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SP435B Establishing Alfalfa the No-Till Way

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Establishing Alfalfa the No-Till Way

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Soil erosion is sometimes a problem when a conventional seedbed has been prepared for seeding alfalfa on sloping land. No-till seeding of alfalfa can help prevent erosion, as well as conserve moisture, decrease water runoff and save time and labor. The cost of establishment is usually less for no-till, because chemical costs are lower than the cost of preparing a conventional seedbed. Successful no-till establishment of alfalfa depends on following all of the recommended steps.

Get Ready for No-Till

The most important aspect of no-till seeding is the preparation. The objective is to create an environment in which the alfalfa seedlings can grow and become established as rapidly as possible. This will ensure a good stand of alfalfa that will be productive for many years.

Steps for no-till alfalfa establishment:
1. Select a proper site for establishment.
2. Apply lime and fertilizer according to soil test recommendations.
3. Remove heavy thatch and plant growth by grazing or mowing.
4. Kill existing vegetation prior to seeding.
5. Plant the seed 1/2 inch deep in moist soil.
6. Apply an insecticide to prevent insect damage to seedlings.

Since the life of an alfalfa stand depends partially on the initial stand density, it is important to seed alfalfa into a suitable environment. The steps to no-till alfalfa establishment are described in greater detail in this publication.

1. SELECT A PROPER SITE FOR ESTABLISHMENT. Alfalfa does not tolerate poor drainage, but grows best on a deep, well-drained soil. Good drainage is essential for avoiding weed invasion and root diseases, and prolonging the life of the stand. It is also important that alfalfa not be planted into an old stand of alfalfa. Mature alfalfa plants secrete chemicals that prevent alfalfa seeds from germinating and becoming established. A field should be out of alfalfa for at least onr year before re-establishment. A new stand of alfalfa less than one year old can be reseeded to thicken thin stands or bare areas. It is essential that the stand be less than one year old.

2. APPLY LIME AND FERTILIZER ACCORDING TO SOIL TEST RECOMMENDATIONS. Phosphate and potash levels should be in the medium to high range before planting. Soil pH should be 6.5 to 7.0. If soil pH is 6.0 or lower, delay seeding until a soil test indicates a pH of 6.5 or higher. Lime and fertilizer can be applied in fall or spring. Uniform distribution of these over the field is important.

3. REMOVE HEAVY THATCH AND TALL PLANT GROWTH BY GRAZING OR MOWING. Removal of tall growth is necessary to have adequate light for seed germination and early growth of the alfalfa seedlings.

4. KILL EXISTING VEGETATION PRIOR TO SEEDING. This will remove competition for light, water and nutrients between alfalfa seedlings and other plants. The methods and chemicals needed are determined by the vegetation present.

A. To seed into a pasture or hay field of fescue or orchardgrass:

It has proven difficult to kill all of the perennial plants in old pastures and hay fields prior to no-tilling alfalfa. The best results have generally occurred when an annual summer or winter crop is used prior to alfalfa, which allows more time for perennial weeds to be killed.

1. Where broadleaf weeds are present, *use 1 lb. of 2,4-D (1 quart low-volatile ester) per acre, or 1 to 2 pints of Banvel per acre to remove the hard-to-kill broadleaf weeds and clover. The 2,4-D applications should be made six weeks to two months before seeding to prevent damage to the alfalfa seedlings. It is best to apply Banvel in the spring before fall seeding or in the fall before spring seeding, due to the long residual effect of Banvel. To avoid crop injury, delay planting for 20 days for each pint per acre of Banvel used. Banvel can be applied in the fall (September) and the fescue can be grazed in October or November. When the fescue regrowth has reached 2 to 3 inches, apply 1.5 pints per acre Gramoxone Extra. The alfalfa can be seeded in the spring. When weed growth is present at seeding time in spring, apply 1 pint per acre Gramoxone Extra and surfactant.*

2. For fescue alone up to 4 inches tall, *use two applications of Gramoxone Extra at 1.0 pt. per acre, 10 to 14 days apart. This has provided better control than a single application of 2.0 pints. It is generally easier to kill fescue in fall than in spring. The fescue must be green to be killed by Gramoxone Extra. For best results, the fescue should be 2 to 4 inches tall. Use 1 to 2 qts. of non-ionic surfactant per 100 gallons of spray mixture and apply in 20 to 40 gallons of water per acre. Flat fan spray tips are recommended.*

3. For orchardgrass up to 4 inches tall, *apply 1.5 pints per acre Gramoxone Extra for first application and follow by an additional 1.0 pint per acre application about 10 to 14 days later. Orchardgrass is more difficult to control than fescue; therefore, extra care should be used to ensure excellent spray coverage. Use 1 to 2 quarts of non-ionic surfactant per 100 gallons of spray mixture.*

4. Roundup may be substituted for the 2,4-D and Banvel for the control of broadleaf weeds. *Roundup can be used to kill broadleaf weeds and clovers, and assist with the control of perennial grasses which are actively growing at the time of spraying. When using only one spray application with Roundup, 3 to 5 quarts per acre are usually needed to control pasture sods in the spring. University of Tennessee research has shown that the 1-quart rate of Roundup plus a follow-up spray with 1 pint per acre of Gramoxone Extra gives satisfactory control of most weeds in the fall.*

B. Seeding into wheat or rye:

1. For small grains grazed in the spring *- When the wheat or rye is 4 to 6 inches tall, it should be sprayed with 1.5 pints per acre Gramoxone Extra and surfactant, followed by another application of 1.0 pint Gramoxone Extra plus surfactant in 14 days if green vegetation is present. When the small grain is above 6 inches tall (jointing) in spring, remove the tall growth by grazing or mowing. Let the forage regrow to 3 to 4 inches and spray with 1.5 pints per acre Gramoxone Extra plus surfactant. Seed the alfalfa immediately. If the small grain kill is not complete, use a rotary mower to remove the tall growth that might shade the alfalfa.*

2. If wheat or rye is harvested for hay or silage in late April *- Apply 1.0 to 1.5 pints per acre Gramoxone Extra plus surfactant after wheat or rye shows green regrowth. Seed the alfalfa immediately. Use the higher rate when a thick stand is present.*

C. Seeding into summer annual:

1. Seeding in the spring *- Use 1.5 pints per acre Gramoxone Extra plus surfactant to kill green weeds, followed by alfalfa seeding.*

2. Seeding in the fall *- Use one application of 1.0 to 1.5 pints per acre Gramoxone Extra plus surfactant, followed by alfalfa seeding. Use the higher rate when a thick stand of weeds is present. Where alfalfa is to be seeded following corn, short residual herbicides such as Sutan, 2,4-D, Basagran, Lasso or Dual should be used for weed control in corn to prevent damage to the alfalfa by herbicide residues.*

5. PLANT THE SEED 1/2 INCH DEEP IN MOIST SOIL. The seed must be placed in the soil and covered, no deeper than 1/2 inch. If the seed are planted too deep, then seedling emergence from the soil will be poor. There are several no-till drills available which meter the alfalfa seed and place them at the 1/4 to 1/2 inch depth. Most no-till drills will also plant wheat, grain sorghum, soybeans and sorghum-sudangrass hybrids. Some of the desirable features are:

A. A rolling coulter or disk opener to cut through sod or mulch.
B. Single or double-disk furrow openers for proper placement of the seed in the soil.
C. Easy and accurate seeding rate adjustments and charts for the different crops.
D. Narrow press wheels (approximately 1 inch wide) to firm the soils around the seed.
E. Seeders which are heavy enough to penetrate the soil and are built sturdy enough for no-till operating conditions

6. APPLY AN INSECTICIDE TO PREVENT INSECT DAMAGE TO SEEDLINGS. Generally, there are more insects present in killed pasture or hay sods than in row crop stubble. There are also more insects in fall-planted sods than in spring-planted sods. One exception might be if spring armyworms are present in small grain used for hay or silage. **15G Furadan granules are no longer labeled for in-furrow application.** The only insecticides available are broadcast insecticides. The University of Tennessee recommends application of 1 quart per acre Furadan 4F in 20 to 30 gallons of water per acre applied at planting.

7. OTHER IMPORTANT ITEMS:

A. Plant August 15 to September 30 or March 1 to April 30. Later planting in the spring has been successful with no-till compared to alfalfa seeded on prepared seedbeds.
B. Use 15 to 20 pounds of **inoculated** seed per acre of a recommended variety. The recommended varieties are: Aggressor, Alfagraze, Belmont, Chief, Cimarron VR, Garst 636, Legacy, Pioneer 5432 and N.K. Multiking I.
C. Plant only in a moist seedbed. With dry soil conditions, most no-till planters will not make an adequate furrow or cover the seed. With dry conditions, seed germination and seedling survival will be poor, and the inoculant could be killed.
D. Three to five pounds of orchardgrass may be added to the alfalfa. In most cases, it is desirable to wait until after the first year to put in orchardgrass, because of grass problems with new seedings which need to be controlled with chemicals (Poast Plus). When a mulch is present where alfalfa is no-tilled, orchardgrass isn't needed for erosion control.
E. Plant in 8-inch or narrower rows. Cross drilling has shown only small stand increases, but may be advisable where tracking is difficult with some no-till drills.
F. Kerb herbicide may be used in late fall for chickweed and annual grass control in fall seedings. Kerb *will not* control henbit or deadnettle. Use 1.5 to 2.0 lbs. of the 50 percent wettable powder per acre. Kerb will kill orchardgrass. Do not apply until temperature drops below 50 F. In **dormant** fall seedings, Gramoxone Extra may be used at 0.4 to 1.0 pint per acre for control of chickweed and henbit, and suppression of deadnettle, bluegrass and other weeds. Application to alfalfa that is not dormant or has broken dormancy may result in stand and/or yield reductions.

G. Use 2,4-DB (Butyrac 200) for control of most of the annual broadleaf weeds. The 2,4-DB *will not control chickweed, henbit* or *deadnettle*. It controls turnips, thistles and buttercups. In spring seedings, ragweed, lambsquarters and pigweed are controlled, along with most of the warm-season broadleaf weeds. Use 3.5 to 5.0 pints of formulation per acre. Do not harvest for 60 days after application on seedling alfalfa. The waiting period is 30 days after the new seeding has been cut once for hay or silage.

H. Be prepared to use Poast Plus herbicide for control of johnsongrass and annual grasses as well as suppression of re-growth from fescue or orchardgrass in most spring seedings and some fall seedings. Apply 1.5 pint per acre Poast Plus with two pints per acre of crop oil concentrate to control crabgrass, goosegrass and other annual grasses 2 to 3 inches tall. Use the 2.25 pint per acre of Poast Plus with two pints per acre of crop oil concentrate to control johnsongrass and volunteer small grains, and for the best suppression of fescue and orchardgrass. Two applications may be needed to control the perennial grasses. Do not graze treated alfalfa for seven days following application. Do not harvest for hay for 14 days after application.

For more information on weed control in alfalfa, see Extension PB 1521 "**Hay Crop and Pasture Weed Management**."

Precautionary Statement

To protect people and the environment, pesticides should be used safely. This is everyone's responsibility, especially the user. Read and follow label directions carefully before you buy, mix apply, store or dispose of a pesticide. According to laws regulating pesticides, they must be used only as directed by the label.

Pesticides recommended in this publication were registered for the prescribed uses when printed. Pesticide registrations are continuously being reviewed. Should registration of a recommended pesticide be canceled, it would no longer be recommended by The University of Tennessee.

Use of trade or brand names in this publication is for clarity and information; it does not imply approval of the product to the exclusion of others which may be of similar, suitable composition, nor does it guarantee or warrant the standard of the product.

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