

## NO-TILL SEEDING OF ALFALFA, TALL FESCUE, AND OTHER FORAGES

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No-till alfalfa establishment continues to be widely accepted and successful. Surveys made in recent years have shown that there are more than 300 hundred no-till drills available in Virginia and more than 9,000 acres successfully established in 1984. This represents an estimated 45% of the alfalfa planted in the state was established with no-till practices. Recommendations for successful establishment have been presented frequently but we must realize that farmers need to know the importance of following these recommendations to the last detail. Additionally, there are some new twists or modifications that can extend the usefulness of current no-till alfalfa establishment procedures. New areas include late-season planting for establishment of alfalfa after removing corn for silage, fall suppression of grasses for early spring planting, and surface applied lime for correcting low pH soils.

*Keep up the good work.* We are fortunate in Virginia that personnel in a wide range of agencies are telling the same story and are acquainted with the basic principles of no-till establishment of forages. When talking with producers who are interested in beginning to use no-till forage establishment or working with those who already have had experience, we must continually impress on them the importance of following necessary procedures. Extension publication No. 18-007 regarding "So-till Seeding of Forage Grasses and Legumes" is an excellent reference to obtain procedures. I want to emphasize two things where we must be very aware of possible problems. One involves planning ahead in selecting the field for planting. Weeds are a very critical problem dealing with alfalfa production whether for conventional or no-till plantings. Making an effort to clean a field of weeds in the year or two before planting alfalfa will be very helpful. If selecting a field that is in sod or an old hay area, you will most likely have weed problems when sod kill and planting is attempted in the spring. For example, you must wait long enough before the first paraquat application for greenup then two to three weeks for a second paraquat application which delays planting until late in April which allows summer annual weeds to be very competitive. Your best recommendation in this situation maybe to plant a summer smother crop of millet, sorghum sudan, or soybeans which can be removed for hay in early August before a late August. Alternatively, a summer hay crop could be removed in late July with a split paraquat application being made in August and plant in late August.

A second critical emphasis that we need to stress concerns the amount of old dead residue remaining on the surface. Farmers are tempted to plant into areas that have far too much accumulation of old accumulated growth. This creates a problem in planting and competition for the germinated seedlings. Ideally, sod should be grazed or cut very close with a two-inch or less stubble height so that about 50% of the land area is visible.

*Late fall suppression with early March planting.* As mentioned above, old hay fields or pastures often have weedy problems if all establishment operations are conducted in the spring. We have found excellent results by suppressing the sod with chemicals in the fall before seeding the following March. Proper herbicides should be used in late September to kill broadleaf weeds. Graze the area or make hay so that growth accumulation is minimal by mid to late October. In early November apply two pints paraquat per acre. If there is considerable greenup of grass in late November or early December, you might consider application of one additional pint of paraquat. Then in late February or very early March apply one pint paraquat and make the alfalfa no-till planting. This procedure suppresses the original sod and winter helps to do an additional kill.

Alfalfa is planted early and has good growth for competition with weeds before the warm summer months.

*Planting after removing corn for silage.* Our tests at Blacksburg have shown that no-till alfalfa can be planted successfully three to four weeks later than can be recommended for conventional alfalfa establishment. In most of the state we are not able to harvest silage, prepare a conventional seedbed, and have time for a conventional establishment to be successful. However, with no-till, the planting can be made very soon after removing corn for silage with the firm soil causing rapid germination and firm anchoring of the seedlings during the winter to avoid heaving and plant damage. You must plan ahead and use a herbicide problem that has no toxic carryover and have a corn seedbed that is level enough to be used for a hay field in the future years. Immediately after removing the silage, spray with one pint per acre paraquat and plant the alfalfa.

*Surface applied lime for no-till alfalfa.* Current recommendations often specify that pH for alfalfa should be 6.5 or above. Generally if pH is between 6.0 to 6.5 we recommend application of lime before plowing to incorporate the lime. If the pH is less than 6.0 then lime should be incorporated and crop grown on the area before planting alfalfa. I still think this is the ideal recommendation where the land is suitable for plowing. This however limits alfalfa production and excludes many areas that will grow alfalfa yet can not be successfully plowed.

We are told that 80% of the nitrogen that is fixed by alfalfa occurs in the top two inches. The primary reason for having a pH of 6.5 or above is to favor the nitrogen fixation by bacteria. This means that the most important region of the soil to have a modified pH is the top two inches. We know that alfalfa roots, if supplied nitrogen from bacteria, can penetrate deep into soil that has pH of less than 5.5, otherwise, alfalfa rooting and water utilization would be limited to only the plow layer in most fields. This is not the case, since we have deep penetration of alfalfa roots into acidic soils. Our research indicates that we can apply lime to the surface of soils with pH as low as 5.0 and expect excellent yields. Current lime recommendations are based on uniform distribution of the lime through the plowed layer. With surface application we may be able to use a different basis for recommendation. If a field needs lime (pH of less than 6.5) then add lime as recommended but never more than 2 ton per acre. For economical reasons such as cost of spreading, why put out less than 2 ton per acre for a valuable perennial crop like alfalfa. So it about comes down to a decision of whether to add lime. If we decide to add lime, then go with 2 ton per acre.