

TITLE: Small Grain Investigations

PROJECT NUMBER: 5023

PERSONNEL: Leader - Vern R. Stewart

Coordinators -

1. Winter Wheat - E. R. Hehn
2. Spring Wheat - F. H. McNeal
3. Spring Barley - E. A. Hockett and R. F. Eslick
4. Winter Barley - R. F. Eslick
5. Oats - S. A. Thies

FUNDS: State -- \$5508.31

LOCATION: Northwestern Montana Branch Station and off-station locations in seven Northwestern Montana counties.

PROBABLE DURATION: Indefinite

EXPERIMENTAL DATA:

#### INTRODUCTION

The small grain investigations project includes winter wheat, spring wheat, winter barley, spring barley, and oats. The trials are conducted in cooperation with personnel at the Main Station in Bozeman. Personnel concerned are listed above. Plans for work on these projects are formulated and designed in a planning meeting at the Main Station in February of each year.

Handling of foundation seed production is included in this project, however, it is not a research problem.

#### MATERIALS AND METHODS

Station nurseries are grown in four-row plots, ten feet long in general, with either a randomized block or triple lattice design. Off-station plots, generally, were single row plots with four replications.

Planting was done with a four-row belt seeder mounted on a Farmall Cub tractor. Seeding depth depended on moisture and soil conditions, usually one to one and a half inches.

Weeds were controlled by cultivation with a small garden tractor and sprayed with 2,4-D. The irrigated nurseries were irrigated once during the growing season, using two inches of water. Irrigation date was July 10, 1960.

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### Materials and Methods (continued)

Plots were harvested by hand, using a small hand scythe. Threshing was done in the field or at the plot immediately following harvest, except oats which were bound and allowed to dry. A portable Vogel threshing machine was used in threshing the plots.

Foundation seed production was done with large general farm machinery, most usually used in production of commercial grain. One planting was made in 35 inch rows to allow for cultivation.

### RESULTS AND DISCUSSION

The results and discussion of this project will be considered individually for each crop listed in the introduction.

#### Winter Wheat

Nurseries grown this year were (1) Western Regional Hard Red Winter (2) Interstate Hard Red Winter and (3) three off-station nurseries. Breeding material consisted of (1) material being screened for Dwarf Bunt control; (2) head row selections of Rego; and (3) head row selections of (Yogo x Wasatch) x Cheyenne (four sister selections). Foundation seed production of Westmont, production studies of wheat on corn ground versus wheat on fallow, and Federal Smut Laboratory projects were other winter wheat research problems this season.

#### Western Regional Hard Red Winter

This nursery is grown at many stations throughout the western region of the United States.

The nursery consisted of thirty entries in three-row plots, 18 feet long. Four replications were used.

To test these entries for Dwarf Bunt, the nursery was grown on the Conrad Gilbertson farm northwest of Kalispell. This area is known to be infected with Race D-3 of Dwarf Bunt.

All entries were checked for the presence of Dwarf Bunt in the forepart of August and none were found to have escaped infection.

Stands were poor in many plots, because of ice, which killed out the stand completely in low places. No harvest yield data was secured, however, what material was there was harvested and each entry was sent in for quality analysis. These data on quality analysis have not been returned at the writing of this report. Table II shows varieties included in this nursery.

Table II. Western Regional Hard Red Winter Wheat nursery.  
Planting Plan for Kalispell and Bozeman in 1959-60.

<u>Entry</u>	<u>C.I. Number</u>
Columbia	12928
Westmont	12930
Itana	12933
Kharkof	----
Rio	----
Burt	12696
Wasatch	11925
Cheyenne	8885
Cheyenne - 57 (Tendoy)	13426
Yogo x (Turkey x Oro-221) - 66	13427
Yogo x 112A-520-6-1	----
Brevor x Utah Kanred	----
Rego	13181
Yogo x (Turkey x Oro-221) - 9	13632
Yogo x (Turkey x Oro-221) - 117	13633
Yogo x (Turkey x Oro-221) - 10	----
Yogo x (Turkey x Oro-221) - 14	----
Yogo x (Turkey x Oro-221) - 27	----
Yogo x (Turkey x Oro-221) - 29	----
Yogo x (Turkey x Oro-221) - 46	----
Yogo x (Turkey x Oro-221) - 60	----
(Yogo x Wasatch-3) x Cheyenne	M-56-5-3
(Yogo x Wasatch-3) x Cheyenne	M-56-4-6
(Yogo x Wasatch-3) x Cheyenne	M-56-6-5
(Yogo x Wasatch-3) x Cheyenne	M-56-10-1
(Yogo x Wasatch-3) x Cheyenne	M-56-2-5
Pn-Mqo-Hope x Com-Oro-Tk-Flor	K53424
Buck Quequeen x Pawnee	K58295
C.I. 12936 x (Mqo-Oro x Oro-Tk-Flor)	----
Itana Selection (Montana)	----

Three row plots - eighteen feet long.

Planted: September 22, 1959 on the Gilbertson place, one-fourth mile south of the Lutheran Church.