

YEAR: 1964

TITLE: Oil Crops Investigations 5028

LOCATION: Northwestern Montana Branch Station  
Western Montana Branch Station

PERSONNEL: Leader - Vern R. Stewart  
Cooperators - Don Merkley, R. F. Eslick

DURATION: Indefinite

OBJECTIVES:

1. To determine the agronomic adaptability and oil potential of several plant species.
2. To determine the Canary grass variety best adapted for western Montana conditions.
3. By natural selection find a strain of safflower that will mature and produce seed in western Montana.

EXPERIMENTAL DESIGN AND PROCEDURES:

Plot work was conducted in a manner similar to that used for cereal research.

RESULTS AND DISCUSSION:

New Crops Nursery

Three new crops nurseries were seeded in 1964. Two irrigated, one at the Northwest Station and one at Western. The third and dryland was grown at Northwestern. A mistake was made when the seed was packaged and live winter wheat seed was used as a carrier. This resulted in such competition for the smaller seed crops, that poor stands and growth were obtained. Because of this condition the two nurseries at Northwestern were abandoned.

Yields were very poor at Corvallis when a comparison is made to last years yields. Barley is the highest yielding entry. See Table 1.

Safflower

Safflower yields in the Regional Nursery were poor because of the cool, wet and short growing season. Several of the entries did not even mature. Thus the material harvested was very immature seed. This material has been sent to Utah for Oil Analysis, but had not been received at this writing. See Table 2 for complete details.

The breeding block was continued. One each were located at Western and Northwestern. These were harvested and new seeding will be planted in 1965. The only selection pressure was that of the environment.

Oil Crops (con't)

1964 Report

Canary Grass

Two canary grass nurseries were seeded, one at each of the stations. These were harvested and seed taken to Bozeman for analysis. At this writing this material has not been received. Therefore, it is not made a part of this report.

FUTURE PLANS:

Continue the work on winter rapes and the safflower breeding block.

SUMMARY:

Very poor year for these type crops.

Table 1. Agronomic data from intrastate new crops nursery, grown in Ravalli County at the Western Montana Branch Station in 1964. Four row plots, four replications.

Date Planted: May 20, 1964      Date Harvested: September 17, 1964  
 Size of Plot: 16 square feet

Crop & Variety	Grams per Plot				Total Grams	Yield Lbs/A
	I	II	III	IV		
Barley, Unitan	747	476	365	485	2073	3111
Flax, Redwood	316	220	315	276	1127	1691**
Crambe	110	70	225	95	500	750**
Mustard, Oriental Yellow Com.	80	80	100	76	336	504**
Mustard, Oriental Yellow 63-994	41	70	35	40	186	279**
Mustard, Oriental Yellow 62-1504	65	55	48	65	233	350**
Mustard, Yellow Commercial	124	90	110	134	458	687**
Mustard, Yellow 63-995	95	95	65	55	310	465**

NOTE: Barley used as a check in this nursery

\*\* Entries yielding significantly less than the check (.05)

Analysis of Variance				$\bar{x}$ .....	980
Source	D.F.	Mean Square	F.	S.E. $\bar{x}$ .....	196.00872
Replications	3	4363.86466		L.S.D. (.05)	577
Species	7	104112.0312	24.41*	L.S.D. (.01)	785
Error	21	4265.12648		C.V.%.....	20.06
Total	31				

Table 2. Agronomic data from the regional safflower nursery grown at Corvallis, Montana in 1964. Four row plots, four replications.

Date Planted: April 27, 1964      Date Harvested: November 6, 1964  
 Size of Plot: 16 square feet

Entry	Replication				Mean	Pounds per acre
	I	II	III	IV		
U. S. 10	165	130	130	105	133	798
Gila	230	110	115	130	146	876
U. 5	130	145	75	155	126	756
U. 15	230	70	50	100	113	678
A 0104	180	92	69	155	124	744
12417	130	30	40	60	65	390 <sup>1</sup>
A 1049	110	26	60	49	61	366 <sup>1</sup>
River Road	90	55	40	50	59	354

<sup>1</sup> Immature seeds. Brown in color.

Source	Analysis of Variance			F.	$\bar{x}$ ..... 620 S.E. $\bar{x}$ ..... 92.817 L.S.D.(.05) 266 L.S.D.(.01) 361 C.V.%..... 14.56
	D.F.	Mean Square			
Replications	3	11768.20833	12.99**		
Varieties	7	5118.25000	5.65**		
Error	21	905.64286			
Total	31				