

FLAX



YOU can help
 America win
 by producing more

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 EXTENSION SERVICE
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Cooperative Extension Work in Agriculture and Home Economics. The North Dakota Agricultural College and the U. S. Department of Agriculture cooperating. Published and distributed in furtherance of the Acts of Congress of May 8 and June 30, 1914.

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UNCLE SAM NEEDS FLAX

AN IMPORTANT NORTH DAKOTA CROP IS NEEDED TO WIN THE WAR

OUR COUNTRY needs flax. North Dakota farmers can help to meet this emergency by producing more flax in 1942. An increase of 63 percent over the 1941 acreage in North Dakota is needed. Methods which will yield the largest possible amount of good quality flax to the acre should be adopted. This circular contains useful information for flax growers.

WHY FLAX IS NEEDED

1. Linseed oil from crushed flaxseed makes up about three-fourths of all drying oils. These oils are needed for painting ships, tanks, airplanes, barracks, for waterproofing materials, for inks, for other important domestic needs.

2. Flaxseed is now difficult to obtain from Argentina and Uruguay -- countries which formerly supplied half of our normal needs.

3. Other imported oils like Tung and Perilla are no longer available from the Orient, because of the war. About a fifth of our drying oils are thus unobtainable.

4. Drying qualities of other domestically produced oils -- like soybean -- are inferior. Such oils are only a small percentage -- 3 to 5 percent -- of the drying oils required.

REMEMBER, when you produce flax you are producing an essential material needed to make America victorious. *North Dakota is being depended upon to raise more flax for Uncle Sam.*

CULTURAL PRACTICES

CORRECT production practices are essential if the acreage planted is to produce the flax so necessary to our Nation. Flax can be a more successful crop, if handled properly, thus furnishing a better return to the producer and helping the United States in its war program.

GOOD FLAX IN GOOD ROTATION

IN A SUITABLE crop rotation, the principal requirements of flax are:

- (1) Soil relatively free from weeds and weed seeds.
- (2) Good soil fertility, especially a readily available nitrogen supply.
- (3) A firm, moist seedbed.

SWEET CLOVER or alfalfa, followed by corn that is kept clean and then followed by flax is very satisfactory. Clean sugar beet, potato land and summerfallow, when firm and moist, is suitable. A common practice is summerfallow to clean the land, followed by a small grain and then flax.

A READILY available supply of nitrates, such as is furnished by legumes or summer-

fallow, is beneficial to flax. Flax, however, is not hard on the land. An average crop of flax removes no more plant food from the soil than do average crops of spring wheat or oats.

USE CLEAN SEED

FLAXSEED should be cleaned thoroughly to remove weed seeds and light weight flax. Where a farm fanning mill is available, it should be provided with screens of a correct size for grading seed and removing weedseeds.

A STEEL wire sieve with meshes 4x16 per inch (or 4x14 for large seeded varieties) will separate grain and the larger weed seeds from flax. A metal sieve with round holes one-fourteenth of an inch in diameter will separate small weed seeds. The grower should be satisfied if three-fourths of the seed is saved in cleaning and one-fourth removed in the screenings.

WEED SEEDS sown with the flax are a greater menace than those in the ground. If a companion crop is sown with the flax, this seed must also be free of weed seeds. *Use of clean seed is a means of increasing yields by reducing weed competition.*

Chemical seed treatment of flax has not proven advantageous in North Dakota tests. Therefore, seed treatment is not considered necessary. Protection against flax wilt and rust is obtained by use of resistant varieties.

SELECT SUITABLE SOIL

IN GENERAL, flax does best on moderately heavy soil, that is, a loam or clay loam or even a heavy clay. Lighter soils are less suitable, except in wet seasons when moisture conditions are especially favorable.

AVOID WEEDY LAND

WEEDS are a great handicap to flax production. Use the cleanest piece of land available. Clean corn stubble, usually lightly disked rather than plowed, makes a choice seedbed.

ON THE lighter soils, a pony-press drill unit combining plowing, packing and seeding in one operation, provides a moist firm seedbed which aids germination, uniform emergence and early establishment. *This is important in getting the flax started ahead of weeds.*

CHOICE OF VARIETY

BISON is the most commonly grown variety in North Dakota. While highly wilt resistant, Bison is susceptible to rust. In several areas, rust losses were quite heavy in 1941, particularly on late sown flax. *Early seeding will aid in escaping rust losses.* Other varieties more resistant to rust are listed below.

BUDA. Smaller seed and slightly later in maturity than Bison. Moderately resistant to rust. Over a period of years has not

yielded quite as well as Bison, since seasons have favored varieties somewhat earlier in maturity.

WALSH. A larger seed but lower oil quality than Bison. Very resistant to rust. Has not yielded as high, except when rust has been a factor in reducing yields of Bison.

VIKING or GOLDEN Flax. Large seed about same size as Bison. Very resistant to rust. Grows about 6 inches shorter than Bison. Because of shorter growth, Viking is less able to compete with weeds. May also be more difficult to harvest when seasonal conditions are less favorable for good straw growth. Has good yielding capacity and high quality oil. Averages lower in germination than other varieties. Heavier seeding rate may be necessary to secure a full stand that will assist in holding weeds in check.

REDWING. An early maturing variety. Better resistance or tolerance to rust than Bison. Being earlier, it tends to escape rust. Usually yields less than Bison, but under severe rust conditions should do as well or better.

SEEDING RATE

IN EASTERN North Dakota, 30 pounds of good quality seed per acre of the small-seeded varieties, or 40 pounds of Bison, have given as good results as a higher rate of seeding. Somewhat lighter rates of seeding are used in areas of less rainfall with satisfactory results.

BISON seed is approximately one-third larger than the seeds of Buda, Redwing or Linota. Therefore, the amount of seed of this variety used should be proportionately greater. Walsh is larger seeded than Bison, so slightly higher seeding rate is necessary. Viking or Golden should be seeded at a heavier rate to offset lower germination.

PREPARING LAND FOR FLAX

FLAX requires a firm seedbed. Plant only about 1 to 1½ inch deep. Clean corn stubble makes an excellent seedbed for flax, and only a shallow surface preparation is needed before sowing.

WHEN the land is spring plowed, it should be well-firmed before seeding. This can be done with a disk set nearly straight or with some type of press-wheel packer. The combination of packer and press drill immediately following the plow assures a firmer seedbed and speeds germination and emergence of the flax. Some growers when seeding on summerfallow, prefer to plow shallow in the spring, pack and seed immediately. This furnishes not only a firm but cleaner seedbed. A pony press drill unit is very suitable for this purpose.

In order to insure relatively shallow seeding at uniform depth to speed germination and emergence, the need for a firm seedbed cannot be over-emphasized.

GROWERS seeding flax on burned-off stubble usually attribute their good yields to the firm seedbed obtained from this practice. Burning of stubble cannot be recommended because of soil erosion hazards. Under particular conditions, however, burning may be found desirable, provided weed seeds are not abundant in the surface soil.

SOME WEEDS start earlier in the spring than others. Early cultivation of land infested with Russian thistle or wild oats will start these weeds, and further cultivation before sowing will destroy them. On land where green and yellow foxtail (pigeon grass and water grass), and other such late germinating weeds, are prevalent, sow the flax early, so that the plants may become established before the weeds start.

SEEDING FLAX

THE ORDINARY grain drill is satisfactory for seeding flax. The use of a double disk drill with the chains removed, places the seed at a uniform depth without covering too deeply. Flax should not be sown in light, dry soil because the seed is likely to be placed too deep for satisfactory germination. As a general rule, flax should be sown only about 1 to $1\frac{1}{2}$ inch deep provided the seed can be put into moist soil at that depth.

SOW EARLY FOR HIGHER YIELDS

PROBABLY no other single factor, excluding moisture, affects yields as much as time of seeding. *Early sown flax makes its growth during the cooler weather of early spring and summer, thereby making most efficient use of soil moisture.* Seeding early also permits flax to get started ahead of such weeds as pigeon grass. Sometimes extra cultivations may be needed to clean up the land and then seeding will necessarily be later. However, other factors such as summer drouth or diseases may often reduce the yields on later sown flax as much and often more than the weeds. Losses from rust or heat canker are generally greater when seeding is late.

FLAX sown in late April to early May is not likely to be killed by frost. Flax in the seedling stage can stand considerable frost if the temperature drop is not sudden. Seedlings just emerging are most tender, but even these will stand a moderate frost if the soil is moist and they are not further injured by drying winds. Annual losses in yield from weeds and summer drouths on late seedings are much heavier than the rather infrequent losses from spring freezes.

FLAX GOOD COMPANION CROP

FLAX is an excellent companion crop for starting grasses, alfalfa, or sweet clover. The flax, and grass or clover seed, can be mixed in the desired proportions and sown together with the ordinary grain drill. Both should be sown shallow in well-prepared soil.

AS FLAX sheds its leaves as it ripens, the grasses or clovers gradually become accustomed to the heat from the sun before the flax is harvested. In wet seasons

sweet clover may grow tall enough to interfere with harvesting flax. *Flax is almost ideal when a companion crop is desired for grasses or alfalfa.*

TIME OF HARVEST

FLAX is ready to harvest when the bolls are brown. In wet seasons or in late fields, the stems may stay green after the bolls are ripe. Here, as in the case of green weeds, the crop should be shocked or windrowed until weeds and stems are dry enough to thresh. Cutting flax on the green side is likely to cut yields and reduce the value and quantity of the oil in the seed.

HARVESTING

FLAX can be harvested with a grain binder or a header and threshed with a stationary threshing machine. If the field is free of weeds, the crop can be allowed to stand until thoroughly ripe and harvested with a combine. If weeds are present, it is best to windrow the crop and thresh with a pick-up attachment to the combine as soon as the crop is dry.

IN NORTHERN sections harvesting of late-sown flax is sometimes delayed until frost has killed the weeds. The weeds dry rapidly after being frozen and the flax can be combined a few days after frost. This method is satisfactory provided the flax does not need to stand too long before frost.

RIPE FLAX DOES NOT SHATTER

FLAX is superior to other grains in its resistance to shattering and weather damage when left standing after it is ripe. Only when the seed is shrunken by drouth is there much danger of its shattering. This makes it possible to allow flax to stand until it is thoroughly ripe. However, after the crop ripens, harvesting should be completed as quickly as possible to avoid losses from windstorms or grasshoppers.

THRESHING

FLAX is not particularly difficult to thresh if thoroughly dry. Care should be taken to prevent the seed from being cracked or broken in threshing. Too high speed of machine, the concaves set too close, or by returning the tailings from the sieves through the cylinder, are common causes for cracking and breaking the seed.

IN THRESHING flax, the machine should not be crowded. A good job of threshing depends upon the capacity of the sieves to separate the seed. An even method of feeding will make it possible for the sieves to separate the seed from the straw and chaff. Careful regulation of the wind is necessary to prevent loss of seed. It may be necessary to cut down the speed of the machine to prevent cracking the seeds and blowing seed out with straw. Threshing machine, grain tanks and bins that are tight will prevent losses of flax seed.