six do	27	1 $\frac{1}{4}$
6th do do do	23	31

The above figures show that the average yield of the barley plots

was higher at Nappan in 1892 than in 1891, although these may both be regarded as favourable years for barley production in the Maritime Provinces. There was a considerable falling off in the yield in 1893, but the year 1894 was the most unfavourable for this grain.

In the week-apart sowings there was some irregularity in the results, especially in some years. The average crops from the first three sowings did not vary much, but the 3rd sowing gave a slightly larger yield than the 2nd or the 1st. It will be observed that there was a considerable falling off in the later sowings.

EXPERIMENTS WITH SPRING WHEAT.

1891—Varieties sown, Campbell's White Chaff and White Connell.

				Yield per acre.		Yield per acre.			
				Bush. Lbs.		Bush. Lbs.			
1st sowing,	April 30,	Campbell's White Chaff.		29	30	White Connell.....	28	30	
2nd do	May 7	do	do	..	31	do	..	32	40
3rd do	do 14	do	do	..	34	do	.....	28	30
4th do	do 21	do	do	..	32	do	.....	33	15
5th do	do 29	do	do	..	32	do	.....	31	52
6th do	June 6	do	do	..	26	do	.....	27	5

1892—Varieties sown, Campbell's White Chaff and Pringle's Champlain.

				Yield per acre.		Yield per acre.			
				Bush. Lbs.		Bush. Lbs.			
1st sowing,	April 27,	Campbell's White Chaff.		22	30	Pringle's Champlain..	30	00	
2nd do	May 4	do	do	..	20	do	..	27	30
3rd do	do 11	do	do	..	17	do do	..	22	30
4th do	do 18	do	do	..	12	do do	..	12	30
5th do	do 25	do	do	..	22	do do	..	17	30
6th do	June 1	do	do	..	10	do do	..	10	00

1893—Varieties sown, Campbell's White Chaff and Red Fife.

[In this instance the records are incomplete only four sowings having been made.]

				Yield per acre.		Yield per acre.			
				Bush. Lbs.		Bush. Lbs.			
1st sowing,	May 10,	Campbell's White Chaff.		17	30	Red Fife.....	17	30	
2nd do	do 17	do	do	..	20	do	.....	17	30
3rd do	do 24	do	do	..	20	do	.....	17	30
4th do	do 31	do	do	..	7	do	.....	5	00

1894—Varieties sown, Stanley and Red Fife.

				Yield per acre.		Yield per acre.			
				Bush. Lbs.		Bush. Lbs.			
1st sowing,	May 9,	Stanley.....		15	40	Red Fife.....	16	40	
2nd do	do 16	do	do	.....	21	do	.....	16	30
3rd do	do 23	do	do	.....	14	do	.....	15	20
4th do	do 30	do	do	.....	18	do	.....	10	20
5th do	June 6	do	do	.....	15	do	.....	11	40
6th do	do 13	do	do	.....	did not ripen	do	.....	did not ripen	

The average yield per acre each year of all the sowings of all the varieties of spring wheat tested at the Experimental Farm Nappan, N.S., was as follows :—

				Bush. Lbs.	
1891,	average of twelve sowings.....			30	56 $\frac{1}{2}$
1892,	do	do	do	18	45
1893	do	eight	do	15	18 $\frac{3}{4}$
1894,	do	ten	do	15	37

Average yield per acre of each of the successive sowings of spring wheat, including all the varieties for the whole period of four years.

	Bush.	Lbs.
1st sowing, average of eight tests.....	22	13 $\frac{3}{4}$
2nd do do do	23	21 $\frac{1}{4}$
3rd do do do	21	19 $\frac{3}{8}$
4th do do do	16	33 $\frac{3}{8}$
5th do do six do	20	15 $\frac{1}{4}$
6th do do four do	18	16 $\frac{1}{4}$

In this instance the year 1891 stands out as remarkably favourable for wheat growing in the Maritime Provinces. There was a great falling off in the yield for 1892, and still greater in 1893 and 1894.

The successive sowings yielded very irregularly, especially in 1891, when the 1st and 5th sowings of Campbell's White Chaff wheat gave the lowest yields and the 3rd sowing the highest. In the White Connell the same year the results were somewhat similar, the 4th sowing giving the highest yield, the 2nd and 5th standing next, with the 1st and 3rd lower. Irregularities less marked occurred also in the yields of the other years. The average yield of the 2nd sowing was the largest, and the 4th was less than the 5th and 6th.

SUMMARY OF RESULTS FOR THE WHOLE PERIOD.

The following are the averages for the whole of the tests of all the varieties for the four years during which they have been carried on at the Experimental Farm at Nappan, Nova Scotia.

Oats.	Yield per acre.		Barley.	Yield per acre.		Spring Wheat.	Yield per acre.	
	Bush.	Lbs.		Bush.	Lbs.		Bush.	Lbs.
1st sowing.....	49	21 $\frac{5}{8}$	1st sowing.....	33	31 $\frac{5}{8}$	1st sowing.....	22	13 $\frac{3}{8}$
2nd do	49	5 $\frac{3}{8}$	2nd do	32	34 $\frac{5}{8}$	2nd do	23	41 $\frac{3}{8}$
3rd do	49	20 $\frac{3}{8}$	3rd do	33	38 $\frac{1}{8}$	3rd do	21	19 $\frac{3}{8}$
4th do	41	17 $\frac{3}{8}$	4th do	27	23 $\frac{3}{8}$	4th do	16	33 $\frac{1}{8}$
5th do	39	16 $\frac{1}{8}$	5th do	27	1 $\frac{3}{8}$	5th do	20	15 $\frac{3}{8}$
6th do	30	26 $\frac{1}{8}$	6th do	23	31 $\frac{1}{8}$	6th do	18	16 $\frac{1}{8}$

The average crop of each of the different sorts of grain is also submitted, covering all the sowings of all the varieties for the whole period as follows:—

	Yield per acre.	
	Bush.	Lbs.
Oats (44 sowings).....	43	12 $\frac{1}{4}$
Barley (44 do).....	30	7 $\frac{2}{11}$
Spring Wheat (42 do).....	21	3

Taking into account all the results obtained, it would appear that, while the loss from late seeding in the Maritime Provinces would be great, it is not so large as it would be in Ontario and Quebec, and that any time within two weeks from the opening of the season is a good time to sow. It will also be seen that the average yields of all the varieties of grain have been somewhat larger at Nappan than those obtained at the Central Experimental Farm.

COMPARISON OF YIELDS OF VARIETIES OF OATS.

The different varieties of oats grown at the Experimental Farm at Nappan, N.S., in these week-apart sowings have yielded per acre as follows :—

PRIZE CLUSTER, FOUR YEARS' TESTS, 22 SOWINGS.

	Bush. Lbs.	Bush. Lbs.	Bush. Lbs.	Bush. Lbs.	Average. Bush. Lbs.
1st sowing, 1891,	52 32	1892, 37 17	1893, 37 14	1894, 32 12	40 1 $\frac{1}{2}$
2nd do "	45 10	" 45 00	" 32 14	" 26 24	37 12
3rd do "	54 14	" 42 17	" 32 14	" 25 10	38 22 $\frac{1}{2}$
4th do "	61 26	" 40 00	" 25 00	" 32 32	39 31 $\frac{1}{2}$
5th do "	49 14	" 38 00	" omitted	" 24 24	37 12 $\frac{1}{2}$
6th do "	30 30	" 34 00	" omitted	" 22 32	29 9 $\frac{1}{2}$

The average yield per acre of this variety for each year was as follows :—

	Bush. Lbs.
1891, average of six sowings.....	49 4
1892, do six do	39 17
1893, do four do	31 25
1894, do six do	27 16
Average yield for the four years.....	36 32 $\frac{1}{2}$

BANNER, FOUR YEARS' TESTS, 22 SOWINGS.

	Bush. Lbs.	Bush. Lbs.	Bush. Lbs.	Bush. Lbs.	Average. Bush. Lbs.
1st sowing, 1891,	72 2	1892, 67 17	1893, 55 00	1894, 42 12	59 7 $\frac{1}{2}$
2nd do "	83 3	" 67 17	" 55 00	" 38 8	60 32 $\frac{1}{2}$
3rd do "	84 31	" 75 00	" 50 00	" 32 12	60 19 $\frac{1}{2}$
4th do "	55 20	" 55 00	" 30 00	" 31 26	43 3
5th do "	61 21	" 32 00	" omitted	" 31 6	41 20 $\frac{1}{2}$
6th do "	46 26	" 30 00	" omitted	" 20 00	32 8 $\frac{1}{2}$

The average yield per acre of the Banner oats in each year was as follows :—

	Bush. Lbs.
1891, average of six sowings.....	67 11 $\frac{3}{8}$
1892, do six do	54 17
1893, do four do	47 17
1894, do six do	32 22
Average yield for the four years.....	50 16 $\frac{3}{4}$

It will be seen that the Banner in these tests at Nappan, N. S., has proven a more prolific variety than the Prize Cluster, having exceeded the latter in average yield by 13 bush. 18 $\frac{1}{2}$ lbs. per acre.

COMPARISON OF YIELDS OF VARIETIES OF BARLEY.

In the tests conducted at the Experimental Farm, Nappan, N.S., the different varieties of barley have yielded per acre as follows :—

(Two-rowed sorts.)

PRIZE PROLIFIC, TWO YEARS' TESTS, 12 SOWINGS.

	Bush. Lbs.	Bush. Lbs.	Average yield for 2 yrs. Bush. Lbs.
1st sowing, 1891,	45 45	1892, 35 00	40 22 $\frac{1}{2}$
2nd do "	50 25	" 47 24	49 $\frac{1}{2}$
3rd do "	41 32	" 42 24	42 4
4th do "	35 45	" 50 00	42 46 $\frac{1}{2}$
5th do "	31 42	" 32 24	32 9
6th do "	34 08	" 25 00	29 28

The average yield per acre of this barley for the two years' sowings was as follows:—

	Bush. Lbs.
1891, average of six sowings.	40 $\frac{5}{8}$
1892, do do	38 $\frac{3}{8}$
Average for the two seasons.	39 $1\frac{1}{4}$

DUCK-BILL, TWO YEARS' TESTS.

	Bush. Lbs.	Bush. Lbs.	Average. Bush. Lbs.
1st sowing, 1893, 30 00	1894, 23 16		26 $\frac{3}{4}$
2nd do " 27 24	" 17 24		22 24
3rd do " 32 24	" 16 32		24 28
4th do " 7 24	" 19 8		13 16
5th do " omitted	" 15 20		15 20
6th do " omitted	" 10 00		10 00

The average yield per acre each year of Duck-bill was as follows:—

	Bush. Lbs.
1893, average of four sowings.	24 18
1894, do six do	17 $\frac{2}{3}$
Average for the two seasons.	19 46

Putting the results of the growth of these two varieties together, we find that the average yield of the two-rowed barleys used in all these week-apart tests at Nappan has been 30 bushels $26\frac{1}{4}$ lbs.

SIX-ROWED SORTS.

BAXTER'S SIX-ROWED, FOUR YEARS' TESTS, 22 SOWINGS.

	Bush. Lbs.	Bush. Lbs.	Bush. Lbs.	Bush. Lbs.	Average. Bush. Lbs.
1st sowing, 1891, 41 32	1892, 42 24	1893, 32 24	1894, 18 16		33 36
2nd do " 42 44	" 42 24	" 17 24	" 16 12		29 38
3rd do " 39 8	" 55 00	" 27 24	" 15 20		34 13
4th do " 38 26	" 40 00	" 10 00	" 19 28		27 $\frac{1}{4}$
5th do " 32 39	" 35 00	" omitted	" 11 28		27 $2\frac{1}{4}$
6th do " 29 38	" 30 00	" omitted	" 12 44		24 $11\frac{1}{4}$

The average yield per acre each year was as follows:—

	Bush. Lbs.
1891, average of six sowings.	37 $23\frac{1}{4}$
1892, do do	41 8
1893, do four do	21 42
1894, do six do	16 $8\frac{2}{3}$
Average for the four seasons 22 sowings.	29 36

This falls short of the average yield per acre of the two-rowed sorts for the same period by about $38\frac{1}{2}$ lbs.

COMPARISON OF YIELDS OF VARIETIES OF SPRING WHEAT.

In the tests conducted at the Experimental Farm, Nappan, N.S., the different varieties of wheat have yielded per acre as follows:—

CAMPBELL'S WHITE CHAFF, THREE YEARS' TESTS, 16 SOWINGS.

	Bush. Lbs.	Bush. Lbs.	Bush. Lbs.	Average. Bush. Lbs.
1st sowing, 1891, 29 30	1892, 22 30	1893, 17 30		23 10
2nd do " 34 00	" 20 00	" 20 00		24 40
3rd do " 34 35	" 17 30	" 20 00		24 $1\frac{1}{2}$
4th do " 32 40	" 12 30	" 7 30		17 $33\frac{1}{4}$
5th do " 32 40	" 12 30	" omitted		22 35
6th do " 26 00	" 10 00	" omitted		18 00

The average yield per acre each year was as follows :—

				Bush. Lbs.
1891,	average of six sowings.....			31 34 $\frac{1}{4}$
1892,	do do			15 50
1893,	do four do			16 15
			Bush. Lbs.	
Average yield for the three seasons, 16 sowings.....				21 48 $\frac{7}{8}$

RED FIFE, TWO YEARS' TESTS, 9 SOWINGS.

	Bush. Lbs.	Bush. Lbs.	Average.
1st sowing, 1893,	17 30	1894, 16 40.....	17 5
2nd do	“ 17 30	“ 16 30.....	17 00
3rd do	“ 17 30	“ 15 20.....	16 25
4th do	“ 5 00	“ 10 20.....	7 40
5th do	“ omitted.	“ 11 40.....	11 40
6th do	“ omitted.	“ did not ripen.	

The average yield per acre was as follows :—

1893,	average of four sowings.....	14 22 $\frac{1}{2}$
1894,	do five do	14 6
Average yield for the two seasons.....		14 14

Three other varieties were sown for one year each—

1891,	White Connell, average of six sowings.....	30 18 $\frac{1}{2}$
1892,	Pringle's Champlain, average of six sowings.....	20 00
1894,	Stanley, average of five sowings.....	17 8

In these tests of wheat at Nappan, N.S., the average yield of the sowings for three years 1891-2-3, of Campbell's White Chaff, was larger by 7 bush. 34 lbs. per acre than the average of the Red Fife for two years, 1893-4. Much of this gain is evidently due to the larger crop of 1891, for when these two varieties are compared for the same year, 1893, the difference in favour of the Campbell's White Chaff is less than 2 bushels, showing the important bearing which the character of the season has on the weight of the crop. The White Connell in 1891 was nearly equal in yield to Campbell's White Chaff that year, and both the other varieties which were tested in 1893 and 1894, exceeded the yield of Red Fife for the same years.

RESULTS OF TESTS AT THE EXPERIMENTAL FARM,
BRANDON, MAN.

EXPERIMENTS WITH OATS.

1892—Varieties sown, Prize Cluster and Banner.

[On account of a snow storm, April 30th, the sowing of the oat plots on that date was omitted.]

				Yield per Acre.		Yield per Acre.	
				Bush.	Lbs.	Bush.	Lbs.
1st sowing.	April 23,	Prize Cluster.....	30	30	Banner.....	59	24
2nd do	May 7	do	33	8	do	70	10
3rd do	do 14	do	33	8	do	69	5
4th do	do 21	do	50	30	do	60	10
5th do	do 28	do	55	30	do	62	22
6th do	June 4	do	43	18	do	60	2

1893—Varieties sown, Prize Cluster and Banner.

				Yield per Acre.			Yield per Acre.		
				Bush.	Lbs.		Bush.	Lbs.	
1st sowing, May	2	Prize Cluster	.....	61	26	Banner	.....	86	16
2nd do do	9	do	.....	69	24	do	.....	75	10
3rd do do	16	do	.....	64	24	do	.....	69	4
4th do do	23	do	.....	48	28	do	.....	61	26
5th do do	30	do	.....	52	12	do	.....	57	12
6th do do	6	do	.....	50	30	do	.....	52	32

1894—Varieties sown, Abundance and Banner.

				Yield per acre.			Yield per acre.		
				Bush.	Lbs.		Bush.	Lbs.	
1st sowing, May	1	Abundance	.....	69	14	Banner	.....	66	6
2nd do do	8	do	.....	75	30	do	.....	74	24
3rd do do	15	do	.....	71	6	do	.....	79	24
4th do do	22	do	.....	61	16	do	.....	63	26
5th do do	29	do	.....	34	24	do	.....	49	14
6th do	June 5	do	.....	50	30	do	.....	50	10

The average yield per acre each year of all the sowings of all the varieties of oats tested at the Experimental Farm, Brandon, Man., was as follows:—

			Bush.	Lbs.
1892,	average of twelve sowings	.....	53	10 $\frac{3}{4}$
1893,	do do	.....	62	19 $\frac{3}{4}$
1894,	do do	.....	62	17 $\frac{1}{2}$

Average yield per acre of each of the successive sowings of oats, including all the varieties for the whole period of three years.

			Bush.	Lbs.
1st sowing,	average of six tests	.....	62	13 $\frac{3}{4}$
2nd do	do do	.....	66	17 $\frac{3}{4}$
3rd do	do do	.....	64	17 $\frac{3}{4}$
4th do	do do	.....	58	11 $\frac{3}{4}$
5th do	do do	.....	52	62
6th do	do do	.....	53	3 $\frac{3}{4}$

In this series of tests the yields for the several years are fairly uniform, those for 1893 and 1894 being the largest, and nearly equal. The yields from the successive sowings are irregular, but the average shows a steady diminution after the third sowing, indicating that to obtain the best results in Manitoba, oats should be sown from the 7th to the 16th of May.

EXPERIMENTS WITH BARLEY.

1892—Varieties sown, Kinver Chevalier and Goldthorpe, both two-rowed sorts.

[On account of a snow storm, April 30th, the sowing of the barley plots on that date was omitted.]

				Yield per acre.			Yield per acre.		
				Bush.	Lbs.		Bush.	Lbs.	
1st sowing, April 23,	Kinver Chevalier	..	40	20	Goldthorpe	.....	50	20	
2nd do	May 7	do	..	50	00	do	.....	55	30
3rd do	do 14	do	..	51	32	do	.....	51	32
4th do	do 21	do	..	51	22	do	.....	64	28
5th do	do 28	do	..	52	34	do	.....	61	2
6th do	June 4	do	..	61	33	do	.....	53	19

1893—Varieties sown, Duck-bill two-rowed and Baxter's six-rowed.

		Yield per acre.		Yield per acre.	
		Bush. Lbs.		Bush. Lbs.	
1st sowing, May 2,	Duck-bill.....	43	36	Baxter's six-rowed.....	40 49
2nd do do 9	do	42	24	do do	28 16
3rd do do 13	do	47	21	do do	36 12
4th do do 23	do	45	40	do do	35 49
5th do do 30	do	42	4	do do	35 00
6th do June 6	do	36	32	do do	34 18

1894—Varieties sown, Canadian Thorpe two-rowed and Oderbruch six-rowed.

[In consequence of supply of seed running short, only four plots of the former and three of the latter were sown in this test.]

		Yield per acre.		Yield per acre.	
		Bush. Lbs.		Bush. Lbs.	
1st sowing, May 8,	Canadian Thorpe..	33	16	Oderbruch.....	40 10
2nd do do 15	do ..	32	34	do	52 44
3rd do do 22	do ..	40	00	do	46 2
4th do do 29	do ..	28	36		

The average yield per acre each year of all the sowings of all the varieties of barley tested at the Experimental Farm, Brandon, Man., was as follows :—

		Bush.	Lbs.
1892,	average of 12 sowings.....	53	34 $\frac{2}{3}$
1893,	do do	39	4 $\frac{2}{3}$
1894,	do 7 do	39	6 $\frac{1}{2}$

Average yield per acre of each of the successive sowings of barley, including all the varieties for the whole period of three years :—

		Bush.	Lbs.
1st sowing,	average of 6 tests	41	25 $\frac{2}{3}$
2nd do do do	do	43	34 $\frac{1}{3}$
3rd do do do	do	45	25
4th do do 5	do	45	14
5th do do 4	do	47	34
6th do do do	do	46	24

In these tests of barley the yields for 1892 are much heavier than those for 1893-94, the two latter years being practically equal. The results of the successive sowings show the heaviest yields in the later sowings, but in this instance the two later sowings have only been carried on for two years. As far as the experience goes, it seems to indicate that in Manitoba barley may be sown later than oats, and that the most favourable time for sowing is from the middle to the latter part of May.

The average of the 22 sowings of two-rowed barley have exceeded in yield the average of the 9 sowings of six-rowed by 8 bush. 23 lbs. per acre, but if we leave out of consideration the heavy crop of 1892, and compare the two-rowed and six-rowed sorts for the same years, the advantage in favour of the two-rowed does not exceed half a bushel per acre.

EXPERIMENTS WITH WHEAT.

1892--Varieties sown, Campbell's White Chaff and Red Fife.

[On account of a snow storm, April 30th, the sowing of the wheat plots on that date was omitted.]

	Yield per acre.		Red Fife.....	Yield per acre.	
	Bush.	Lbs.		Bush.	Lbs.
1st sowing, April 23, Campbell's White Chaff..	32	50		33	20
2nd do May 7 do do ..	35	30	do ..	36	50
3rd do do 14 do do ..	30	30	do ..	37	10
4th do do 21 do do ..	30	50	do ..	33	30
5th do do 28 do do ..	24	50	do ..	29	40
6th do June 6 do do ..	19	30	do ..	28	00

1893--Varieties sown, Campbell's White Chaff and Red Fife.

	Yield per acre.		Red Fife.....	Yield per acre.	
	Bush.	Lbs.		Bush.	Lbs.
1st sowing, May 2, Campbell's White Chaff..	23	30		28	10
2nd do do 9 do do ..	23	00	do ..	43	20
3rd do do 16 do do ..	17	00	do ..	28	50
4th do do 23 do do ..	15	00	do ..	26	40
5th do do 30 do do ..	15	00	do ..	22	10
6th do June 6 do do ..	12	30	do ..	18	50

1894--Varieties sown, Stanley and Red Fife.

	Yield per acre.		Red Fife.....	Yield per acre.	
	Bush.	Lbs.		Bush.	Lbs.
1st sowing, May 1, Stanley.....	27	50		33	40
2nd do do 8 do ..	28	40	do ..	31	10
3rd do do 15 do ..	31	10	do ..	33	00
4th do do 22 do ..	32	50	do ..	32	10
5th do do 29 do ..	26	40	do ..	29	20
6th do June 5 do ..	25	30	do ..	22	40

SUMMARY OF RESULTS FOR THE WHOLE PERIOD.

The average yield per acre each year of all the sowings of all the varieties of wheat tested at the Experimental Farm, Brandon, Man., was as follows :—

	Bush.	Lbs.
1892, average of 12 sowings.....	31	2½
1893, do do ..	22	00
1894, do do ..	29	33½

Average yield per acre of each of the successive sowings of wheat, including all the varieties for the whole period of three years :—

	Bush.	Lbs.
1st sowing, average of 6 tests.....	29	53½
2nd do do ..	31	25
3rd do do ..	29	36½
4th do do ..	28	30
5th do do ..	24	36½
6th do do ..	21	10

In these experiments at Brandon the wheat crops of 1892 and 1894 were nearly equal, while that of 1893 fell nearly 7 bushels per acre short of the average of the other two years. The average yield of the successive sowings do not indicate any special advantage in very early sowing, but they do point to the importance of having all wheat sown by about the middle of May. The second sowing averaged the highest in the series, and the third was nearly equal to the first. There was in the fourth a slight falling off, which becomes very decided in the fifth and sixth, the crop steadily decreasing in proportion to the length of time that seeding is delayed.

The figures which have been given as the results of these week-apart sowings show the following averages for the entire number of tests of all varieties for the three years during which they have been carried on at the Experimental Farm at Brandon, Manitoba.

Oats.	Yield per acre.	Barley.	Yield per acre.	Spring Wheat.	Yield per acre.
	Bush. Lbs.		Bush. Lbs.		Bush. Lbs.
1st sowing.....	62 13 $\frac{1}{2}$	1st sowing.....	41 23 $\frac{1}{2}$	1st sowing.....	29 53 $\frac{1}{2}$
2nd do	65 17 $\frac{1}{2}$	2nd do	43 34 $\frac{1}{2}$	2nd do	31 25
3rd do	61 17 $\frac{1}{2}$	3rd do	45 25	3rd do	29 26 $\frac{1}{2}$
4th do	58 11 $\frac{1}{2}$	4th do	45 14	4th do	28 30
5th do	52 2	5th do	47 34	5th do	24 36 $\frac{1}{2}$
6th do	53 3 $\frac{1}{2}$	6th do	46 24	6th do	21 10

The average crop of each of the different sorts of grain is also submitted, including all the sowings of all the varieties for the whole period, as follows :—

	Yield per acre. Bush. Lbs.
Oats, 36 sowings.. .. .	59 16 $\frac{3}{4}$
Barley, 31 do	44 37 $\frac{6}{8}$
Wheat, 36 do	27 32

COMPARISON OF YIELDS OF VARIETIES OF OATS.

The different varieties of oats grown at the Experimental Farm at Brandon, Manitoba, in these week-apart sowings have yielded per acre, as follows :—

PRIZE CLUSTER, TWO YEARS' TESTS, 12 SOWINGS.

	Bush. Lbs.	Bush. Lbs.	Average of two years. Bush. Lbs.
1st sowing, 1892,	30 30	1893,	61 26
2nd do " "	33 8	" "	69 24
3rd do " "	33 8	" "	64 24
4th do " "	50 30	" "	48 28
5th do " "	55 30	" "	52 12
6th do " "	53 18	" "	50 30

The average yield per acre for each year's sowings was as follows :—

	Bush. Lbs.
1892, average of six sowings.....	42 32
1893, do	58 1 $\frac{6}{8}$
Average for the two seasons.....	50 16 $\frac{1}{2}$

BANNER, THREE YEARS' TESTS, 18 SOWINGS.

	Bush. Lbs.	Bush. Lbs.	Bush. Lbs.	Average of three years. Bush. Lbs.	
1st sowing, 1892,	59 24	1893,	86 16	1894,	66 6
2nd do " "	70 10	" "	75 10	" "	74 24
3rd do " "	69 5	" "	69 4	" "	79 24
4th do " "	60 10	" "	61 26	" "	66 26
5th do " "	62 22	" "	57 12	" "	49 14
6th do " "	60 2	" "	52 32	" "	50 10

The average yield per acre for each year's sowings is as follows:—

1892, average of six sowings.....	Bush. Lbs.	63	23
1893, do		67	5
1894, do		64	17
Average for the three seasons.....		65	4

One other variety, Abundance, was sown for one year only.

1894, Abundance, average of 6 sowings.....	Bush. Lbs.	60	20
--	------------	----	----

In comparing the results obtained from these several varieties of oats under test, it will be seen that the average yield of the Banner for three years has been 14 bush. 22 lbs. more per acre than that of the Prize Cluster for two years. The average of the Abundance for one year, 1894, has been 3 bush. 31 lbs. less than that of the Banner, for the same year.

COMPARISON OF YIELDS OF VARIETIES OF BARLEY.

The different varieties of barley grown at the Experimental Farm at Brandon, Man., in these week-apart sowings have yielded, per acre, as follows:—

Two-rowed Sorts.

				Average.
1892, Kinver Chevalier, one season only, 6 sowings.....				51
“ Gold-Thorpe, do do do				56
1893, Duck-bill, do do do				43
1894, Canadian Thorpe, do do 4 sowings.....				33
Average yield per acre of the four varieties, 22 sowings in all	47			9

Six-rowed Sorts.

1893, Baxter's six-rowed, 1 season only, 6 sowings.....	35	5
1894, Oderbruch do 1 do 3 do	46	18
Average yield per acre of the two six-rowed varieties.....	38	41

In this instance the two-rowed varieties have yielded an average of 8 bush. 16 lbs. per acre more than the average of the six-rowed sorts.

COMPARISON OF YIELDS OF VARIETIES OF WHEAT.

The different varieties of wheat grown at the Experimental Farm at Brandon, Man., in these week-apart sowings have yielded, per acre, as follows:—

CAMPBELL'S WHITE CHAFF, TWO YEARS' TESTS, 12 SOWINGS.

		Bush. Lbs.		Average of two years.
1st sowing, 1892,	32	50,	1893, 23	30
2nd do “	35	30	“	23
3rd do “	30	30	“	17
4th do “	30	50	“	15
5th do “	24	50	“	15
6th do “	19	30	“	12
				28
				20
				29
				15
				23
				45
				22
				55
				19
				55
				16
				00

The average yield per acre of this wheat for each year was as follows:—

1892, average of six sowings.....	Bush. Lbs.	29 00
1893, do		17 40
Average for the two seasons.....		23 20

RED FIFE, THREE YEARS' TESTS, 18 SOWINGS.

	Bush. Lbs.	Bush. Lbs.	Bush. Lbs.	Average of three years.	
				Bush. Lbs.	Bush. Lbs.
1st sowing, 1892,	33 20,	1893, 28 10,	1894, 33 40	31 43 $\frac{1}{2}$	31 43 $\frac{1}{2}$
2nd do "	35 50	" 33 20	" 31 10	33 40 $\frac{1}{2}$	33 40 $\frac{1}{2}$
3rd do "	37 10	" 28 50	" 33 00	33 00 $\frac{1}{2}$	33 00 $\frac{1}{2}$
4th do "	33 30	" 26 40	" 32 10	30 46 $\frac{1}{2}$	30 46 $\frac{1}{2}$
5th do "	29 40	" 22 10	" 29 20	27 3 $\frac{1}{2}$	27 3 $\frac{1}{2}$
6th do "	28 00	" 18 50	" 22 40	23 10 $\frac{1}{2}$	23 10 $\frac{1}{2}$

The average yield per acre of the Red Fife for each year's sowings was as follows:—

1892, average of six sowings	Bush. Lbs.	33 5
1893, do do		26 20
1894, do do		30 20
Average for the three years.....		29 55

One other variety, Stanley, was sown for one season only, 1894.

Stanley, average of six sowings. 28 46 $\frac{1}{2}$

From the figures given it will be seen that the Red Fife stands first in yield in these tests at Brandon, Man., by 6 bush. 25 lbs. per acre, closely followed by Stanley, which is a cross-bred variety between Ladoga and Red Fife.

RESULTS OF TESTS AT THE EXPERIMENTAL FARM,
INDIAN HEAD, N.W.T.

EXPERIMENTS WITH OATS.

1891—Varieties sown, Prize Cluster and Banner.

[In this instance the two earliest sown plots of both varieties were destroyed by frost and strong winds.]

	Yield per acre.		Yield per acre.	
	Bush. Lbs.		Bush. Lbs.	
1st sowing, April 6, Prize Cluster.....	84 30	Banner.....	86 24	88 4
2nd do do 13 do	86 24	do	84 22	81 22
3rd do do 20 do	82 4	do	86 20	77 22
4th do do 27 do	86 20	do		
5th do May 4 do		do		
6th do do 11 do		do		

1892—Varieties sown, Prize Cluster and Banner.

[In consequence of severe frost on May 2nd, the sowing of the third plot was deferred for a week, hence a period of two weeks occurs between the second and third sowings.]

	Yield per acre.		Yield per acre.	
	Bush. Lbs.		Bush. Lbs.	
1st sowing, April 18, Prize Cluster.....	25 00	Banner.....	33 18	51 6
2nd do do 25 do	47 22	do	51 15	51 6
3rd do May 9 do	44 4	do	51 6	59 24
4th do do 16 do	45 10	do	60 20	
5th do do 23 do	52 32	do		
6th do do 30 do	45 20	do		

1893—Varieties sown, Prize Cluster and Banner.

	Yield per acre.		Yield per acre.	
	Bush. Lbs.		Bush. Lbs.	
1st sowing, April 24, Prize Cluster.....	72	2	Banner.....	88 28
2nd do May 1 do	66	6	do	76 20
3rd do do 8 do	60	30	do	86 6
4th do do 15 do	56	10	do	87 12
5th do do 22 do	58	20	do	63 00
6th do do 29 do	46	6	do	61 26

1894—Varieties sown, Abundance and Banner.

	Yield per acre.		Yield per acre.	
	Bush. Lbs.		Bush. Lbs.	
1st sowing, April 24, Abundance.....	17	22	Banner.....	19 4
2nd do May 1 do	33	28	do	30 30
3rd do do 8 do	29	14	do	27 32
4th do do 15 do	29	14	do	30 30
5th do do 22 do	23	18	do	21 6
6th do do 29 do	28	18	do	22 2

The average yield per acre each year of all the varieties of oats tested at the Experimental Farm at Indian Head, N.W.T., was as follows:—

1891, average of eight sowings.....	Bush.	Lbs.
1892, do twelve do	68	18 ¹
1893, do do do	56	3 ⁵ / ₁₂
1894, do do do	26	6 ⁵ / ₆

Average yield per acre of each of the successive sowings of oats, including all the varieties for the whole period of four years. .

	Bush.	Lbs.
1st sowing, average of six tests.....	43	18
2nd do do do	51	4 ⁴ / ₅
3rd do eight do	58	32 ¹ / ₅
4th do do do	59	13 ⁶ / ₁₀
5th do do do	55	24 ² / ₅
6th do do do	53	21

The year 1891 was a remarkably favourable year for oat-growing in portions of the North-West Territories, giving unusually heavy yields for all grain sown after the spring weather had fairly settled. The season of 1892 stands next in point of yield; 1893 averaged lower, but the year 1894 was unprecedented in its unfavourable conditions, owing to lack of rainfall and hot droughty weather. The rainfall at Indian Head that season was less than half that usually had, and on the Experimental Farm the long period of very dry weather resulted in unusually light crops of all sorts of grain, the yields being less than one-half of an average crop.

EXPERIMENTS WITH BARLEY.

1891—Varieties sown, Prize Prolific two-rowed and Baxter's Six-rowed.

[The two earliest plots in this case also were destroyed by frost and strong winds.]

	Yield per acre.		Yield per acre.	
	Bush. Lbs.		Bush. Lbs.	
1st sowing, April 6, Prize Prolific, ... ..	...	...	Baxter's Six-rowed, ... ..	...
2nd do do 13 do .....	...	...	do do .....	...
3rd do do 20 do	40	30	do do	27 40
4th do do 27 do	54	23	do do	40 00
5th do May 4 do	54	00	do do	44 18
6th do do 11 do	50	40	do do	50 10

1892—Varieties sown, Kinver Chevalier and Goldthorpe, both two-rowed sorts.

[On account of frost, May 2nd, the sowing of the barley plots on that date was omitted.]

				Yield per acre.		
				Bush. Lbs.	Bush. Lbs.	
1st sowing,	April 18,	Kinver	Chevalier,	35 49	Goldthorpe,	18 40
2nd do	do 25	do	do	41 12	do	34 24
3rd do	May 2	do	do	...	do	...
4th do	do 9	do	do	41 32	do	30 10
5th do	do 16	do	do	46 32	do	36 03
6th do	do 23	do	do	41 22	do	31 06

1893—Varieties sown, Duck-bill two-rowed and Baxter's Six-rowed.

				Yield per acre.		
				Bush. Lbs.	Bush. Lbs.	
1st sowing,	April 24,	Duck-bill,	Baxter's	48 24	Six-rowed,	51 00
2nd do	May 1	do	do	50 00	do	50 24
3rd do	do 8	do	do	50 00	do	50 00
4th do	do 15	do	do	49 00	do	50 24
5th do	do 22	do	do	46 00	do	46 24
6th do	do 29	do	do	44 00	do	49 00

1894—Varieties sown, Canadian Thorpe two-rowed and Oderbruch six-rowed.

				Yield per acre.		
				Bush. Lbs.	Bush. Lbs.	
1st sowing,	April 24,	Canadian	Thorpe,	11 12	Oderbruch,	14 18
2nd do	May 1	do	do	10 00	do	20 20
3rd do	do 8	do	do	13 26	do	19 28
4th do	do 15	do	do	13 26	do	21 22
5th do	do 22	do	do	12 36	do	15 00
6th do	do 29	do	do	11 32	do	15 00

The average yield per acre each year of all the varieties of barley tested at the Experimental Farm, Indian Head, N.W.T., was as follows:—

		Bush.	Lbs.
1891, average of eight sowings.....		45	14 $\frac{3}{4}$
1892, do ten do		36	2 $\frac{9}{10}$
1893, do twelve do		48	36
1894, do do do		14	42 $\frac{1}{2}$

Average yield per acre of each of the successive sowings of barley, including all the varieties for the whole period of four years.

		Bush.	Lbs.
1st sowing, average of six tests.....		28	46 $\frac{1}{2}$
2nd do do do		34	21 $\frac{1}{3}$
3rd do do do		33	28 $\frac{2}{3}$
4th do eight do		37	29 $\frac{3}{4}$
5th do do do		37	31 $\frac{3}{4}$
6th do do do		37	1 $\frac{3}{4}$

The season of 1893 gave the highest yields of barley; 1891 was also a favourable year for this grain. A medium crop was realized in 1892, while 1894 gave a very small yield for the reasons already given. In the average yields of the several sowings, the earliest sown plots gave the smallest yield of any. The 4th, 5th and 6th sowings gave the largest returns, and were about equal in yield. It will be noticed that the crops of the several years are not uniform in this respect, in 1893 the three earlier sown plots averaged best.

EXPERIMENTS WITH SPRING WHEAT.

1891—Varieties sown, Campbell's White Chaff and White Connell.

		Yield per acre.		Yield per acre.	
		Bush. Lbs.		Bush. Lbs.	
1st sowing, April 6,	Campbell's White Chaff.	30	26	White Connell.....	34 00
2nd do do 13	do do	..	35 00	do	32 00
3rd do do 20	do do	..	31 00	do	32 50
4th do do 27	do do	..	37 46	do	34 30
5th do May 4	do do	..	35 30	do	32 30
6th do do 11	do do	..	36 10	do	33 00

1892—Varieties sown, Campbell's White Chaff and Red Fife.

[On account of frost, April 29th, the sowing of the wheat plots on that date was omitted.]

		Yield per acre.		Yield per acre.	
		Bush. Lbs.		Bush. Lbs.	
1st sowing, April 15,	Campbell's White Chaff.	29	40	Red Fife.....	27 40
2nd do do 22	do do	..	38 00	do	30 00
3rd do do 29	do do	..	.....	do .....	.....
4th do May 6	do do	..	28 50	do	35 40
5th do do 13	do do	..	36 40	do	33 00
6th do do 20	do do	..	32 20	do	26 20

1893—Varieties sown, Campbell's White Chaff and Red Fife.

		Yield per acre.		Yield per acre.	
		Bush. Lbs.		Bush. Lbs.	
1st sowing, April 17,	Campbell's White Chaff.	26	30	Red Fife	24 40
2nd do do 24	do do	..	31 40	do	31 16
3rd do May 1	do do	..	30 10	do	37 00
4th do do 8	do do	..	25 30	do	32 30
5th do do 15	do do	..	30 00	do	30 00
6th do do 22	do do	..	29 50	do	29 10

1894—Varieties sown, Stanley and Red Fife.

		Yield per acre.		Yield per acre.	
		Bush. Lbs.		Bush. Lbs.	
1st sowing, April 20,	Stanley.....	15	50	Red Fife.....	9 10
2nd do do 27	do .....	..	36 40	do	14 10
3rd do May 4	do .....	..	15 50	do	16 20
4th do do 11	do .....	..	16 00	do	17 00
5th do do 18	do .....	..	15 00	do	15 20
6th do do 25	do .....	..	15 50	do	17 50

The average yield per acre each year of all the varieties of spring wheat tested at the Experimental Farm at Indian Head, N.W.T., was as follows:

		Bush.	Lbs.
1891, average of twelve sowings.....		34	1
1892, do ten do		31	55
1892, do twelve do		29	50 1/2
1893, do do do		15	25

Average yield per acre of each of the successive sowings of wheat, including all the varieties for the whole period of four years.

		Bush.	Lbs.
1st sowing, average of eight tests.....		24	44 1/2
2nd do do do		28	38 3/4
3rd do do six do		27	41 2/3
4th do do eight do		28	28 1/4
5th do do do do		28	30
6th do do do do		37	41 1/4

In the tests of wheat also, the year 1891 gave the best average crop, 1892 stands next in yield, followed by 1893. The very unfavourable season of 1894 makes a poor showing in this connection. In this instance also, the first of the week-apart sowings gave the smallest yield,

the five later sowings being very nearly equal. The second, fourth and fifth do not vary more than 10 lbs. As far as these tests have gone, they indicate that the best time for sowing wheat in Eastern Assiniboia is from the middle of April to the middle of May, and seeding should in any case be finished by May 25th.

SUMMARY OF RESULTS FOR THE WHOLE PERIOD.

The following are the averages for the entire number of tests of all the varieties for the four years during which they have been carried on at the Experimental Farm at Indian Head, Assiniboia, North-west Territories.

Oats.	Yield per acre.	Barley.	Yield per acre.	Spring Wheat.	Yield per acre.
	Bush. Lbs.		Bush. Lbs.		Bush. Lbs.
1st sowing.....	43 18	1st sowing.....	29 46 $\frac{1}{2}$	1st sowing.....	24 44 $\frac{1}{2}$
2nd do	51 01 $\frac{1}{2}$	2nd do	34 21 $\frac{1}{2}$	2nd do	28 38 $\frac{1}{2}$
3rd do	58 32 $\frac{1}{2}$	3rd do	33 28 $\frac{1}{2}$	3rd do	27 41 $\frac{1}{2}$
4th do	59 13 $\frac{1}{2}$	4th do	37 29 $\frac{1}{2}$	4th do	28 28 $\frac{1}{2}$
5th do	55 24 $\frac{1}{2}$	5th do	37 31 $\frac{1}{2}$	5th do	28 30
6th do	53 21	6th do	37 1 $\frac{1}{2}$	6th do	27 41 $\frac{1}{2}$

The average crop of each of the different sorts of grain is here given for the whole period, including all the sowings of all the varieties.

	Yield per acre. Bush. Lbs.
Oats (44 sowings).....	54 9 $\frac{1}{2}$
Barley (42 sowings).....	35 18 $\frac{1}{2}$
Spring Wheat (46 sowings).....	27 39 $\frac{1}{2}$

COMPARISON OF YIELDS OF VARIETIES OF OATS.

The different varieties of oats grown at the Experimental Farm at Indian Head, N.W.T., in these week-apart sowings have yielded per acre, as follows:—

PRIZE CLUSTER, THREE YEARS' TESTS, 16 SOWINGS. (In 1891 the first two sowings were destroyed by frost and winds.)

	Bush. Lbs.	Bush. Lbs.	Bush. Lbs.	Average of three years Bush. Lbs.
1st sowing, 1891.....	.....	1892..... 25 00	1893..... 72 2	48 18
2nd do " .....	.....	" .....	" .....	56 31
3rd do "	81 30	"	"	63 10
4th do "	86 24	"	"	62 26
5th do "	82 4	"	"	64 18 $\frac{1}{2}$
6th do "	86 20	"	"	59 19 $\frac{1}{2}$

The average yield per acre from the sowings of each year was as follows:—

	Bush. Lbs.
1891, average of four sowings	85 2 $\frac{1}{2}$
1892, do six do	43 14 $\frac{2}{3}$
1893, do six do	60 1
Average for the three seasons.....	60 2 $\frac{1}{2}$

BANNER, FOUR YEARS TESTS, 22 SOWINGS.

(In 1891 the first two sowings were destroyed by frost and winds.)

	Bush	Lbs.	Bush	Lbs.	Bush	Lbs.	Bush	Lbs.	Average of four years.				
									Bush. Lbs.				
1st sowing, 1891..	.....	1892...	38	18	1893...	88	28	1894....	19	4	48	23	
2nd do " "	.....	"	51	6	"	76	20	"	38	30	52	30	
3rd do " "	86	24	"	51	15	"	86	6	"	27	32	63	2½
4th do " "	88	4	"	51	6	"	87	12	"	30	30	64	13
5th do " "	84	22	"	59	24	"	63	00	"	21	6	54	21½
6th do " "	77	22	"	60	20	"	61	26	"	22	2	55	17½

The average yield per acre from the sowings of each year of the Banner oat was as follows :—

	Bush.	Lbs.
1891, average of four sowings.....	84	8½
1892, do six do	52	3½
1893, do six do	77	9½
1894, do six do	25	11½
Average for the four seasons.....	57	17½
One other variety, Abundance, was sown for one year only, 1894 : average of six sowings	27	2

In these records Banner does not give as good a total average as Prize Cluster by 2 bush. 19 lbs. per acre, but this is due to the fact that the Prize Cluster was not sown during the very unfavourable season of 1894. The great drought that year diminished the crop very much, reducing it to the low average of 25 bush. 11½ lbs., as compared with 64 bush. 17½ lbs., which was the yield at Brandon where the rainfall was heavier. This drought will also account for the light yield of Abundance in 1894, 27 bush. 2 lbs. per acre. It will, however, be noted that this compares well with the crop of Banner for that year.

COMPARISON OF YIELDS OF VARIETIES OF BARLEY.

The different varieties of barley grown at the Experimental Farm at Indian Head, N.W.T., in these week-apart sowings have yielded per acre, as follows :—

TWO-ROWED SORTS.

	Bush.	Lbs.	Average.
			Bush. Lbs.
1891—Prize Prolific, 1 season only, four sowings... ..	50		½
In this instance the 1st and 2nd sowings were destroyed by frost and winds.			
1892—Kinver Chevalier, one season only, five sowings.	41	46½	
do —Goldthorpe, do five do .	30	6½	
1893—Duck-hill, do six do .	47	44	
1884—Canadian Thorpe, do six do .	12	6	
Average yield of the two-rowed varieties.....	35	20.	

SIX-ROWED SORTS.

BAXTER'S SIX-ROWED, TWO YEARS' TESTS, 10 PLOTS.

In this instance also, the first and second sowings were destroyed by frost and winds.

	Bush.	Lbs.		Bush.	Lbs.	Average.
						Bush. Lbs.
1st sowing, 1891.....	..	..	1893.....	51	00	51 00
2nd do ".....	..	..	".....	50	24	50 24
3rd do ".....	27	40	".....	50	00	38 44
4th do ".....	40	00	".....	50	24	45 12
5th do ".....	44	18	".....	46	24	45 21
6th do ".....	50	10	".....	49	00	49 29

The average yield per acre of the Baxter's six-rowed each year was as follows:—

	Bush.	Lbs.
1891, average of four sowings.....	40	29
1893, do six do.....	49	28
Average yield for 2 years, from 10 sowings	45 47	$\frac{6}{10}$

One other variety, Oderbruch, was sown for one season only, 1894.

	Bush.	Lbs.
Oderbruch, average of six sowings.....	17	30 $\frac{1}{2}$
Average yield of the six-rowed sorts, 16 sowings..	35	17 $\frac{1}{2}$

COMPARISON OF YIELDS OF VARIETIES OF WHEAT.

In the tests conducted at the Experimental Farm, Indian Head, N.W.T., the different varieties of wheat have yielded per acre, as follows:—

CAMPBELL'S WHITE CHAFF, THREE YEARS' TESTS, 17 SOWINGS.

	Bush.	Lbs.		Bush.	Lbs.	1893,	Bush.	Lbs.	Average of three years.
									Bush. Lbs.
1st sowing, 1891,	30	26	1892,	29	40	1893,	26	30	28 52
2nd do ".....	35	30	".....	38	00	".....	31	40	35 3 $\frac{1}{2}$
3rd do ".....	34	00	".....	omitted	".....	".....	30	10	32 5
4th do ".....	37	46	".....	28	50	".....	25	30	30 42
5th do ".....	35	30	".....	36	40	".....	30	00	34 3 $\frac{1}{2}$
6th do ".....	36	10	".....	33	20	".....	29	50	33 6 $\frac{2}{3}$

The average yield per acre of the Campbell's White Chaff wheat each year was as follows:—

	Bush.	Lbs.	Average.
			Bush. Lbs.
1891, average of six sowings.....	34	53	
1892, do five do.....	33	18	
1893, do six do.....	28	50 $\frac{2}{3}$	
Average yield for 3 years, 17 sowings...	32	24 $\frac{1}{17}$	

RED FIFE, THREE YEARS' TESTS, 17 SOWINGS.

	Bush.	Lbs.		Bush.	Lbs.		Bush.	Lbs.	Average of three years.
									Bush. Lbs.
1st sowing, 1892,	27	40	1893,	24	40	1894,	9	10	20 30
2nd do ".....	30	00	".....	31	10	".....	14	10	25 9 $\frac{2}{3}$
3rd do ".....	omitted	".....	".....	37	00	".....	16	20	26 40
4th do ".....	35	40	".....	32	30	".....	17	17	28 23 $\frac{1}{2}$
5th do ".....	33	00	".....	30	00	".....	15	20	26 6 $\frac{2}{3}$
6th do ".....	26	20	".....	29	10	".....	17	50	24 26 $\frac{2}{3}$

The average yield per acre of the Red Fife for each year was as follows :—

	Bush.	Lbs.
1892, average of five sowings.....	30	32
1893, do six do	30	45
1894, do six do	14	58 $\frac{1}{3}$
Average for the three years, 17 sowings.	25	14 $\frac{1}{4}$

Two other varieties were sown, each for one year only :

	Bush.	Lbs.
1891, White Connell, average per acre of six sowings	33	8 $\frac{1}{2}$
1894, Stanley, average per acre of six sowings..	15	51 $\frac{2}{3}$

These figures show that the Campbell's White Chaff for the three years of 1891-92-93 has exceeded Red Fife sown in 1892-93-94 in average yield, by 7 bush. 42 lbs. per acre. This, however, is mainly due to the bad record made by the Red Fife during the very dry year of 1894, when Campbell's White Chaff was not sown. Comparing the results of the two years, 1892-93, when both the varieties were sown, we find the difference to be a little less than one bushel in favour of the Campbell's White Chaff. The Stanley, which is a very promising beardless wheat, one of the new cross-bred sorts recently produced at the Central Experimental Farm, also makes a poor showing, for the reason that it has been used in these tests at Indian Head only once, and that was in 1894. It yielded, however, that year nearly a bushel more per acre than the Red Fife.

RESULTS OF TESTS AT THE EXPERIMENTAL FARM, AGASSIZ, BRITISH COLUMBIA.

EXPERIMENTS WITH OATS.

1891—Varieties sown, Prize Cluster and Banner.

	Yield per acre.		Yield per acre.	
	Bush. Lbs.		Bush. Lbs.	
1st sowing, April 15, Prize Cluster.....	38	18	Banner.....	43 8
2nd do do 22 do	40	00	do	47 32
3rd do do 29 do	37	22	do	50 20
4th do May 6 do	32	22	do	39 14
5th do do 13 do	41	6	do	44 24
6th do do 20 do	47	2	do	66 6

1892—Varieties sown, Prize Cluster and Banner.

	Yield per acre.		Yield per acre.	
	Bush. Lbs.		Bush. Lbs.	
1st sowing, April 12, Prize Cluster.....	37	22	Banner.....	53 8
2nd do do 19 do	48	18	do	52 2
3rd do do 26 do	38	28	do	56 31
4th do May 3 do	46	7	do	75 31
5th do do 10 do	44	14	do	80 10
6th do do 17 do	51	16	do	82 32

1893—Varieties sown, Prize Cluster and Banner.

	Yield per acre.		Yield per acre.	
	Bush. Lbs.		Bush. Lbs.	
1st sowing, April 19, Prize Cluster.....	36	6	Banner.....	47 22
2nd do do 26 do	48	8	do	49 4
3rd do May 3 do	42	12	do	51 16
4th do do 10 do	42	12	do	57 32
5th do do 17 do	42	32	do	64 24
6th do do 24 do	52	22	do	67 32

1894—Varieties sown. Abundance and Banner.

	Yield per acre.		Yield per acre.	
	Bush. Lbs.		Bush. Lbs.	
1st sowing, April 24, Abundance.....	41	6	Banner.....	43 8
2nd do May 1 do	38	3	do	48 16
3rd do do 8 do	41	16	do	42 27
4th do do 15 do	32	7	do	32 32
5th do do 22 do	35	20	do	31 31
6th do do 29 do	41	6	do	47 22

The average yield per acre each year of all the varieties of oats tested at the Experimental Farm at Agassiz, B.C., was as follows:—

	Bush. Lbs.
1891, average of twelve sowings	44 3 $\frac{1}{2}$
1892, do do	55 23 $\frac{1}{2}$
1893, do do	50 10
1894, do do	39 24 $\frac{2}{3}$

Average yield per acre of each of the successive sowings of oats, including all the varieties for the whole period of four years:—

	Bush. Lbs.
1st sowing, average of eight tests	42 20 $\frac{6}{8}$
2nd do do	46 18 $\frac{7}{8}$
3rd do do	45 8 $\frac{6}{8}$
4th do do	44 32 $\frac{3}{8}$
5th do do	48 7 $\frac{3}{8}$
6th do do	57 5 $\frac{1}{8}$

On the Pacific coast the best year of the four was 1892, followed by 1893, 1891 and 1894. In 1892 the average yield was about 16 bushels more per acre than that of the poorest year, 1894.

In the week-apart sowings the earliest sowing has given the smallest average yield, and the sixth sowing much the best. The fifth stands next in order of yield to the sixth. As the last sown plot has given uniformly during three years out of four the largest yield of any in the series, it would appear that the latter half of May is the best time for sowing oats in the coast climate of British Columbia.

EXPERIMENTS WITH BARLEY.

1891—Varieties sown, Prize Prolific two-rowed and Baxter's six-rowed.

	Yield per acre.		Yield per acre.	
	Bush. Lbs.		Bush. Lbs.	
1st sowing, April 15, Prize Prolific.....	23	26	Baxter's six-rowed	20 40
2nd do do 22 do	23	46	do	22 24
3rd do do 29 do	23	16	do	20 40
4th do May 6 do	22	44	do	22 4
5th do do 13 do	29	8	do	23 16
6th do do 20 do	31	12	do	28 16

1892—Varieties sown, Prize Prolific two-rowed and Baxter's six-rowed.

	Yield per acre.		Yield per acre.	
	Bush. Lbs.		Bush. Lbs.	
1st sowing, April 12, Prize Prolific.....	31	7	Baxter's six-rowed.....	33 16
2nd do do 19 do	36	29	do	22 45
3rd do do 26 do	27	44	do	26 37
4th do do 3 do	39	10	do	32 14
5th do do 10 do	33	28	do	35 40
6th do do 17 do	41	22	do	40 40

1893—Varieties sown, Duck-bill two-rowed and Baxter's six-rowed.

In this instance only five plots of the Duck-bill were sown.

	Yield per acre.		Yield per acre.	
	Bush. Lbs.		Bush. Lbs.	
1st sowing, April 19, Duck-bill.....	18	46	Baxter's six-rowed.....	29 40
2nd do do 26 do	17	14	do	17 24
3rd do May 3 do	17	14	do	16 12
4th do do 10 do	14	8	do	17 4
5th do do 17 do	21	12	do	18 36
6th do do 24 do			do	18 18

The usual series of barley plots was sown in 1894, but they were very much injured by standing water during the time of the flood, and the results were so unsatisfactory and irregular that if given in this connection they would only be misleading. The flood did not overflow any part of the Experimental Farm, but the open porous subsoil was so filled with water that it oozed through the surface in spots all over the lower ground. The plots of oats on higher ground were uninjured, but those of barley and wheat were located on a lower level and suffered very much.

The average yield per acre each year of all the varieties of barley tested at the Experimental Farm at Agassiz, B.C., was as follows:—

	Bush. Lbs.
1891, average of twelve sowings	24 19 ¹ / ₂
1892, do do	33 23 ¹ / ₂
1893, do eleven sowings	17 46 ¹ / ₁

Average yield per acre of each of the successive sowings of barley, including all the varieties for the whole period of three years.

	Bush. Lbs.
1st sowing, average of six tests	24 57 ¹ / ₂
2nd do do	23 22 ² / ₈
3rd do do	22 3 ¹ / ₆
4th do do	24 30
5th do do	26 45 ⁴ / ₆
6th do average of five tests.....	32 2

In the case of the barley also the season of 1892 gave much the largest yield, followed by 1891, while the returns for 1893 were very light. The average results from the first four sowings are fairly even, but there is a decided increase in the fifth and sixth sowings. The fact that the larger yield of the last sown plot is shown almost uniformly in the returns for each year, would indicate that from the 15th to 25th May is the best time for sowing barley in the neighbourhood of Agassiz.

EXPERIMENTS WITH SPRING WHEAT.

1891—Varieties sown, Campbell's White Chaff and White Connell.

	Yield per acre.		Yield per acre.	
	Bush. Lbs.		Bush. Lbs.	
1st sowing, April 15, Campbell's White Chaff.....	22	10	White Connell.....	21 20
2nd do do 22 do	19	50	do	20 00
3rd do do 29 do	19	50	do	16 20
4th do May 6 do	15	50	do	17 10
5th do do 13 do	18	40	do	22 20
6th do do 20 do	27	10	do	25 00

1892—Varieties sown, Campbell's White Chaff and Red Fife.

				Yield per acre. Bush. Lbs.	Yield per acre. Bush. Lbs.		
1st sowing, April 12,	Campbell's White Chaff	.....	25	5	Red Fife.....	32	10
2nd do do 19	do do	.....	21	40	do do	21	50
3rd do do 26	do do	.....	18	00	do do	23	30
4th do May 3	do do	.....	28	20	do do	32	20
5th do do 10	do do	.....	28	00	do do	28	45
6th do do 17	do do	.....	27	10	do do	31	50

1893—Varieties sown, Campbell's White Chaff and Red Fife.

1st sowing, April 19,	Campbell's White Chaff	.....	17	00	Red Fife.....	26	42
2nd do do 26	do do	.....	22	00	do do	26	40
3rd do May 3	do do	.....	15	35	do do	25	40
4th do do 10	do do	.....	17	30	do do	24	50
5th do do 17	do do	.....	9	20	do do	15	15
6th do do 24	do do	.....	15	52	do do	21	15

The usual series of wheat plots was sown in 1894, but they were so much injured by water percolating through the soil during the period of the flood that the results are not given for the reason that they would be misleading.

The average yield per acre each year of all the varieties of spring wheat tested at the Experimental Farm at Agassiz, B. C., was as follows:—

			Bush. Lbs.
1891, average of twelve sowings	.....	20	28 $\frac{1}{2}$
1892, do do	.....	26	33 $\frac{1}{2}$
1893, do do	.....	19	49 $\frac{1}{2}$

Average yield per acre of each of the successive sowings of spring wheat, including all the varieties for the whole period of three years.

1st sowing, average of six tests	.....	24	4 $\frac{3}{8}$
2nd do do	.....	22	..
3rd do do	.....	19	49 $\frac{1}{2}$
4th do do	.....	22	40
5th do do	.....	20	23 $\frac{3}{8}$
6th do do	.....	24	42 $\frac{1}{2}$

In this instance, also the crop of 1892 was the largest followed in the order of yield by 1891 and 1893. From the small and irregular yields of Campbell's White Chaff in 1893 as compared with Red Fife that year, an average of 16 bush. 11 lbs. against 23 bush. 23 lbs., it is likely that, although the soil seemed equally good, it was nevertheless poorer and uneven in quality.

In the successive sowings the sixth plot makes the best record, but the yield of the first and last are nearly equal, while the intermediate sowings are all lower in yield. From this it would appear that spring wheat may be sown at any time from the middle of April to the 20th of May, with good prospects of success in that climate.

SUMMARY OF RESULTS FOR THE WHOLE PERIOD.

The following are the averages for the whole of the tests of all varieties for the three or four years during which they have been carried on at the Experimental Farm at Agassiz, British Columbia.

Oats.	Yield per acre.	Barley.	Yield per acre.	Spring Wheat.	Yield per acre.
	Bush. Lbs.		Bush. Lbs.		Bush. Lbs.
1st sowing	42 20 $\frac{1}{2}$	1st sowing	24 37 $\frac{1}{2}$	1st sowing	24 4 $\frac{1}{2}$
2nd do	46 18 $\frac{1}{2}$	2nd do	23 22 $\frac{3}{4}$	2nd do	22 00
3rd do	45 8 $\frac{1}{2}$	3rd do	22 3 $\frac{1}{4}$	3rd do	19 49 $\frac{1}{2}$
4th do	44 32 $\frac{3}{4}$	4th do	24 30	4th do	22 40
5th do	48 7 $\frac{1}{2}$	5th do	26 45 $\frac{1}{2}$	5th do	20 23 $\frac{3}{4}$
6th do	57 4 $\frac{1}{2}$	6th do	32 2	6th do	24 42 $\frac{1}{2}$

The average crop of each of the different sorts of grain is also submitted, covering all the sowings for the whole period, as follows :—

	Yield per acre. Bush. Lbs.
Oats (48 sowings).....	47 15 $\frac{1}{2}$
Barley (35 sowings)....	25 22 $\frac{3}{4}$
Spring wheat (36 sowings)...	22 16 $\frac{1}{2}$

COMPARISON OF YIELDS OF VARIETIES OF OATS.

The different varieties of oats grown at the Experimental Farm at Agassiz, B.C., in these week-apart sowings have yielded per acre as follows :—

PRIZE CLUSTER, THREE YEARS' TESTS, 18 SOWINGS.

	Bush. Lbs.		Bush. Lbs.		Bush. Lbs.		Average for three years.
	Bush.	Lbs.	Bush.	Lbs.	Bush.	Lbs.	Bush. Lbs.
1st sowing, 1891..	38	18	1892, 37	22	1893, 36	6	37 15 $\frac{1}{3}$
2nd do "	40	00	" 48	18	" 48	8	45 20
3rd do "	37	22	" 38	28	" 42	12	39 20 $\frac{2}{3}$
4th do "	32	22	" 46	7	" 42	12	40 13 $\frac{2}{3}$
5th do "	41	6	" 44	14	" 42	32	42 28 $\frac{2}{3}$
6th do "	47	2	" 51	16	" 52	22	50 13 $\frac{1}{2}$

The average yield per acre of this variety of oats for the six sowings in each year was as follows :—

	Yield per acre. Bush. Lbs.
1891, average of six sowings.....	39 17 $\frac{2}{3}$
1892, do do	44 17 $\frac{2}{3}$
1893, do do	44 4
Average for the three years, 18 sowings..	42 24 $\frac{2}{3}$

BANNER, FOUR YEARS' TESTS, 24 SOWINGS.

	Bush. Lbs.		Bush. Lbs.		Bush. Lbs.		Bush. Lbs.		Average for four years.
	Bush.	Lbs.	Bush.	Lbs.	Bush.	Lbs.	Bush.	Lbs.	Bush. Lbs.
1st sowing, 1891.....	43	8	1892... 53	8	1893... 47	22	1894... 43	8	46 28 $\frac{1}{2}$
2nd do "	47	32	" ... 52	2	" ... 49	4	" ... 48	16	49 13 $\frac{1}{2}$
3rd do "	50	20	" ... 56	31	" ... 51	16	" ... 42	27	50 15
4th do "	39	14	" ... 75	31	" ... 57	32	" ... 32	32	51 18 $\frac{1}{2}$
5th do "	44	24	" ... 80	10	" ... 64	24	" ... 31	31	55 13 $\frac{1}{2}$
6th do "	66	6	" ... 82	32	" ... 67	32	" ... 47	22	68 6

The average yield per acre of Banner oats for the six sowings in each year is as follows :—

	Yield per acre.	
	Bush.	Lbs.
1891, average of six sowings.....	48	23
1892, do do	66	30 $\frac{3}{4}$
1893, do do	56	16
1894, do do	41	5 $\frac{1}{2}$
Average for the four years, 24 sowings.....	53	10 $\frac{1}{2}$

The only other variety of oats used in these tests, was the Abundance, which has been sown for one season only, 1894. The average of the six sowings of this variety for that year was 38 bush. 9 $\frac{1}{4}$ lbs. per acre.

From the above figures it will be seen that the average yield of the Banner oat for four years has exceeded that of the Prize Cluster by 10 bush. 20 lbs. per acre, from which we may infer that the choice of a prolific variety of oats for sowing is of great importance, and this, coupled with medium late sowing, is likely to prove most profitable in the vicinity of Agassiz, B.C.

COMPARISON OF YIELDS OF VARIETIES OF BARLEY.

In the tests conducted at the Experimental farm at Agassiz, B.C., the different varieties of barley have yielded per acre as follows :—

TWO-ROWED SORTS.

PRIZE PROLIFIC, TWO YEARS' TESTS, 12 SOWINGS.

	Bush. Lbs.		Bush. Lbs.		Average for two years.		
	Bush.	Lbs.	Bush.	Lbs.	Bush.	Lbs.	
1st sowing, 1891....	23	26	1892.....	31	7	27	16 $\frac{1}{2}$
2nd do "	23	46	"	36	29	30	13 $\frac{1}{2}$
3rd do "	23	16	"	27	44	25	30
4th do "	22	44	"	59	10	31	3
5th do "	29	8	"	33	28	31	18
6th do "	31	12	"	41	22	36	17

The average yield per acre of the Prize Prolific barley for the two years' sowing is herewith given—

	Bush.	Lbs.
1891, average of six sowings.....	25	33 $\frac{3}{8}$
1892, do do	34	47 $\frac{3}{8}$
Average yield for the two years, 12 sowings	30	16 $\frac{1}{2}$
Duck-bill, sown for one year only, 1893, 5 sowings, average.....	17	38

The average yield of the two varieties of two-rowed barley named for the three years, 17 sowings, was 26 bushels, 42 lbs. per acre.

SIX-ROWED SORTS.

BAXTER'S SIX-ROWED, THREE YEARS' TESTS, 18 SOWINGS.

	Bush. Lbs.	Bush. Lbs.	Bush. Lbs.	Average of three years. Bush. Lbs.
1st sowing, 1891.	20 40	1892, 31 16	1893, 20 40	25 00
2nd do "	22 24	" 22 45	" 17 24	20 47
3rd do "	20 40	" 26 37	" 16 12	21 13 $\frac{1}{2}$
4th do "	22 4	" 32 14	" 17 4	23 39 $\frac{1}{2}$
5th do "	23 16	" 35 40	" 18 36	25 43 $\frac{1}{2}$
6th do "	28 16	" 40 40	" 18 16	29 8

The average yield of this barley for each year was as follows :—

	Yield per acre. Bush. Lbs.
1891, average of six sowings.....	22 47 $\frac{1}{2}$
1892, do do	32 00
1893, do do	18 06
Average yield for the three years, 18 sowings.	24 17 $\frac{1}{2}$

In these experiments the average yield of the two-rowed barley has exceeded that of the six-rowed by 2 bushels, 24 $\frac{1}{2}$ lbs.

COMPARISON OF YIELDS OF VARIETIES OF WHEAT.

In the tests conducted at the Experimental Farm at Agassiz, B. C., the different varieties of spring wheat have yielded per acre as follows :—

CAMPBELL'S WHITE CHAFF, THREE YEARS' TESTS, 18 SOWINGS.

	Bush. Lbs.	Bush. Lbs.	Bush. Lbs.	Average of three years. Bush. Lbs.
1st sowing, 1891,	22 10	1892 25 5	1893, 17 00	21 25
2nd do "	19 50	" 21 40	" 22 00	21 15
3rd do "	19 50	" 18 00	" 15 35	17 48 $\frac{1}{2}$
4th do "	15 50	" 28 20	" 17 30	20 33 $\frac{1}{2}$
5th do "	18 40	" 28 00	" 9 20	18 40
6th do "	27 10	" 27 10	" 15 52	23 24

The average yield per acre for the six sowings of this wheat each year was as follows :—

	Bush. Lbs.
1891, average of six sowings.....	20 35
1892, do do	24 42 $\frac{1}{2}$
1893, do do	16 12 $\frac{1}{2}$
Average for the three years, 18 sowings....	20 30 $\frac{1}{2}$

RED FIFE, TWO YEARS' TESTS.

	Bush. Lbs.	Bush. Lbs.	Average for the two years. Bush. Lbs.
1st sowing, 1892,	32 10	1893, 26 42	29 26
2nd do "	21 50	" 26 40	24 15
3rd do "	23 30	" 25 40	24 35
4th do "	32 20	" 24 50	28 35
5th do "	28 45	" 15 15	22 00
6th do "	31 50	" 21 15	26 32 $\frac{1}{2}$

The average yield per acre of the Red Fife for each year was as follows :—

	Yield per acre. Bush. Lbs.
1892, average of six sowings.....	28 24 $\frac{1}{2}$
1893, do do	23 33 $\frac{1}{2}$
Average for the two years.....	25 53 $\frac{1}{2}$

Another variety of wheat, the White Connell, was sown for one season 1891, when the average of the six sowings was 20 bushels, 21½ lbs. per acre.

It will be seen that as far as these tests at Agassiz, B.C., have gone, with oats and barley, the best average results have been had from the last two sowings the dates of which have varied in different years from the 10th to the 29th of May. This experience is very different from that obtained in the east, where early sowing of both these grains gives a great advantage. This shows that it does not necessarily follow, that a course which experience has shown to be the very best practice in the eastern provinces, will be equally good in the west under other conditions of climate.

In the case of the spring wheat, the last sowings have averaged the best, the first sowings standing next in yield.

CONCLUSIONS.

The great variations which occur in seasons in different parts of the Dominion as indicated by the figures which have been given, show the necessity for caution in drawing any very positive conclusions; nevertheless some general deductions of a reliable and useful character may, I think, be safely drawn from the experience which has been gained. The varying results had in the different climates of the Dominion also serve to show the great importance and usefulness of the branch experimental farms, which give opportunity for conducting such valuable experiments in the more important agricultural districts in the different Provinces and Territories of the Dominion.

The average results of all the week-apart sowings at the Central Experimental Farm, which may be taken as a fairly safe guide by the farmers of Ontario and Quebec, continued during five years, show a steady falling off in crop from week to week. Between the first and second sowings both made within a week, the difference is not much, but if seeding is delayed two weeks or more, the loss is very serious, as shown by the following figures (omitting fractions).

Losses Experienced at the Central Experimental Farm by delay in seeding.	Oats.		Barley.		Spring wheat	
	Loss per acre.		Loss per acre.		Loss per acre.	
	Bush.	Lbs.	Bush.	Lbs.	Bush.	Lbs.
Loss arising from a delay of two weeks.....	12	5	9	11	6	31
do do do three do	16	20	13	2	8	35
do do do four do	20	1	18	30	9	31
do do do five do	29	1	19	37	11	12

This is a most important lesson which should be taken to heart by farmers generally throughout Ontario and Quebec, and early seeding should become the general practice.

At the Experimental Farm at Nappan, N. S., where the climate fairly represents the larger part of the Maritime Provinces, the question of very early seeding does not appear to be so vital. The average of the first three sowings have produced results nearly equal; the subsequent sowings however, show a considerable falling off, which is steady from week to week, except in the case of the wheat.

Losses Experienced at the Experimental Farm, Nappan, N.S., by delay in seeding.	Oats.		Barley.		Wheat.	
	Loss per acre.		Loss per acre.		Loss per acre.	
	Bush.	Lbs.	Bush.	Lbs.	Bush.	Lbs.
Loss occurring from a delay of three weeks	8	4	6	3	5	40
do do do four do	10	5	6	30	1	58
do do do five do	18	29	10	00	3	57

At the Experimental Farm at Brandon, Man., there was no material falling off in the yield of either oats or wheat, until the last two sowings; in barley the later sowings have given the best results: hence it does not appear, as far as these tests have gone, that early seeding is specially advantageous for Manitoba. The seeding of wheat and oats should, however, be finished by the 20th to the 25th of May, and barley by the 1st of June.

At the Experimental Farm at Indian Head, the advantage throughout has thus far been on the side of later sowing, provided it be finished by the 15th to the 25th of May, depending on the earliness of the season.

At the Experimental Farm at Agassiz, the results of experience thus far gained, are also in favour of later seeding, but seeding should be finished in the coast climate of British Columbia by the 15th to the 25th of May.

wheat
acre.

Lbs.

31
35
31
12

COMPARATIVE YIELDS OF GRAIN FROM THE SEVERAL EXPERIMENTAL FARMS.

The respective yields of some of the different varieties of grain which have been tested at the several Experimental Farms in these week-apart sowings, will now be given, referring only to those which have been tested for several years, and omitting fractions.

Average Yields of all week-apart sowings of grain.	Central Expe- rimental Farm. Yield per acre.		Expe- rimental Farm, Nap- pan, N.S. Yield per acre.		Expe- rimental Farm, Brandon, Man. Yield per acre.		Expe- rimental Farm, In- dian Head, N.W.T. Yield per acre.		Expe- rimental Farm, Agassiz, B.C. Yield per acre	
	Bush.	Lbs.	Bush.	Lbs.	Bush.	Lbs.	Bush.	Lbs.	Bush.	Lbs.
OATS.										
Prize Cluster	36	28	36	22	50	16	60	2	42	24
Banner.....	47	18	50	16	65	4	57	17	53	10
Average of all varieties tested.....	39	4	43	12	59	16	54	9	47	15
BARLEY.										
<i>Two-rowed sorts.</i>										
Prize Prolific.....	34	42	39	18	..	..	50	1	30	16
Average of all varieties tested.....	27	5	30	26	47	9	35	20	26	42
<i>Six-rowed sorts.</i>										
Baxter's six-rowed.....	40	3	28	23	35	5	45	47	24	17
Average of all varieties tested.....	35	2	28	23	38	41	35	17	24	17
Average of all barleys.....	29	23	29	25	44	37	35	18	25	23
WHEAT.										
Red Fife.....	10	31	14	14	29	55	25	14	25	53
Campbell's White Chaff.....	19	3	21	48	23	20	32	24	20	30
Average of all wheats.....	14	10	20	35	27	32	27	39	22	16

Average yields per acre on all the Experimental Farms combined.

OATS.

	Bush.	Lbs.
Prize Cluster, average of 92 tests.....	43	32
Banner, average of 110 tests.....	54	11

BARLEY.

Two-rowed Sorts.

Prize Prolific, average of 40 tests.....	36	18
Average of all varieties tested, 129 tests....	32	35

Six-rowed Sorts.

Baxter's six-rowed, average of 68 tests.....	32	28
Average of all varieties tested, 83 tests.....	31	22

WHEAT.

Red Fife, average of 87 tests.....	20	41
Campbell's White Chaff, average of 81 tests.	23	21

It
been
return
the e
been
early
throu
which
of the
exper
tively
do rail
farms
avera
not w

The cen
vie
Don
The off
ave
The ave
peri

If
must b
outside
eviden
yield n
may be
Cluster
results
farms,
aged 1
the latt
census

SUMMARY OF ALL TESTS.

In the following are included all the tests which have been made in all the week-apart sowings at all the Experimental Farms.

	Bush. Lbs.
Average of all varieties of Oats tested, 231 tests.....	47 25
Average of all varieties of Barley tested, 212 tests.....	32 17
Average of all varieties of Wheat tested, 220 tests.....	21 38

It cannot be denied that many of the week-apart sowings which have been referred to in the foregoing pages, have given comparatively poor returns for the reason that the grain has been sown out of season. At the experimental farms in the eastern provinces, many of the plots have been sown too late, while at the western farms some have been sown too early. It does not seem too much to expect that intelligent farmers throughout the Dominion should raise crops equal to the average yields which have been had in these tests at the experimental farms, where many of the crops have been grown under such unfavourable conditions. The experimental farms are not model farms as to quality of soil or productiveness, and there are many good farmers who, with better land, can and do raise heavier average crops than any produced on the experimental farms; but unfortunately many others fall far short of this, and the average crops of Canadian farmers, taking the country throughout, are not what they ought to be.

	Oats. Bush. Lbs.	Barley. Bush. Lbs.	Wheat. Bush. Lbs.
The census of 1891 gives the following as the average yields of grain per acre in 1890 for the whole Dominion.....	20 00	19 46	15 40
The official estimate of the crops for Ontario gives the average for the past 12 years as.....	34 6	25 7	15 2
The average of all the week-apart plots on all the Experimental Farms has been.....	47 25	32 17	21 38

If the official returns of Ontario and the Dominion are correct, there must be large areas of cultivated land in the Provinces and Territories outside of Ontario which yield very small crops. In any case it is evident that there is much room for improvement. Serious reductions in yield may be avoided by sowing at the proper time, and important gains may be made by selecting for seed the best yielding sorts. The Prize Cluster and Banner are both excellent varieties of oats, but as shown in the results of all the tests reported here, conducted on all the experimental farms, when grown side by side for a series of years, the Banner has averaged 10 bushels and 13 lbs. per acre more than the Prize Cluster, while the latter has given nearly double the yield, which according to the census was the average return of the Canadian farmer in 1890.

When we take into consideration the large area of land under crop in Canada, a slight average increase makes a surprising total in the gain to the whole country. According to the census, the land occupied in Canada in 1890 by oats, wheat and barley, was 7,734,747 acres, divided as follows:—Oats, 4,129,769; wheat, 2,723,884, and barley, 881,894. The addition of a single bushel of oats per acre to the acreage given would, at 1 cent per lb., add nearly $1\frac{1}{2}$ million dollars yearly to the income of Canadian farmers; a similar addition to the wheat crop would give another $1\frac{1}{2}$ million; and a bushel to the acre added to the barley crop would add half a million more. Canadian farmers cannot control the market price for grain, but there seems to be no doubt that they can, by sowing their grain at the most favourable periods, in each Province and Territory, and by the exercise of intelligence in the selection of the most prolific varieties for seed, add considerably to the annual yield.

That there is a general awakening among Canadian farmers, which augurs well for the future, is evidenced by an earnest desire for information bearing on their calling, while the great and growing demand on the experimental farms for pure samples of the best and most prolific sorts of seed grain, shows that the advantages which certain varieties offer in this respect, are becoming more generally appreciated.

p
in
ed
4.
en
me
ve
op
he
by
nd
che

ich
na-
on
ific
ties

