

NORTH DAKOTA AGRICULTURAL EXPERIMENT STATION

AGRICULTURAL COLLEGE, N. D.

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Circular 7

FLAX FOR SEED AND OIL

HARVESTING AND STORING THE CROP FOR SEED AND OIL PURPOSES

By H. L. Bolley

With the flax crop, as with other small grain crops, commonly too slight attention is paid to properly saving the seed. It has been said to be a "heavy feeder", "hard on lands", "a weed producer", "a poor pay crop", etc. Slight thought and a review of late investigations and of market statistics, may readily cause one to feel sure that such terms are but assertions of slight foundation in fact. It has, at times, failed to be a pay crop because of specific flax diseases. It has often proven to be hard on the land because of the weeds which followed, but this is not a necessary feature and is not more characteristic of this seed crop than of wheat, oats or other small grain crops. Such defects, in so far as they effect the yielding capacity of the land, rest in the methods of handling the crop from the seed time to its final storage and preparation for use as seed the following year. The bad or injurious conditions may largely be overcome by proper saving of the crop, especially the portion to be used for sowing purposes. Yields may be increased, oil quality can be improved and weeds eliminated. Diseases can largely be controlled. The diseases mentioned here are those particularly characteristic of flax and do not concern or effect other crops.

PREPARING THE SEED FIELD FOR HARVEST

Having properly prepared the seed bed and selected and treated the best seed available (See circular No. 6, N. D. Experiment Station), the next step is to insure a proper harvest of the seed. July is the time to insure against harvesting a lot of weed seeds. There are weeds which produce seeds which are of such peculiar shape that they are difficult to get out of flax seed with ordinary screens or methods of grading and cleaning. Pull the weeds which produce seeds of a form difficult to remove by means of a fanning mill while they are in blossom.

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If you have not prepared or left paths thru your field by blocking certain pockets in the drill, when the seed was sowed, lay out lines by flagged stakes in the direction of the drill rows. Pull by these flag stakes straight thru the field, reaching right and left as you walk along thru the drill rows. Only a day or two of work is necessary to remove the weeds from an area of crop sufficient to furnish seed for the home farm and a little more work will clean out the entire area from which seed is to be sold.

In large fields, lines of stakes to pull by are essential. Walk straight down a drill row between two rows of flax from end to end of the field, reaching only as far as the arms will allow on either side.

Do not sell weed seeds and disease infected flax seed; for both the weeds and diseases will come back to your land by way of the wind, shifting dirt, water, stock, farm tools, etc.

CONTROL OF ROOT AND SEED DISEASES

The reason flax dies off, leaving bare or weedy areas in the field, is not due to lost fertility or injury to the soil caused by the flax itself, but chiefly because flax diseases have once been sown there thru seed and by other means, as indicated. When the root diseases of flax are introduced into the soil the fungi multiply and spread from area to area chiefly because of the infected stubble which is worked into the land. If flax is to be grown there before the flax fungi have been cultivated out, one must get the resistant sorts of flax.

HOW TO AVOID DISEASE INFECTED SEED

The way to avoid seed infection is to cut the crop as soon as the seed bolls are mature enough to shell. Do not allow the crop to stand and weather after the straw is dead. This process allows many spores of the wilt and other stem and root destroying fungi to develop. Cut only when dry. If the straw is long enough, bind in bundles so that the heads may be kept up off the wet or damp ground, shock in open shocks for air drying. If a machine is not available, as soon as thoroughly dry, stack enough for seed purposes in small stacks or aere stooks. One can put an acre of flax into a small stack without climbing on to the stack and can do all the work in about a half hour. Select a rather high, dry, well drained place. Build a round shock by standing bundles on end until a space of about eight feet in diameter is covered. Fill the center as in ordinary stacking. Top out. Cover with a canvas cock cover or a cap of dry hay. Thresh at the first opportunity. Be sure to thresh the seed which you intend to use for sowing purposes in the dry portion of the day. A damp, foggy day, or damp

straw is sure to allow a lot of spores of the wilt and root fungi to stick on the flax seed. When the flax is cut in loose bunches and left on the ground, those bolls lying on the ground absorb a lot of moisture, producing soft conditions suitable for rapid development of the root fungi. Wherever these bunches lie, the ground is sure to be thoroughly infected with disease. When seed is threshed from such mouldy bunches, there is apt to be a great number of wilt spores dusted over the properly dried seed.

STORAGE

Store the seed dry in a dry, cool place where it will not be allowed to gather steam or other moisture,—never over live stock.

These rules for purifying the seed field, harvesting, threshing and saving the seed, apply with like force as to beneficial effects to each of the small grain crops. The chief reason the flax diseases are more destructive on flax than wheat diseases on wheat, etc., rests in the fact that flax has only one central tap root. When this wilts off, a bare spot is left. In the case of the grass-like plants,—oats and wheat if certain roots are blighted by disease, new roots form and the crop holds the ground, but the yield is reduced. The injury, of course, is caused by specific diseases for those crops, and not by flax diseases. The coat of the flax seed softens up and readily, under conditions of moisture, catches or holds any spores that may be on the straw at threshing time. To this extent the fungi become more destructive and make seed curing under dry conditions, seed breeding and treatment absolutely essential to this crop.

HARVESTING THE GENERAL FLAX CROP

All that has been said applies, with equal force to the general flax crop. Similar processes should be followed as closely as possible.

The seed as it goes on the market for oil purposes should be of as even quality as possible. It pays to leave weed seeds at home. Avoid dockage. Off-colored, mouldy, or green-colored, immature seed results in reduced grades. Manufacturers claim it is difficult to get a properly clarified, sufficiently acid-free oil from immature seed or from seed injured by moisture. Damaged seed gives the elevator men and dealers excuse for cutting off some of the profit. The loss falls to the grower.

STACKING

If the crop is dropped in loose bundles, it will pay the man who does not have a threshing machine at hand to stack as soon as the crop is dry. Nothing is gained by allowing the crop to lie on the ground. Loose straw can be stacked, if thoroughly wind dried,

in long narrow ricks and the stacks can be covered by a canvas cover or hay cap in the same manner as ordinary grain. Do not throw together damp straw or straw which has green plants in it. Get rid of the weeds so that the grain can be stacked or handled without mouldiness. Stacking prevents loss thru moulding on the ground, prevents loss by shelling and prevents rapid introduction of wilt fungi into the soil.

DISEASE CONTROL

Control the root and seed diseases of flax. Get the resistant varieties of seed. Raise your own seed and purify it, through the seed field purifying process.

HOW TO SELL

(1) Grade and clean your seed at the earliest possible date; (2) Send a sample of the cleaned seed in the condition you intend to offer it for sale to the Pure Seed Laboratory. If possible, have it registered, certified and listed under the state law; (3) If of high grade as to pedigree and purity, have it sealed, either under your own lead seal and tags, or thru the aid of the Pure Seed Laboratory; (4) Get in touch with the managers of seed houses who are looking for good seed; (5) Exhibit seed at the county, district and state seed shows; (6) Do not be afraid that too much good seed will be on the market and that you will not be able to sell seed of high quality. (Nearly a million bushels of good seed is each year needed.) If you do not succeed in selling seed, you will succeed in getting better yields year by year. The reason the crop has been failing in yield and quality is largely due to the fact that just any kind of flax seed has been used as seed.

SEED FIELD INSPECTION

Those who wish an expert from the State Pure Seed Laboratory to inspect their seed as it stands in the field, or bin, or to arrange for seed certification or sealing, should write the State Seed Commissioner at once.