EXTENSION SERVICE
NORTH DAKOTA STATE UNIVERSITY
OF AGRICULTURE AND APPLIED SCIENCE

FLAX...

L. A. Jensen
Agronomist

Elmer C. Vangsness
Resource Economist

CIRCULAR A-367 FEBRUARY 1964

An Important North Dakota Business

North Dakota farmers and other residents are constantly looking for new crops, new industry or new business for their community or the state. In some cases, the best opportunities exist in improving, and expanding businesses that have already proved sound in the community. Flax is an important North Dakota crop and North Dakota is currently the largest flax producing state in the nation. Let's explore the future possibilities of this and other important North Dakota crops. The following information may stimulate interest and ideas that will make flax contribute more to North Dakota income.

This Business of Flax

1. North Dakota normally produces about 50 per cent of the total U. S. supply of flax. (See table 1).

2. Flaxseed ranks second or third in order of importance as a cash income crop in North Dakota.

3. Flaxseed acreage is declining in Minnesota, Iowa and other areas due to competition of other crops. Flaxseed is also grown to a limited extent in Texas and California.

4. North Dakota may become even more important as a flax producing state in the future than it has been in the past.

5. Until recently, there has been a continuing downward trend in the use of linseed oil in the paint industry. (See table 2). This is the result of competition from other oils and the popularity of water base latex paints.

6. Recent advances made in linseed oil research have halted this downward trend and a part of the lost market may be recaptured.

   - New soap and water brush-clean-up paints are now on the market made from linseed oil.
   - Industry is initiating a 5-year national advertising program on these new exterior linseed oil based paints. They should be used by all North Dakotans.
   - Linseed oil is now used as a surface coating on new concrete highways to prevent concrete deterioration on areas where salt is used for deicing.
   - Research is continuing through state, federal and industry projects to develop other new uses for linseed oil.

7. Great advances have been made in herbicides for the control of both broadleaf and annual grassy weeds. These are a big help to the producer because flax is a poor weed fighter.

8. There is a National Flax Processors Association, which is an organization of flaxseed processors dedicated to the promotion of research and sales development of flaxseed and its products, including linseed oil and linseed meal.

9. There is a Flax Development Committee, which is an organization of flaxseed market handlers and crushers dedicated to the promotion of flaxseed as an industry, especially in the midwest. They annually sponsor the Flax Institute of the United States to help coordinate State Experiment Station and USDA research in the interest of the flax crop.

10. There is a North Dakota flax growers committee which is a group of five growers dedicating its efforts to flax as an income crop in behalf of all flax growers.

11. Flax is an excellent nurse crop for seeding down legumes and grasses.

12. Flax is not hard on the land; in fact, it removes less soil fertility than wheat or other small grain crops.

13. Flaxseed market priee in the U. S. is governed by supply in relation to domestic needs, competitive oils and by the government support price. Another strong factor at times can be size of crops in other leading flax producing countries of the world (see table 3) particularly as a short crop may create a strong export demand for U. S. flax.

14. Good clean flax straw can sometimes be a small additional source of income in areas where the average is large enough and concentrated enough to make it worthwhile for flax straw buyers to accumulate supplies.

15. The current carryover of flaxseed is about normal (see table 2).

Table 1 **FLAXSEED ACREAGE AND PRODUCTION FOR NORTH DAKOTA & U. S., 1954–1963**

YEAR	NORTH DAKOTA		UNITED STATES	
	Planted acres	Production Bushels	Planted acres	Production Bushels
	('000)	('000)	('000)	('000)
Average, 1954-63	2,630	18,394	4,290	32,878
1954	3,507	23,520	5,947	41,274
1955	3,297	24,578	5,219	40,415
1956	3,693	29,672	5,866	47,037
1957	3,767	15,282	5,599	25,113
1958	2,599	20,576	3,943	37,409
1959	2,105	10,782	3,360	21,237
1960	2,014	15,054	3,437	30,402
1961	1,672	8,262	2,975	22,178
1962	1,705	19,524	3,102	32,230
1963 1/	1,944	16,695	3,447	31,481

1/ Preliminary

Source: USDA Crop Production, Annual Summary.

Table 2 **FLAXSEED SUPPLY AND DISAPPEARANCE, U. S., 1952–1963**

YEAR	Production	Imports	Domestic Use 1/	Exports	Carryover (July 1)
	('000)	('000)	('000)	('000)	('000)
1952	30,184	2/	31,550	199	11,518
1953	37,656	22	31,030	3,388	9,953
1954	41,274	2/	36,116	8,176	14,213
1955	40,415	1	37,045	10,444	11,195
1956	47,037	1	29,231	2,548	4,122
1957	25,113	4	26,719	9,035	19,381
1958	37,409	2/	25,533	6,005	8,744
1959	21,237	2/	24,564	8,326	14,615
1960	30,402	0	21,037	6,963	2,962
1961	22,178	0	22,442	1,500	5,364
1962 3/	32,230	2/	23,230	4,300	3,600
1963 3/	31,481	2/	24,781 4/	8,000 4/	8,300
1964					7,000 4/

1/ Total supply minus exports and stocks July 1 following year. 2/ Less than 500 bushels. 3/ Preliminary. 4/ Estimated.

Source: Statistical Reporting Service, Fargo.

Table 3 **WORLD FLAXSEED PRODUCTION, 1957–1961 ANNUAL AVERAGES.**

COUNTRY	Harvested Acreage	Production, bushels
	('000)	('000)
United States	3,512	27,268
Canada	2,640	19,601
Argentina	2,630	26,825
India	4,057	15,368
Uraguay	303	2,878
Brazil	119	1,197
Estimated world total 1/	19,657	122,296

1/ Includes estimates for countries where data are not available and for minor producing countries.

Source: USDA Agricultural Statistics.

Other important flaxseed producing countries of the world are Mexico, Belgium, France, Netherlands, Poland, USSR, Turkey, Pakistan and Australia.

Table 4 **FLAX – VARIETY DESCRIPTION AND RECOMMENDATIONS FOR 1964 PLANTING**

Variety	Origin	When released	Relative maturity	Color		Seed size	Plant height	Resistance to disease			Rel. yield	Oil yield	Oil quality
				flower	seed			Wilt	Rust 2/	Pasmo 3/			
Bolley	ND 1/	1957	early	bl.	br.	med.	med.	R	I	S	v.good	v.good	v.good
Windom	Minn.	1962	early	bl.	br.	med.sm.	med.	R	I	S	v.good	fair	v.good
Summit	SD	1964	early	bl.	br.	med.	med.	R	I	S	v.good	fair	v.good
Norland	ND	1955	m.late	wh.	br.	large	med.	MR	R	S	good	good	good
Redwood	Minn.	1951	m.late	bl.	br.	med.	med.	R	I	S	v.good	good	good
B5128	ND	1943	late	bl.	br.	large	med.	MR	R	S	v.good	good	fair

1/ Cooperative with USDA. 2/ "I" means immune to all races of rust known to exist in this area. 3/ All varieties susceptible to pasmo – differences are only in degree of susceptibility.

Recommendations:

FOR EARLY SOWING, under favorable seedbed conditions, B5128, Redwood, Bolley and Norland (northwest North Dakota only).

FOR LATE SOWING, earlier maturing varieties will yield better when sowing must be late, or in a season when late summer drouth or high ripening temperatures may cause more injury to later maturing varieties. Varieties which should have preference are Bolley and Windom. Summit is available for seed increase only in 1964.

How to Grow Flax

1. Select good quality high germinating, weed free seed of a recommended variety for planting. Know the germination and purity of all seed you plant.
2. Recommended varieties: Early planting – B5128, Redwood, Bolley, and Norland for northwest North Dakota only. Late planting – Bolley and Windom. Summit, a new variety, will be available for seed increase only in 1964. (See table 4.)
3. Treat all seed with a recommended fungicide before planting.
4. In the rotation, select fields that will be comparatively weed free for flax seeding.
5. Seedbed preparation is very important and should include weed control, shallow tillage for moisture conservation and a firm seedbed to permit shallow planting.
6. Seeding rate should be from 1/2 to nearly 1 bu. per acre depending on seed size and area of the state. The lower rates are suggested for western areas and small seeded varieties while the higher rate is for eastern North Dakota and large seeded varieties.
7. Seed shallow – 1 to 1½ inches on a good firm seedbed.
8. Early seeding, late April to about May 15, will yield the best if weeds are not a problem. Spring frost is usually not a problem unless the seedlings are just emerging. Late seeding, from June 1 until late June, may be necessary to allow spring weed control and should be limited to the early maturing varieties.
9. Flax responds well to fertile soil. Commercial nitrogen fertilizer gives the best yield response but not more than 10 lbs. per acre can be placed in the row with the seed. Nitrogen also tends to promote excessive weed growth. Use phosphate on low and very low testing soils only.
10. Flax is a poor weed fighter. Herbicides must be used as needed to control broadleaf and annual grassy weeds, including wild oats.
11. Early sown flax is ready to harvest when 90 per cent of the bolls have turned brown. Delaying harvest increases the chance of loss from storm damage or late weed growth in wet falls.
12. Flax is usually swathed and then combined. The combine must be carefully set to prevent cracking the seed, especially if the seed is very dry. Weedy fields or late sown fields are commonly not harvested until after fall frost has killed and dried weed plants or stopped flax growth. Ordinarily, flax does not shatter for some time after ripening and late harvested fields are often straight combined.
13. Flaxseed cannot be safely stored until the moisture content is 9 per cent or less.
14. Flaxseed is small and slippery and, therefore, requires good tight storage bins.
15. Watch the U. S. and world wide flaxseed supplies and demand for top market prices.

Extension Service, North Dakota State University of Agriculture and Applied Science, and U. S. Department of Agriculture cooperating. A. H. Schulz, Director, Fargo, North Dakota. Distributed in furtherance of the Acts of Congress of May 8 and June 30, 1914.