Lespezea

Its Place in Illinois Agriculture

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LESPEDEZA: ITS PLACE IN ILLINOIS AGRICULTURE

By O. H. Sears, Chief in Soil Biology; and W. L. Burlison, Chief in Crop Production

LESPEDEZA is rapidly becoming the principal legume on many farms in the southern third of Illinois and it is now grown to some extent throughout the entire state. In central and northern Illinois it is supplementing clovers and alfalfa. Its popularity is due to its value as a hay and pasture crop, its low cost of seeding, its resistance to drought, and, compared with alfalfa and clover, its greater tolerance of soil acidity and greater freedom from insects and disease pests.

These characteristics and the fact that lespedeza is a warm-weather crop make it ideally suited to southern Illinois and also offer new possibilities to farmers who have not been able to cultivate other legumes successfully.

Tho sometimes called a clover, lespedeza is not a clover any more than cowpeas, soybeans, or alfalfa are clovers. It does, however, belong to the legume family and so has valuable soil-enriching properties and high feeding value.

Twenty years ago, when the Illinois Station began experiments with this crop, it was not even recognized as of commercial importance in Illinois. Today Illinois farmers are growing about 200,000 acres and the crop ranks with the important legumes of the state.

VARIETIES OF LESPEDEZA

Several distinct commercial varieties of annual lespedezas are available in the United States. Three of these—Common, Tennessee 76, and Kobe—belong to the species Lespedeza striata, and Korean, Harbin, and Early Korean 19604 belong to the species Lespedeza stipulacea. These are the only two annual species of lespedeza. The rest of the 125 species are all perennials. Lespedeza Sericea, called Sericea, is, however, the only perennial commonly used as a crop plant.

In these sections of Illinois farmers were slow to recognize the usefulness of lespedeza until the results from the Illinois Station and the experience of farmers demonstrated its adaptability. Each year the use of lespedeza has been gradually extended farther north.
The annual lespedezas are small-branched plants which grow either erect or spreading. Under the best conditions the plants reach a height of 30 to 36 inches; more often 5 to 15 inches is the average. The small, numerous leaves are trifoliate, as they are in the clovers. The fibrous roots are medium-deep but numerous. The small, inconspicuous purple flowers are borne on short stems in the axils of the leaves. Blooming occurs from midsummer to early fall. The dark purple seeds are about the size of red-clover seed and are borne singly in pods, in which they are retained when threshed. The size of the seed and the size of the calyx lobes, which partially inclose the brown hulls, vary with the variety and form a basis for distinguishing one variety from another.

**Korean.** This appears to be the best lespedeza for central and southern Illinois. It is an annual species introduced into this country from Korea in 1919 by the U. S. Department of Agriculture. The young plants grow more rapidly in spring than do those of other annual varieties.

Korean blooms two weeks earlier and matures seed almost a month before Tennessee 76 and Kobe. In thin stands Korean produces a spreading growth but in thick stands grows erect. It is leafy, and the dense foliage is retained long after the plants are mature. It is a very good seed producer, leading all other annual varieties.

**Early Korean 19604.** Early Korean matures two weeks earlier than Korean and is adapted to the northern third of Illinois. However, under some conditions (about which little is known), it is affected by a bacterial disease which reduces the yield.
Seed Characteristics of Leading Varieties of Lespedeza

**Sericea** has a reddish brown hull, with a lighter colored calyx, which divides into five sharp lobes extending about half the length of the seed. The seed is light green, usually sold with hull removed.

**Harbin** has a distinctly netted brownish gray hull. The sepals are often broken off in threshing, but when present extend less than half the length of the seed. The seed is dark purple, usually sold in the hull.

**Korean** has a grayish hull and a dark purple seed similar to Harbin. It is sold in the hull.

**Common** is enclosed in a reddish gray hull, which is retained on threshing. The calyx lobes extend more than half the length of the seed and adhere tightly to the hull. The hulled seed is dark purple with light irregular blotches and is much smaller than Korean.

**Kobe** has a gray hull with calyx lobes extending more than half the length of the seed. The unhulled seed is somewhat larger than that of other varieties; the hulled seed is reddish purple with greenish gray blotches and is larger than Common. The seed is sold in the hull.

**Tennessee 76** has a reddish gray hull with calyx lobes extending more than half the length of the seed. The hulled seeds are similar in size and color to those of Common. The seed is sold in the hull.
Common. Widely distributed over the southern third of Illinois, Common has produced sufficient seed, even in central Illinois, to maintain a stand. It grows erect in thick stands but spreads out on the ground when stands are thin. In thin stands the plant branches freely. It seldom reaches a height of more than 5 or 6 inches.

Tennessee 76 and Kobe. Both these lespedeza are adapted to extreme southern Illinois. They have not been grown extensively in this state, but where they have been grown they have yielded more hay and less seed than Korean. Tennessee 76 was selected from Common by the Tennessee Station in 1915. It grows tall and erect. Kobe was first grown in South Carolina from seed obtained in 1919 from near Kobe, Japan. It is considerably later than Korean. In thick stands it grows erect; otherwise it has a spreading habit of growth. It grows larger and coarser than Common. In Illinois the seed yields have been similar to those of Common but not so large as those of Korean.

Harbin. One of the earliest commercial strains in the United States, Harbin makes such poor growth that it has only a very limited usefulness in Illinois.

Sericea. This is a perennial species of lespedeza, adapted to the southern half of Illinois. It grows larger than the annual types and can produce as many as a hundred stems to a crown. Altho it resembles alfalfa in some respects, it is easily distinguished by its small leaves, inconspicuous yellow or purple flowers, and dense foliage. Sericea has not increased so rapidly in the United States as have the annual lespedeza because of the high price of the seed, the difficulty of establishing a stand, and the coarseness of the perennial plant. This species may become a valuable hay crop in the southern half of Illinois, but the extent of its adaptability must be studied further before definite recommendations can be made. Strain 04730 is more widely adapted in Illinois than any other strain of Sericea.

USE OF LESPEDEZA IN ILLINOIS

Widely Used as Pasture Crop

Lespedeza is used in Illinois mainly as a pasture crop, seeded either alone or in mixtures. It grows best during the summer months and provides good grazing at a time when other pasture crops are the least productive. When sown alone, it can be pastured from the first of July until killing frost. Korean, unlike other lespedeza, does not lose its leaves readily after frost and furnishes pasture, altho of low quality, as late as December.

Carrying capacity. The amount of grazing furnished by lespedeza depends upon the productiveness of the soil, seasonal conditions, particularly rainfall, and upon pasture management. Even tho this legume grows on poor soils and is drouth-resistant, the best results are
obtained on good soils and with a favorable amount and distribution of rainfall.

On soils of medium productivity an acre of lespedeza pasture can carry 1,000 pounds of livestock for 120 days. On the more fertile fields in favorable seasons it can carry 2,000 pounds. Its average carrying capacity is about one mature horse or cow to the acre, according to studies by the U. S. Department of Agriculture.

Hogs and chickens do well when pastured on lespedeza, and trials at the Illinois Station show that it makes highly productive pasture for sheep.

The experience which Illinois farmers have had in pasturing lespedeza indicates that it is less likely than are other legumes to cause bloat or indigestion in cattle and sheep. But it is always best to give the animals a full feed before they are turned onto lespedeza and then to keep them grazing on it.

Some Illinois farmers have reported that lespedeza causes horses to slobber, but many farmers have never found this to be true. The tendency to slobber appears to lessen as the horses grow used to the pasture, particularly if they have access to salt.

Lespedeza pasture is at its best during the summer, when pasture grasses are least productive. This field furnished enough pasture to produce 267 pounds of beef an acre.
Combines with other pasture crops. If lespedeza is seeded in rye or with oats or barley, the grain crops make excellent early pasture, and after they are gone the lespedeza is large enough to afford satisfactory grazing.

When seeded with sweet clover, either in the original seeding or in the spring of the second year's growth, lespedeza furnishes excellent grazing by the middle of July, when sweet clover no longer provides succulent forage. The following year a stand of self-seeded lespedeza will appear which may contain volunteer sweet clover as well.

The seeding of lespedeza in redtop or in timothy for either meadow or pasture improves both the quality and the quantity of the forage produced. Furthermore lespedeza makes most of its growth when the grass crops are less abundant.

The carrying capacity of a thin stand of bluegrass can be increased by seeding lespedeza in it. The lespedeza not only furnishes forage itself but thru association improves the bluegrass. In fact some farmers who prefer the lespedeza complain that they have difficulty in keeping the bluegrass from fields where lespedeza has been pastured for several years.

Altho heavy grazing of lespedeza may cut down the number of days it can be pastured, it is almost impossible for animals to graze it close enough to prevent seed formation.

**Hay Is of High Quality**

Lespedeza furnishes a hay of good quality on soils where alfalfa and red clover cannot be grown or where they are uncertain crops. Tho the different lespedezas vary somewhat among themselves in composition, they are all comparable in value to the other legume hays, whether judged on composition, palatability, or results from feeding trials.

In one feeding trial with fattening steers at the Illinois Station, Korean lespedeza proved superior to alfalfa and soybean hay in rate of gain produced, cost of gain, dressing percentage, and quality of meat. It was concluded from this experiment that "the southern corn belt has a promising new hay crop for cattle feeders in the form of Korean lespedeza." Even the threshed straw of Korean lespedeza is a source of good roughage. It retains a considerable portion of the leaves, even after threshing; and tests with dairy cows show that the threshed straw is only slightly inferior to soybean hay in feeding value.

Altho animals fed on annual lespedeza hays refuse but little of it, the stems of the perennial Sericea, being somewhat coarser, are not so
completely eaten. All but the coarsest stems, however, are eaten. The proportion of coarse stems is dependent to a considerable extent upon the stage of growth at which the hay is harvested. Sericea makes its best hay when cut 12 to 14 inches high.

Yields of lespedeza hay vary with the amount and distribution of rainfall and with the productivity of the soil. The average yield of

The Sericea lespedeza on the right had been cut for hay two weeks before photographing. Uncut Sericea is on the left. For the best quality hay Sericea should be cut when 12 to 14 inches high.

Korean in Illinois is less than a ton an acre. Under favorable conditions, however, cuttings of more than 2 tons an acre are possible. It has been estimated that with a good stand, a cutting of about 6 inches will yield a ton an acre.

Seed Provides a Cash Crop

An increasing amount of lespedeza seed, grown both for home consumption and for the general seed trade, has resulted in a relatively low price for the seed. Three factors have contributed to this situation: (1) one seeding is frequently enough for several years, (2) yields are relatively high, and (3) the seed is easy to harvest.
The present low price of lespedeza seed compared with other legumes is one of the reasons for the popularity and economy of this crop. Not only is the initial seed cost an acre usually lower than that of the legumes commonly grown, but one seeding usually lasts for several years.

**Improves and Conserves the Soil**

In regions where lespedeza is adapted it is able to grow on soils poorer than those on which the biennial and perennial legumes frequently used for soil improvement can grow. When nodulated, lespedeza acquires a considerable portion of its nitrogen from the air and its mineral nutrients from less readily available sources in the soil, as do other legumes.

Under favorable conditions lespedeza produces considerable quantities of organic matter, which can be utilized as green manure. Like most annual legumes, lespedeza has a smaller amount of organic matter in the roots than have the biennial and perennial legume crops. If allowed to self-seed, increasing yields of organic matter may be expected for several years at least. A number of Illinois orchardists have used lespedeza successfully as a green-manure crop in peach and apple orchards.

**Lespedeza helps to control erosion.** Its ability to reseed and to grow more satisfactorily on lands of low fertility than some of the other commonly grown legumes makes lespedeza a promising plant for erosion control.
Lespedeza has also proved valuable in soil conservation. Its effective use in erosion control has been demonstrated in numerous experiments in the South. The ability to grow on poor soils, to fill the surface soil with fibrous roots, and to self-seed successfully makes lespedeza an excellent crop for use in erosion control. The self-seeding means that it is not necessary to work the soil and so there is less danger of washing on soils that erode easily.

**Well Suited to Corn-Belt Rotations**

Lespedeza is readily adapted for use in many different corn-belt rotations. Little, if any, change need be made in most cropping systems with respect to sequence or kind of crops in order to add lespedeza to the rotation.

The following rotations indicate the possible uses of lespedeza and may suggest other desirable combinations. It is impossible, of course, to recommend a single rotation that would be suitable for all areas.

Many Missouri farmers have practiced a system in which a crop of small grain (winter wheat or winter barley) and one of lespedeza, either hay or seed, are harvested each year. Results of Illinois experiments have been less favorable than those secured in Missouri.

**Two-Year Rotations**

<table>
<thead>
<tr>
<th>Wheat or oats (lespedeza seed crop)</th>
<th>Corn</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lespedeza (hay, pasture, or seed)</td>
<td>Wheat or oats (lespedeza)</td>
</tr>
</tbody>
</table>

The lespedeza in the first of the above rotations can be seeded in the wheat or oats, and a crop of lespedeza seed, as well as a crop of grain, obtained the same year. In the second year a stand of lespedeza will be obtained without reseeding; this is used for pasture or cut for hay, and in some sections a seed crop is harvested before time for preparing for wheat.

In the second rotation above, lespedeza seeded in small grain can be used for hay, for seed, or for fall pasture. Thus three crops are obtained in two years. This rotation can be changed into a three-year rotation by allowing the lespedeza to occupy the land the year following the small-grain crop.

**Three-Year Rotations**

<table>
<thead>
<tr>
<th>Corn</th>
<th>Corn</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oats or wheat (lespedeza)</td>
<td>Soybeans</td>
</tr>
<tr>
<td>Lespedeza</td>
<td>Wheat (lespedeza)</td>
</tr>
</tbody>
</table>
By pasturing or using the lespedeza for hay or seed for an additional year, the above three-year rotations can be converted into four-year rotations.

**Four-Year Rotations**

<table>
<thead>
<tr>
<th>Corn</th>
<th>Corn</th>
<th>Corn</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oats</td>
<td>Soybeans</td>
<td>Oats (lespedeza)</td>
</tr>
<tr>
<td>Wheat (lespedeza)</td>
<td>Wheat (lespedeza)</td>
<td>Lespedeza</td>
</tr>
<tr>
<td>Lespedeza</td>
<td>Lespedeza</td>
<td>Wheat (lespedeza)</td>
</tr>
</tbody>
</table>

**Five-Year Rotations**

<table>
<thead>
<tr>
<th>Corn</th>
<th>Corn</th>
<th>Corn</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oats (lespedeza)</td>
<td>Oats</td>
<td>Soybeans</td>
</tr>
<tr>
<td>Lespedeza</td>
<td>Wheat (lespedeza)</td>
<td>Wheat (lespedeza)</td>
</tr>
<tr>
<td>Wheat (lespedeza)</td>
<td>Lespedeza</td>
<td>Lespedeza</td>
</tr>
<tr>
<td>Lespedeza</td>
<td>Corn or wheat (lespedeza)</td>
<td>Wheat (lespedeza)</td>
</tr>
</tbody>
</table>

Obviously four-year and five-year rotations are suited to areas where livestock is of major importance and where it is not so desirable to have a large proportion of the farm in corn.

**FEW SERIOUS CLIMATIC LIMITATIONS**

Lespedeza will grow almost any place where the season is long enough to allow it to mature. It is found in the United States from the Gulf of Mexico to the middle corn belt and from the Atlantic coast to the Great Plains. There is no place in Illinois where some variety will not mature; the late varieties, however, reseed only in the southern part of the state, where the growing season is longer.

Lespedeza is more drouth-resistant than such common legumes as sweet clover and red clover. On nine experiment fields in southern Illinois lespedeza seeded in either winter wheat or oats has usually survived droughs better than sweet clover.

Continued wet weather in the spring will encourage “damping off,” a fungus disease of seedlings. When cloudy, rainy weather continues for a long period in the fall, the entire lespedeza plant, except the tops which are exposed to the air, may mold badly if the stand is dense.

Lespedeza is more easily injured by a killing frost in the fall than are red clover, sweet clover, and alfalfa. Korean, because of its earlier maturity, is less likely to be injured than are the later varieties.

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1The term “drouth-resistant” as used here does not mean that the crop is unaffected by severe drouth conditions but rather that it can survive in dry weather.
Lespedeza seedlings cannot withstand so low a temperature in the spring as red clover and alfalfa seedlings, which become more resistant as they grow older, while lespedeza seedlings become less resistant. Sericea seedlings are the most resistant to low temperatures and Korean seedlings the least resistant.

Lespedeza is a warm-weather plant and makes its most rapid growth during the warm season of the year.

**NEED FOR SOIL TREATMENT**

Lespedeza tolerates more acidity, adjusts itself more easily to the lower levels of fertility, and withstands adverse drainage conditions better than alfalfa, sweet clover, or red clover. There are limits, however, to its adaptability.

**Limestone.** Before lespedeza is seeded, tests should be made to determine the acidity of the soil,¹ and limestone should be added in accordance with the need indicated by the test. Altho lespedeza is more acid-tolerant than the other commonly grown legumes, little growth is likely to develop on a strongly acid soil. On highly acid soils the application of limestone becomes one of the most important soil treatments for this crop.

**Phosphorus and potassium.** Lespedeza is richer in phosphorus than is sweet clover, alfalfa, red clover, or soybeans. Nevertheless it will grow on soils too low in available phosphorus for other legumes to grow successfully. Apparently it utilizes the less available sources of phosphorus in the soil. Phosphatic fertilizers may not, therefore, have as much effect on lespedeza as on alfalfa and the clovers.

There are soils, however, where applications of rock phosphate or superphosphate are necessary for maximum growth of lespedeza.

In the southern third of the state there are many soils low in potassium where lespedeza yields can be increased by applying potash.

**Inoculation essential.** Where the soil contains no lespedeza nodule-forming organisms, inoculation is of great importance. In a large part of southern Illinois where cowpeas are grown and where Common lespedeza grows wild, the lespedeza nodule-forming organism, which belongs to the cowpea group of nodule bacteria, is likely to be present in the soil. That is why the inoculation of lespedeza has given very

¹Full directions for making soil-acidity tests are given in Circular 346, "Test Your Soil For Acidity," by C. M. Linsley and F. C. Bauer. A copy of this circular may be had by writing to the COLLEGE OF AGRICULTURE, Urbana, Illinois.
beneficial results less frequently in southern Illinois than in other parts of the state. However, since the cost of inoculation is so low, it is advisable to inoculate lespedeza wherever it is seeded in Illinois.

SELECTING SEED

Guard against weedy seed. The source of lespedeza seed is important since much of it is produced in the South where dodder is prevalent. By buying lespedeza seed only from reliable dealers or directly from a seed producer who has no dodder on his farm, the grower can be sure that he will have seed that is free from this weed. Certified seed can be had that is dodder-free. Other weed seeds prevalent in Illinois-grown seed (probably not so serious as dodder) are crabgrass, ragweed, rough buttonweed, smartweed, spiny sida, sedge, and witch grass.

Some growers believe that northern-grown seed is better adapted to the northern area of the lespedeza region. As a matter of fact, however, the crop probably has not been grown long enough in the North to develop regional strains thru natural selection.

Altho most of the seed of the annual varieties is sold unhulled, considerable hulled seed has recently appeared on the market. It is becoming popular largely because it can be cleaned more satisfactorily than unhulled seed.

Purchase seed on weight basis. Lespedeza seed should be purchased by the pound as there is no established standard weight per bushel. Some samples of lespedeza seed taken at Urbana in 1934 varied as follows in weight per bushel:

<table>
<thead>
<tr>
<th>Variety</th>
<th>Pounds per bushel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Korean</td>
<td>45</td>
</tr>
<tr>
<td>Tennessee 76</td>
<td>30</td>
</tr>
<tr>
<td>Kobe</td>
<td>24</td>
</tr>
<tr>
<td>Common</td>
<td>30</td>
</tr>
<tr>
<td>Sericea (hulled; all other varieties unhulled)</td>
<td>65</td>
</tr>
</tbody>
</table>

SEEDBED AND SEEDING

Good seedbed preparation helpful. When lespedeza is sown in small grain, no special preparation of the seedbed is necessary if the soil has been well prepared for the small grain. On sodland in pastures disking or harrowing is sometimes needed in order to enable the seed to contact the soil.

Altho sowing lespedeza on uncultivated land without seedbed
preparation is often recommended, the U. S. Department of Agriculture has shown that the plants grow considerably taller where a seedbed is prepared.

**Early seeding is recommended.** Altho an early seeding of lespedeza is subject to serious injury if freezing temperatures follow germination, lespedeza should usually be seeded as early as red clover when possible. This is true because it usually contains a high percentage of hard seeds (sometimes as much as 50 percent) which germinate more readily after being frozen.

**Method of seeding.** Lespedeza seed in the hull, as it is usually sold, is difficult to sow with a regular grass-clover drill or with a grass-clover attachment on a grain drill. The light, fluffy seed in the hull does not feed thru the drill uniformly. It can be sown to better advantage by hand or with a hand seeder. Some farmers have reported success in seeding with an end-gate seeder. Sericea seed is hulled and can be seeded like clover or alfalfa.

If lespedeza is sown with a drill, care should be used not to sow the seed too deep. Lespedeza does well if broadcasted early on top of the soil, with little or no attempt to cover the seed. In any event only a light covering is recommended.

**Rate of seeding depends on use.** When a volunteer crop is desired, the rate of seeding can be light. Ten to 15 pounds an acre in small grain or in a pasture produces a good self-seeded stand the second year. To obtain a full stand the first year, 20 to 25 pounds of seed an acre is recommended. Satisfactory stands have been reported, however, with less seed.

**Lespedeza used in mixtures.** When seeded with either biennial or annual sweet clover in wheat or oats, this crop has done well on experiment fields in southern Illinois. When sown in a mixture with other forage crops, it has also done well.

### CLIPPING FOR WEED CONTROL

During its early stages lespedeza is a poor weed fighter. Sometimes it is necessary to mow the field in order to control the weeds.

Weeds should be mowed when they are tall enough to be clipped without cutting the lespedeza. A weed-clipping attachment for the cutter bar permits cutting at a height of 8 to 10 inches. Neither early mowing nor frequent mowing is recommended. Any cutting of the lespedeza plants is detrimental. Mowing when the plants are wet results in rotting of those injured by the mower wheels.
HARVESTING LESPEDEZA

Hay is best in bloom stage. Annual lespedezas cut when in full bloom give a more palatable and nutritious hay with more leaves and protein and less crude fiber than when cut later. Cutting when the seed is forming and before there is any loss of leaves probably gives the highest yields of hay. Lespedeza hay contains a high percentage of leaves.

In Illinois only one cutting of lespedeza hay can ordinarily be obtained each year. In the southern third of Illinois where the growing season is longer, occasionally one hay crop and a seed crop can be harvested the same year if the hay is cut in August, preferably early August. In years of excessive growth due to very favorable weather, larger yields of seed are obtained where a hay crop is harvested early.

Because of their fine stems and low water content, lespedeza plants cure rapidly; and because of the extreme thickness of a good stand, hay yields are greater in proportion to the height of the plants than they are with most forage crops.

Seed harvested with combine. Most of the lespedeza seed in Illinois is harvested with a combine. The field can be mowed and raked with a side-delivery rake and then threshed with a combine.

Korean lespedeza can be conveniently harvested with a combine-harvester. The pick-up attachment on the combine takes up practically all the lespedeza windrowed with the side-delivery rake. The straw may be baled and used for forage.
having a "pick-up" attachment, or combined without mowing just before the seed begins to shatter.

Under conditions favorable to heavy growth of lespedeza, seed yields are frequently higher the first year after seeding than the second year, because of the heavy, thick growth resulting from self-seeding.

PESTS OF LESPEDEZA

Weeds Are Worst Enemy

Of the few pests of lespedeza, weeds are the most important. They are found in poor stands, in seedlings on foul land, and wherever impure seed has been used.

Early seedlings at the rate of 20 to 25 pounds an acre have fewer weeds than seedings planted later and at a thinner rate. Self-seeded stands, because they are heavy and early, are usually much more free of weeds than original seedings.

Dodder is probably the worst weed pest of lespedeza. It is a plant

Clipping lespedeza to control weeds is usually necessary whether the crop is used for seed, hay, or pasture. This clipped field produced a seed crop containing very few weed seeds.
parasite which starts from seed, and after attaching itself to the lespedeza releases itself from the soil and continues to draw its nourishment from the host plant. Fields of lespedeza badly infested with dodder are not only worthless but are a source of trouble for many years because the dodder seed remains viable in the soil for a long time. If clover or lespedeza is brought back, dodder will again give trouble.

It is very difficult to separate dodder seed from lespedeza seed. According to the Illinois seed law, badly infested seed is not salable in the state. Lespedeza hay containing dodder does not find a ready market, as the dodder plants will cause new infestations where the hay is fed.

Dodder is a southern weed and gives the greatest trouble in the southern half of Illinois. The farther south the seed or hay is grown, the more dodder it is likely to contain unless special care is taken to keep the fields free from it.

Mowing and burning of dodder-infested areas is recommended. A blow torch is sometimes used to eradicate small scattered spots of it. Where this pest has not yet gained a foothold, much trouble can be prevented if the grower will refuse to buy infested seed or hay.

Grape Colaspis Damages Corn Following Lespedeza¹

Little direct damage to lespedeza is done by insects, altho grasshoppers, leaf hoppers, and webworms feed on it. But it harbors the larvae of the grape colaspis (Colaspis brunnea (F.)), which damages corn planted where lespedeza has grown for two or three years.

Adults of the colaspis lay their eggs in fields of lespedeza during early fall, and these eggs hatch into larvae which overwinter in the soil among the roots of dead plants. If the lespedeza is left on the field the following year, these larvae will continue on the roots of the plants in the spring but will do little damage. Reaching the adult (beetle) stage during the summer, they will deposit their eggs in the fall. The eggs hatch into larvae which stay over winter on the land, and another cycle is completed. In two or three years a big population of colaspis will be built up in the soil. Corn planted on such soil is likely to be severely injured during May.

There are three methods to use in preventing grape-colaspis damage to corn following lespedeza: (1) grow lespedeza or any other legume on the same land only one year in the rotation, (2) plow the field in March or early April and then delay corn planting until somewhat

¹This section was contributed by J. H. Bigger, Associate Entomologist, and M. D. Farrar, Research Entomologist, Illinois State Natural History Survey.
Grape colaspis, an insect that often develops in large numbers in fields of lespedeza, will stunt the growth of the corn that follows lespedeza. At the left is a young corn plant in an infested field. At the right is another plant of the same age and variety grown where this insect was not abundant.

beyond the usual date, and (3) make sure the soil is well supplied with available phosphorus.

**LESPEDEZA ALMOST DISEASE-FREE**

Lespedeza is not seriously damaged by disease in Illinois. When there is continued wet weather in the spring, a fungus disease known as "damping-off" may attack and kill the growing seedlings, thereby causing a poor or uneven stand. In pot cultures in the greenhouse Korean has been much more susceptible to this disease than have the other annual varieties.

A leaf-spot disease of lespedeza has been observed but not studied intensively. This disease is more prevalent among Common, Tennessee 76, and Kobe than in Korean and Sericea.

Early Korean 19604 is sometimes affected by a bacterial disease which reduces the yield.

An occasional yellowing of Sericea plants is observed but the cause is not definitely known.

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1These statements on diseases of lespedeza were contributed by Benjamin Koehler, Chief in Crop Pathology, Illinois Agricultural Experiment Station.
LESPEDEZA has an important place in Illinois agriculture. Its widest use is as a pasture crop, seeded either alone or in mixtures. It makes a hay that compares favorably with alfalfa. It serves as a green-manure crop and provides good protection against soil erosion. But most important is its ability to produce a good stand where other legumes do not grow successfully.

Where lespedeza is grown for the first time, the seed must be thoroughly inoculated, and even on land where the crop was grown previously, this is good insurance. The crop responds favorably to good seedbed preparation, correct time and rate of seeding, clipping for weed control, and other good cultural practices. Altho lespedeza grows on poor soils, it is at its best on soils of high productivity.

Lespedeza is best adapted to the southern half of Illinois, but there is no part of the state where some variety will not do well.