Spring Grain Improvement (Irrigated)

Wheat

An advanced yield Spring wheat nurery containing 15 varieties and a Western Regional Spring wheat nurery, containing 13 varieties were grown on the Station in 1950 under irrigation. The mean yield for the advanced yield nursery (Hardred Spring wheats) was 44.0 bushels per acre, for the Western Regional (white wheat) nursery was 52 bushels per acre.

These nurseries were seeded side by side may 15th, irrigated once on June 20th, and harvested Sept. 7th and 12th.

Only one of the Off-Station wheat nurseries seeded by the Station was irrigated this season, the one seeded on the Ben Johnson place at Ronan. The mean yield for this nursery was 27.6 bushel per acre.

Nurseries grown at the Horticultural Branch Station, and on irrigated land in Powell County were threshed at the Creston Station.

Yield data for 1950 Irrigated Wheat Nurseries is given in Table 1 a-e.

Additional data, showing height, tendency to lodge, and lengh of heads for the Station nurserries is given in Table 2.

Two year average yields for varieties grown under irrigation at Creston in both 1949 and 1950 is shown in Table 3.

TABLE 6 AGRONOMIC DATA FROM SPRING WHEAT VARIETIES GROWN IN THE UNIFORM WESTERN REGIONAL NURSERY OF THREE REPLICATIONS UNDER IRRIGATION AT CRESTON, MONTANA IN 1950.

Date of seeding 5-15-50 Date of harvest 9-12-50 Size of plot 16 feet

Variety	C.I.No.	Grams per plot I	II	III	Total grams	Average bushels per acre
Federation 41M	12391	744	439	589	1772	59.1
Awned Onas	12235	531	567	609	1707	56.9
Federation	4734	560	539	595	1694	56.5
Baart	1697	475	560	638	1673	55.8
White Federation 38	11906	589	617	447	1653	55.1
Baart 46	12386	553	496	531	1580	52.7
Hope x Lemhi^4	12685	468	510	567	1545	51.5
Onas	6221	560	468	510	1538	51.3
Lemhi	11415	454	567	517	1538	51.3
Thatcher	10003	510	482	482	1474	49.1
Marfed	11919	461	461	510	1432	47.7
Baart 38	11907	496	432	503	1431	47.7
Idaed	11706	439	404	411	1254	41.8

Mean yield..... 52.0
S.E.x..... 3.7
L.S.D. (P = .05)..... N.S.
C.V. = 7.12%

Note: Onas is considered the check variety for this nursery.

TABLE 1-c

Irrigated

YIELDS OF SPRING WHEAT VARIETIES GROWN IN A THREE REPLICATION NURSERY AT THE HORTICULTURAL BRANCH STATION, CORVALLIS, MONTANA, 1950

Variety	C.I.No.	Bushels per plot I	II	III	Total bushels	Average bushels per acre
Lemhi	11415	61.7	63.8	69.5	195.0	65.0
Idaed	11706	39.0	42.5	81.5	163.0	54.3
Onas	6221	51.7	56.7	50.3	158.7	52.9
Awned Onas	12235	56.7	60.9	38.3	155.9	52.0
Thatcher	10003	43.2	48.9	57.4	149.5	49.8
Ceres	6900	48.2	34.0	67.3	149.5	49.8
Pilot	11945	39.7	46.1	51.0	136.8	45.6
Rescue	12435	34.7	53.1	38.3	126.1	42.0
Marquis	3641	39.7	36.9	39.7	116.3	38.8

Mean Yield..... 50.0
S.E.x..... 6.5
L.S.D.(P=.05).....N.S.
C.V.= 6.5/50.0 =13%

The analysis of variance indicates no significant yield differences.

TABLE 1-d

YIELDS OF SPRING WHEAT VARIETIES GROWN IN A THREE REPLICATION IRRIGATED NURSERY IN LAKE COUNTY NEAR ROMAN, MONTANA IN 1950

Variety	C.I. No.	Bushels per plot I	II	III	Total bushels	Average bushels per acre
Idaed	11706	41.8	36.9	26.2	104.9	35.0
Pilot	11945	34.7	29.8	27.6	92.1	30.7
Ceres	6900	32.6	32.6	25.5	90.7	30.2
Thatcher	10003	28.3	34.7	26.2	89.2	29.7
Onas	6221	37.6	26.9	22.7	87.2	29.1
Rescue	12435	32.6	29.8	22.7	85.1	28.4
Marquis	3641	26.9	32.6	17.7	77.2	25.7
Awned Onas	12235	18.4	31.9	24.1	74.4	24.8
Lemhi	11415	17.0	15.5	12.8	45.3	15.1*

Mean yield.....27.6
S.E.x..... 2.5
L.S.D.(P= .05)..... 7.5
C.V. = 2.5/27.6 = 9.06%

Note: Thatcher is considered the check for this nursery.
* Yields significantly lower than Thatcher.

TABLE 1e

YIELDS OF SPRING WHEAT VARIETIES GROWN IN A THREE REPLICATION IRRIGATED NURSERY IN POWELL COUNTY NEAR DEER LODGE, in 1950

Variety	C.I.NO.	Bushels per plot I	II	III	Total bushels	Average bushels per acre
Rescue	12435	39.7	20.6	26.2	86.5	28.8
Lemhi	11415	17.0	29.8	34.0	80.8	26.9
Marquis	3641	36.1	19.8	22.7	78.6	26.2
Idaed	11706	29.8	16.2	31.9	77.9	26.0
Thatcher	10003	34.0	8.5	26.2	68.7	22.9
Onas	6221	34.7	8.5	24.1	67.3	22.4
Pilot	11945	19.8	7.1	28.3	55.2	18.4
Awned Onas	12235	9.2	22.7	22.0	53.9	18.0
Ceres	6900	23.4	9.2	20.6	53.2	17.7

Mean yield.....23.0
S.E.x.....4.8
L.S.D.(P=.05).....N.S.
C.V. = 4.8/23.0 = 20.8%

Tbble 2 Height in feet, tendency to lodge and head lengh in inches of wheat varieties. Creston 1950

Advanced Yield Nursery

Variety	C.I.No	Plant ht. feet	Tendency to lodge	Head length inches
Thatcher	10003	3½	none	2½ - 3
Pilot	11945	3¾	none	2½ - 3
Lee	12488	3½	none	2 - 3
Meritxx Pilot	12355	3¾	none	2½-3½
Marquis	3641	4	none	2½- 3½
Pilot x Merit	12442	4	none	2½- 3½
Pilot x Mida	12445	4	none	3
Ceres	6900	4½	some	3½- 4
Mida	12008	4½	none	3- 4
Reward	8182	4	none	2½- 3½
Pilot x Mida	12303	4- 4½	none	2½- 3½
Supreme	8026	4- 4½	none	2½- 3½
Mida x Cadet	12363	4- 4½	none	2½- 3½
Cadet	12053	4- 4½	none	2½- 3½
Rescue	12435	4- 4½	some	2½- 3½

Western Regional Nursery

Idaed	11706	3½	none	3- 3½
Onas	6221	3¾	little	2½- 3
Awned Onas	12335	3¾	none	3- 3½
Marfed	11919	4	none	2- 3
Lemhi	11415	4½	none	2½-3
Hope x Lemhi	12685	4½	none	2½- 3
Federation	4734	4½	little	3- 3½
Federation 41M	12391	4½	none	3
White Federation38	11906	3¾	little	2½- 3½
Thatcher	10003	4	none	2- 3
Baart	1697	4½	much	2- 3
Baart 38	11907	4½	much	2½- 3
Baart 46	12386	4½	much	2½- 3

Table 3 2 year Average Yields of Wheat Varieties,
Creston 1949 - 1950

Variety	C.I. No.	1949	1950	2 yr. Av.
Reward	8182	33.4	38.5	30.95
Supreme	8026	33.8	46.1	39.95
Thatcher	10003	38.2	45.8	42.0
Idaed	11706	35.0	41.8	38.4
Lemhi	11415	35.9	51.3	43.6
Onas	8221	40.6	51.3	45.95
Marquis	3641	34.2	43.2	38.7
Pilot	11945	35.4	34.3	34.35
Ceres	6900	27.4	46.3	36.85

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39 8

Spring Grain Improvement (Dryland)

Wheat:

An advanced yield Spring Wheat nursery containing 15 varieties was grown on the Station in 1950. The mean yield for this nursery was 56.9 bushels per acre. Three varieties, Pilot (11945), Pilot x Mida (12303) and Mida x Gadet (12363) produced significantly higher yields than Thatcher.

Off- Station advanced yield nurseries containing 9 varieties w were grown on 4 dryland locations, 1 in Flathead County, 2 in Sahders County and i in Lincoln County.

Data for these nurseries is shown in Tables 6 a-e. Data showing height in feet tendency to lodge and length of heads for Station nursery is given in Table 7.

Oats:

A dryland Intrastat and Proliminary oat nursery was grown at Creston in 1950, containing 25 varieties. The mean yield for this nursery was 139.8 bushels. while no yields were considered to be significantly higher than the mean, the ten highest were crosses ranging in yield from 142.8 bu. to 153.4. Mission was low with 117.0 bu.

Dryland 9 variety nurseries were grown at Eureka, Stillwater, Plains and Trout Creek.

Data for these nurseries , including tendency to lodge in the Creston Nursery is shown in Tables 8 a-e.

Barley:

The dryland barley nursery grown on the Creston Staion in 1950 contained 19 varieties. The mean yield for this nursery was 88.1 bushel per acre. Two varieties were said to be significantly higher than recommended varieties, Harlan and Bonneville with yields of 116.2 bu. and 112.4 bu. Two were significantly lower, Moore and Hannchen with yields of 64.0 and 62.0 bu.

Dryland barley nurseries of 9 varieties were grown at Eureka, Stillwater, Plains, and Trout Creek.

Data on these nurseries, including tendency to lodge at Creston is shown in Tables 9 a-e.

TABLE 6.6

YIELDS OF SPREING WHEAT VARIETIES GROWN IN A THREE REPLICATION DRYLAND NURSERY IN FLATHEAD COUNTY NEAR STILLWATER IN 1950

Variety	C.I. No.	Bushels per plot I	II	III	Total Bushels	Average bushels per acre
Thatcher	10003	25.5	9.9	14.2	49.6	16.5
Idaed	11706	24.1	10.6	14.8	49.5	16.5
Lemhi	11415	14.8	14.8	15.5	45.1	15.0
Onas	6221	17.0	8.5	16.2	41.7	13.9
Marquis	3641	17.0	9.2	14.2	40.4	13.5
Ceres	6900	16.2	9.9	14.2	40.3	13.4
Rescue	12435	14.2	12.0	13.5	39.7	13.2
Awned Onas	12235	9.9	14.2	14.8	38.9	13.0
Pilot	11945	12.8	11.3	13.5	37.6	12.5

Mean yeild.....14.2
S.E.x.....2.0
L.S.D.(P=.05).....N.S.
C.V. = 2.0/14.2 = 14.08%

TABLE 6-c

YIELDS OF SPRING WHEAT VARIETIES GROWN IN A THREE REPLICATION DRYLAND NURSERY IN LINCOLN COUNTY IN 1950

Variety	C.I.No.	Bushels per plot I	II	III	Total bushels	Average bushels per acre
Lemhi	11415	17.7	14.8	13.5	46.0	15.3
Idaed	11706	17.7	13.5	12.0	43.2	14.4
Awned Onas	12235	17.7	13.5	12.0	43.2	14.4
Onas	6221	17.0	15.5	9.9	42.4	14.1
Marquis	3641	15.5	14.2	10.6	40.3	13.4
Thatcher	10003	13.5	16.2	9.9	39.6	13.2
Ceres	6900	15.4*	12.0	12.0	39.4	13.1
Rescue	12435	14.2	11.3	10.6	36.1	12.0
Pilot	11945	11.3	10.6	7.1	29.0	9.7**

Mean yield..... 13.3
S.E.x..... 0.8
L.S.D.(P=.05)..... 2.4
C.V. = 0.8/13.3 = 6.02%

Note: Thatcher is considered the check variety.
* Yield calculated by use of the missing plot formula.
** Yields significantly lower than Thatcher.

TABLE 6-9

YIELDS OF SPRING WHEAT VARIETIES GROWN IN A THREE REPLICATION DRYLAND NURSERY IN SANDERS COUNTY NEAR TROUT CREEK, MONTANA, 1950.

Variety	C.I.No.	Bushels per plot I	II	III	Total bushels	Average bushels per acre
Rescue	12435	4.3	6.4	8.5	19.2	6.4
Awned Onas	12235	5.7	7.8	5.0	18.5	6.2
Marquis	3641	6.4	6.4	5.0	17.8	5.9
Lemhi	11415	4.3	8.5	5.0	17.8	5.9
Pilot	11945	5.7	6.4	5.0	17.1	5.7
Idaed	11706	4.3	6.4	4.3	15.0	5.0
Onas	6221	4.3	4.3	5.0	13.6	4.5
Thatcher	10003	5.0	4.3	3.5	12.8	4.3
Ceres	6900	3.5	4.3	5.0	12.8	4.3

Mean yield.....5.4
S.E.x..... .. 0.7
L.S.D.(P=.05.....N.S.
C.V. = 0.7/5.4 = 12.96%

The analysis of variance indicates no significant yield differences.

TABLE 6-e

YIELDS OF SPRING WHEAT VARIETIES GROWN IN A THREE REPLICATION DRYLAND NURSERY IN SANDERS COUNTY NEAR PLAINS, MONTANA 1950

Variety	C.I.No.	Bushels per plot I	II	III	Total bushels	Average bushels per acre
Lemhi	11415	22.0	26.9	22.7	71.6	23.9
Awned Onas	12235	19.8	22.7	26.9	69.4	23.1
Idaed	11706	17.0	24.1	24.8	65.9	23.0
Pilot	11945	19.8	19.8	24.1	63.7	21.2
Ceres	6900	17.7	21.3	20.6	59.6	19.9
Onas	6221	14.8	21.3	23.4	59.5	19.8
Marquis	3641	9.9	22.7	26.2	58.8	19.6
Thatcher	10003	9.9	24.8	21.3	56.0	18.7
Rescue	12435	13.5	18.4	22.0	53.9	18.0

Mean yield..... ...20.7
S.E.x..... 1.7
LSS.D.(P=.05.....N.S.
C.V. = 1.7/20.7 = 8.21%

The analysis of variance indicates no significant yield differences.

TABLE 7 HEIGHT, TENDENCY TO LODGE, AND LENGTH OF HEADS FOR DRYLAND SPRING WHEAT VARIETIES GROWN AT CRESTON IN 1950

Variety	C.I. No.	Height in Ft.	Tendency to lodge	Head length in inches
Thatcher	10063	3½	none	2-3
Pilot	11945	3¾	little	3
Lee	12488	3¾	none	3½
Merit	12355	3¾	none	3
Marquis	3641	4	none	3-4
Pilot x Merit	12442	4	none	3-3½
Pilot X Mida	12445	4	little	3-3½
Ceres	6900	4	little	3-4
Mida	12008	4¼	none	3-4
Reward	8182	4	none	2½-3
Pilot x Mida	12303	4	little	3-3½
Supreme	8026	4	much	3-3½
Mida x Cadet	12363	4	some	3-3½
Cadet	12053	4¼	much	2½-3½
Rescue	12435	3¾	some	3½