BOISE, JULY, 1920 EXTENSION ~~CIRCULAR~~ BULLETIN NO. 41

UNIVERSITY OF IDAHO

EXTENSION DIVISION

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DODDER IN IDAHO

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COOPERATIVE EXTENSION SERVICE IN AGRICULTURE AND HOME ECONOMICS OF THE STATE OF IDAHO UNIVERSITY OF IDAHO EXTENSION DIVISION AND U. S. DEPARTMENT OF AGRICULTURE COOPERATING

AGRONOMY SECTION

Printed and distributed in furtherance of the purposes of the Cooperative Agricultural Extension Service provided for in Act of Congress, May 8, 1914

Seed Industry Threatened

THAT DODDER is threatening the small seed industry of Idaho is a statement of fact, as expressed by some of the largest seed dealers in the country. This is plainly evident when one considers the lowered quality (purity) of seed that has been placed on the market in the last two years. If farmers of Idaho expect to receive top prices for their seed, they must give more attention to the purity of seed produced. The number of seed samples condemned by the state seed laboratory has doubled in the last three years. Ninety per cent of these condemnations were for dodder. The how and why of fighting dodder are described in this bulletin.

DODDER IN IDAHO

By B. F. SHEEHAN

Field Agronomist and State Seed Commissioner

DODDER or "Love-Vine" is fast becoming one of the most serious weeds in the clover and alfalfa seed-producing sections of Idaho. It is the one weed that is doing most to cause the failing reputation of Idaho-grown seed upon the market.

The future of the small seed industry in this state depends upon the ability of the farmer to raise a product which is free from the many noxious weed pests that are now quite generally found in fields over the state.

In the past, Idaho has enjoyed a reputation for the production of a quality of seed not to be excelled by that produced in any other section of the United States. Our soil and climatic conditions are especially conducive to the production of seed high in color and vitality. Such seed has been in demand and has commanded the highest market prices. Our yields are abundant and farmers have been able to realize excellent cash returns. In the competition for Idaho seed that naturally has existed, there has been no incentive to growers to follow the best cultural practices, to exercise sufficient care when obtaining seed and to care for their fields in the most satisfactory manner.

Laboratory Tests Show Increase—In the year 1916, 21 per cent of all the clover and alfalfa seed submitted for test was condemned and could not be used for seeding purposes in this state. In 1919, more than 46 per cent of all samples analyzed were condemned.

Of the seed condemned in 1919, 90 per cent was rejected because of the presence of dodder in excess of the amount allowed under the law.

DODDER A SERIOUS PEST

Dodder is one of the worst enemies of clover and alfalfa, both in hay and seed crops. When present in the hay it usually results in a reduction of the yield and quality. Livestock usually avoids it when anything else is to be had.

When dodder is present in clover or alfalfa seed, such seed does not find a ready market. Buyers are ever on the alert to guard against the purchase of dodder-infested seed.

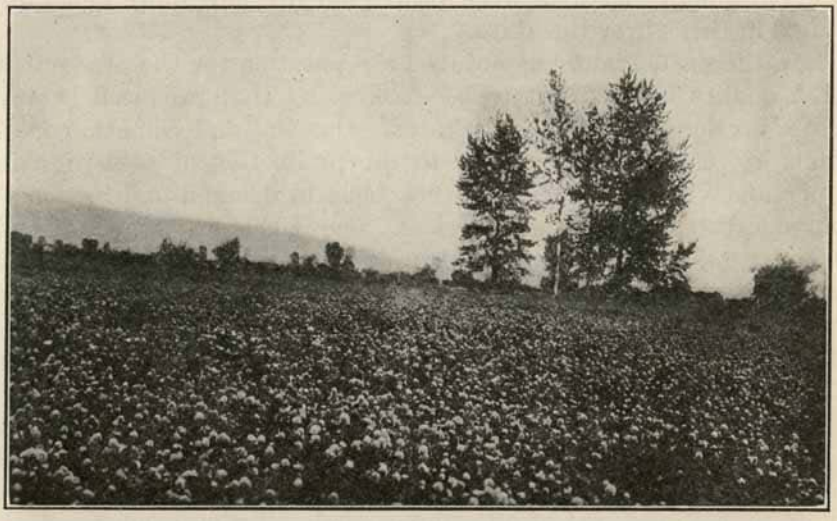
Virtually every state has a strict regulation against the sale of seed containing dodder.

Establishment of interstate regulations on seed sales would mean that much of Idaho's doddered seed could not find a market. There is every possibility that such regulations will be established.

WIDELY DISTRIBUTED IN STATE

Dodder has been observed in virtually all the clover and alfalfa seed-producing sections of the state. In some it is just making its appearance, while in others it is rapidly becoming a serious pest.

The more important clover and alfalfa seed-producing counties are Ada, Canyon, Gooding, Twin Falls, Cassia, Minidoka, Bingham, Oneida and Franklin. Of these, dodder has made perhaps the greatest progress in Ada, Canyon, Gooding and Twin Falls.



Seed from a Clean Field of Clover Always Brings the Top Market Price

Some communities have inaugurated an active campaign against further spread of the pest, and if many sections of Idaho are going to maintain or gain a reputation for the production of high quality seed they must raise seed that is dodder-free.

HOW DODDER IS DISSEMINATED

Dissemination of dodder in Idaho has taken place in the following ways:

1. Use of impure seed.
2. Irrigation water.
3. Hay.
4. Manure.
5. Hulling machines.

Without question, use of impure seed is the most important of these means of dissemination. Too little attention has been given to the quality of seed used. Much of the trouble many farmers now are having with dodder-infested fields could have been avoided had more attention been given to the purity of seed put into the ground.

Too many farmers have been content to use "cheap" seed. Many instances can be cited where farmers have sold every pound of their good seed and have been content to use an uncleaned portion, or the "screenings," for their own seeding.

Neighbor-to-neighbor sales have done their part in dissemination of low-quality seed. Much dodder-infested clover and alfalfa has gone from farm to farm in this way in past years.

Farmers should remember that it is as unlawful for them to sell any of their clover or alfalfa seed to their neighbor, without having a grade on it to show that it conforms to the seed law, as it is for any dealer in town to sell unlabeled or low-quality seed.

It is possible to obtain both dodder-free and dodder-infested seed on the market in this state. All dealers are required to label the seed they offer for sale and the seed must conform to the purity requirements of the law. The requirements state that the tag shall carry the grade to show whether it is Extra No. 1, No. 1, No. 2, or No. 3, and anything that will not come under one of the above grades cannot be sold for seeding purposes in this state.

One farmer in Ada county had taken particular care to prepare ten acres for seeding to clover from which he intended raising a seed crop. He went to a dealer to obtain the best seed possible. He found seed which was represented to him as being 99.8 per cent pure; however, no test was shown him. All the seed was planted. Examination of the dealer's establishment showed that this same lot of clover contained no fewer than 20,000 seeds of dodder to every pound of clover.

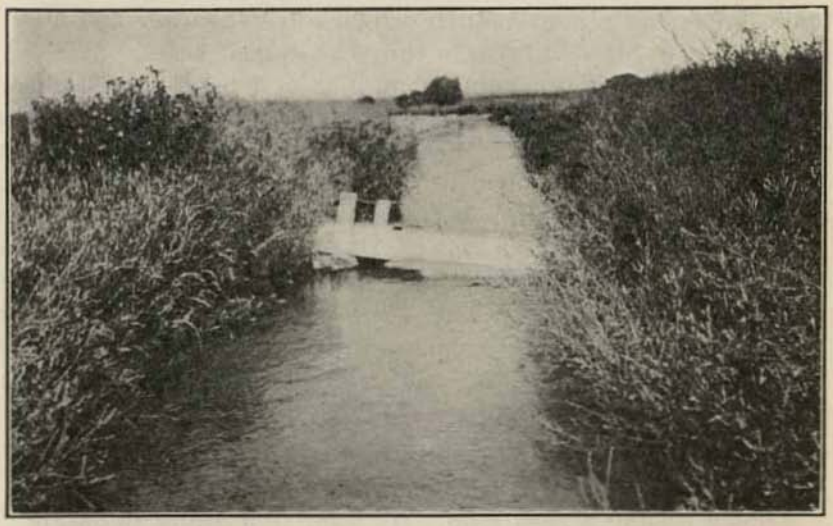
Demand the grade and test on any lot of seed you buy, whether it be from a dealer or from a neighbor.

If in doubt as to its quality as represented, send a sample to the state seed laboratory, State House, Boise, or to the branch seed laboratory, University of Idaho, Moscow, for official test. Samples submitted by farmers are examined free of charge. Dealers are required to make a deposit of 25 cents for each purity and germination test made.

When irrigation projects were in their infancy, little attention was given to weed eradication. Many of these weeds, if allowed to go to seed, are carried from farm to farm, until they infest all farms under the same ditch. Dodder is also carried from one part of a field to another by means of irrigation water.

Hay is another chief carrier of dodder seed, which may be spread from farm to farm in this way.

Dodder seed may also be spread in the manure, because of having been present in the hay and having passed through the animals' digestive tracts uninjured.



Dodder in Volunteer Alfalfa and Clover Along the Irrigation Ditch Drops Its Seeds into the Water and Easily Disseminates the Pest. Sheep Will Rid the Ditch Banks Quickly of This Growth.

The hulling machine is a means of carrying dodder seed from one farmer's field to another. Many a clean lot of seed has been mixed by having the hulling done by an outfit that has worked first in a badly infested field.

DESCRIPTION OF DODDER IN THE FIELD

Dodder is a yellow or orange-colored plant that has slender, thread-like stems which twine and coil about the clover and alfalfa plants. The dodder plants have no leaves, but have a creamy cluster of flowers.

It is very difficult to detect the presence of dodder in a young stand of clover or alfalfa. The dodder germinates at about the

same time as the clover or alfalfa, but remains rather inconspicuous. During the middle of the summer, however, the dodder may be detected by the dense growth of yellow, tangled stems.

The dodder stem is equipped with very small, wart-like suckers that penetrate the tissues of the clover or alfalfa plants, from which the dodder obtains its nourishment. The dodder plant is purely parasitic in habit and when established on the other plant, has no connection with the soil. This habit makes it very difficult to eradicate dodder from a field. It branches and rebranches and spreads from plant to plant and may in a short time cover a considerable area.

COURTESY COLORADO EXPERIMENT STATION
DODDER ON ALFALFA PLANT

THE SEED OF DODDER

The seeds of dodder resemble those of alfalfa to a considerable degree and for this reason many persons are unable to detect their presence in a bulk lot of seed. A close examination is necessary for certain decision, and the safest plan is to have a trained seed analyst do the work.

Dodder seeds have the ability to retain their vitality for a considerable number of years. Therefore, a badly infested field should not be re-planted to clover or alfalfa for several years. Some of the seeds may germinate immediately, but others may live in the soil for as many as five years. The dodder plants produce an enormous quantity of seed.

PRINCIPAL KINDS OF DODDER IN IDAHO

1. LARGE-SEEDED DODDER (*Cuscuta Indecora*)

The seed of this species is of virtually the same size as alfalfa and red clover seed. In an examination, only an expert can detect

its presence. No device has as yet been perfected which will remove this seed from the seed of alfalfa or clover.

The seed is disk-shaped, with a slightly rounded face, the opposite side being grooved. It is of much the same color as alfalfa seed, but close examination will reveal a more dull appearance and a rough character of the seed coat. Often the seeds are very dark in color, while many have been observed which carry a distinct white color.

2. FIELD DODDER (Cuscuta Arvensis)

This species is found in many clover and alfalfa fields. The seeds are rounded on one side and flattened on the other. They are of about the same size as the small seed of red clover; many instances have been noted in which they averaged considerably larger. The seed is dull gray to dark brown in color.

3. SMALL-SEEDED DODDER (Cuscuta Planiflora)

This species of dodder is quite common in many sections. The seeds are oblong in shape, rough, and dull in color. They may be entirely removed from the clover or alfalfa seed by careful recleaning.

ERADICATION OF DODDER IN THE FIELD

Fields should undergo frequent and careful inspections, in order that infestation may be detected. A day or two spent in cutting weeds out of the growing clover or alfalfa seed crop will be found to have been very profitable, when the harvested crop is offered for sale.

For Small Areas—As a general rule, dodder appears in patches. These patches, when found in limited extent, should be cut close to the ground. When doing this cutting, it is well to start at the outside of the infested area and work toward the center. Also, start cutting several feet beyond the outermost edge of the patch, in order to be sure to get all the dodder. Allow the plants to remain where they were cut, and burn the pile when dry. The burning is sometimes more effective if the dried pile is covered with straw and saturated with kerosene.

If the patches are not cut until after the seeds have ripened, it is advisable to hoe the cut area every few days in order to induce germination and to eradicate dodder seedlings.

Close watch should be kept of the fields at the edges of the cut area, so as to destroy any dodder plants that may make their appearance.

For Large Areas—This is a most difficult problem, yet it is

one that many farmers in this state are facing. A badly infested stand of clover or alfalfa had best be mowed and used for hay. The crop should be cut before there is any danger of the dodder's producing seed. The crop then should be plowed under and the land planted to some crop which requires frequent cultivation. Seeding of clover or alfalfa should not be made again for several years if seeds have been allowed to mature and the area of infestation has been large. The dodder seeds may remain dormant for many years and too early a re-seeding may result in as badly infested a field as was plowed under.

ROTATION OF CROPS

In the case of clover, many farmers have taken two, three and as many as four seed crops from the land in as many successive years. Experience of good, practical farmers in the irrigated sections of this state has shown that it seldom is wise to allow clover to remain longer than the second year, owing to the fact that the land is almost certain to become weedy.

A new seeding is desirable, if possible, each spring in a different field, so that each fall the crop that has made seed may be plowed under. This will allow for one seed field each year. Such a practice has a double purpose of increasing the soil fertility and keeping down the weeds, and it provides for a good crop rotation, important on any farm.

CLEAN THE HULLING MACHINE

The weed-seed-infested hulling machine is one of the greatest causes of much comparatively dodder-free seed becoming mixed. If the machine has been moved in from a neighbor's field that may have contained considerable dodder, buckhorn or other bad weeds —look out. Before doing your work, see that the machine is properly cleaned, and, if necessary, pay the operator to clean it, and see that he earns his money.

The grower cannot afford to allow his seed to become mixed in the hulling machine. A little time and money spent in cleaning the machine will generally pay for itself in a short run of the huller.

RECLEANING THE SEED

Much seed is being sold in this state that has not been recleaned properly. This is especially true of seed being sold from neighbor to neighbor. Much of this seed has been inspected this last spring and the large percentage was unfit for seeding because of the many noxious weed seeds usually contained. The impor-

tance of obtaining clean seed, even tho the initial cost is greater, should not be under-estimated.

To reclean properly a lot of alfalfa or clover seed which contains dodder, it is necessary for the individual doing the work to have some knowledge of the several dodders.

The small-seeded dodder and much of the field dodder can be removed by means of power-driven mills.

No process has as yet been devised for the removal of the large-seeded dodder.

For this reason, it is necessary to expend every effort to raise dodder-free seed and when obtaining seed for one's seeding, to exercise the utmost care to get the best.

Buy only tested seed and be sure you are getting what you pay for.

Summary

1. Dodder or "Love-Vine" in clover and alfalfa seed is lowering the reputation of Idaho-grown seed on the market.

2. It is found in virtually every seed-producing section of Idaho.

3. Laboratory results show that the number of condemned samples has more than doubled in three years.

4. Dodder is the cause of 90 per cent of rejections of condemned samples.

5. Buyers are on the lookout for dodder-infested seed.

6. Nearly every state has a strict regulation against dodder-infested seed.

7. Use of impure seed is the greatest cause of spread of dodder.

8. Buy only tested seed, whether it be from neighbor or dealer.

9. When in doubt as to the quality of seed, send a sample to the seed laboratory, State House, Boise, or to the branch seed laboratory, University of Idaho, Moscow, for official test.

10. Exact determination of the presence of dodder in seed is not possible by the average individual.

11. The small-seeded, medium and large-seeded dodder are Idaho's worst.

12. To eradicate dodder from small areas, cut and burn the plants on the spot. For large areas, cut the crop for hay, plow under and plant the land to a cultivated crop.

13. Do not attempt to get too many clover crops from the one seeding. Rotate your crops.

14. See that the hulling machine is cleaned before doing your job.