

## **Is It Time to Think about Renovating or Planting a New Pasture or Hay Field? Part II: Planning to Planting**

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In Part I, I covered testing the soil in the field in which you plan to establish a new pasture or plan to do a total renovation and species selection. Depending on how close you are to planting and whether you will be working the soil or planting using a no-till drill, it's probably time to recheck soil pH and fertility levels in the field to be planted or renovated. The final soil test should be taken approximately 6 to 9 months after the earlier limestone application. This should be enough time for previously applied lime to react with both the active acidity (hydrogen ions in soil solution) and the reserve acidity (hydrogen and aluminum ions on the clay and organic matter cation exchange sites) and the soil pH to be reaching an equilibrium state. In this way if another smaller application of limestone is needed to move the soil pH slightly higher, the lime can be applied and worked in the soil, assuming some type of tillage for incorporation of the limestone. In no-till situations, the process of adjusting the soil pH takes much longer and should be started as much as two or three years in advance of seeding or renovation since lime moves downward through the soil at about one inch per year.

Now that the soil fertility requirements have been completed, it's on to the planning and planting process. One of the biggest challenges these days, especially if you have a small number of acres in the field, is finding someone with equipment the right size to fit the field and a willingness to do the job in a timely fashion. Of course even if you're lucky enough to find the equipment and operator, cost is going to be a critical factor when making the decisions of what parts of the plan are actually doable. Another factor that has become more of a challenge in recent years is the availability of forage seed of the selected species and variety. Many forage seed production fields have been converted to row crop production and in some locations restrictions on burning seed production fields have allowed disease issues such as 'choke' to reduce forage seed yield potential.

In planning the whole procedure, your time will be a valuable asset. With high prices, limited seed supplied, and challenges in finding equipment and help to fertilize, lime, control weeds, and plant seeds, the time you take to shop around should pay big benefits. July and August are the time to do these chores since the fall planting season is right around the corner.

For planting date, forage agronomists often list from mid-August through September as being the time to plant as long as soil moisture is adequate. Soil moisture for many hay producers and grazers in the state and region really will be at critically low levels for much of August. This can extend late into September due to the drought and hot weather conditions we usually experience during July and August. With all our pre-planning and planning activities, the final decision on when to plant and even whether to plant on time will be determined by the weather conditions during August and September. You may be tempted to plant as soon as the field receives the

first rainfall in the planting window but you should keep in mind that if the deeper layers of soil are deficient in moisture the new planting will likely fail if fall turns dry. Use a shovel or your soil probe to test the soil for moisture at the 6 to 12 inch depth. If the field hasn't received enough rainfall to supply this soil depth with at least some water, a new planting will be very much at risk if rain events do not continue from planting until winter dormancy takes hold. Only you know the amount of risk you are willing to take to establish the new seeding this season and none of us know what the future weather will be.

What if enough rain to supply water to the deeper soil layers doesn't fall until very late in September? Certain species, such as low alkaloid reed canary grass, require a specific amount of time between planting and first frost (six weeks minimum for reed canary grass) but almost all species will not only yield less the following year but take a lot more time to reach full establishment if planted late. Again, the hay producer or grazer must evaluate the amount of risk they are willing to take on when deciding to plant after September.

You should maintain frequent contact with your fertilizer/lime dealer, seed dealer, equipment supplier, and others who will be helping you with the process of planting the new pasture or hay field. If you will be using equipment provided through the county conservation districts, be sure to get your name on the list as early as possible since many folks may want to seed about the same time when moisture conditions become favorable.

What's the best means of seeding fields, no-till or conventional tillage (a prepared, weed-free, firm seedbed)? As with any choice, there are advantages and disadvantages to each method. Both seeding methods allow for weed control activities before seeding but no-till is limited only to herbicide applications. Whenever deciding on an herbicide to use, read the label carefully to be sure there are no rotation restrictions of what can be seeded following the herbicide application or how many days or months must separate the application and seeding activities. Also use the label to determine if a single application will be all that is needed or whether you will need follow-up applications and if you will at what stage of growth must the new seedlings reach before the next application is applied. This latter concern is especially important for perennial and hard to kill weeds such as hemp dogbane, Canada thistle, horsenettle, and others.

No-till drills must be calibrated properly to deliver the correct amount of seed per acre as well as be set to place the seed at the correct seeding depth with adequate soil to seed contact for fast germination and emergence. Never assume that the last person to use the drill set it up properly for your seeding. When you spend a hundred or more dollars per acre just for seed, you need to be sure the seed is being planted as best as possible to ensure a successful establishment. No-till drills also place the seed in rows usually from 7 to 10 inches apart so it often is useful to cover the seeded area in two directions making a cross hatch pattern over the field to help the plants fill in the space quicker. Billion seeders that broadcast seed over a prepared seedbed and then press the seed into the soil have the advantage of achieving canopy closure much sooner than no-till seeding.

Canopy closure is when the new plants get large enough that they are able to shade the underlying soil and therefore reduce the ability of weeds from germinating and establishing in

the field. Fields seeded with no-till drills can be many years (if ever) filling in so that a full canopy exists during normal grazing activity. This is one disadvantage to the no-till drill although it is offset by the soil conservation advantage of no-till when a field has enough slope to allow significant water erosion or enough exposure to allow wind erosion problems if the weather turns dry again.

Which method is best? Since each has both advantages and disadvantages, it will depend on your situation. No-till helps conserve the soil in situations where soil can be lost; it reduces moisture loss since the soil is not disturbed; it doesn't encourage new weed growth since buried weed seeds are brought to the surface; it does not introduce oxygen into the soil causing the soil organic matter to be reduced via oxidation; and when done correctly it ensures rapid germination and emergence since seeds are placed in the soil and soil is firmed around the seeds. From the negative side, no-till does not allow nutrients and lime to be worked into the soil profile; no-till does not help break up compaction issues from previous grazing or haying equipment use; and no-till seeding is often in rows that can be seen for years in some cases.

Conventional tillage does allow nutrients and lime to be incorporated in the soil; it allows tillage during the summer to help with weed control issues; it allows for the summer establishment of annual smother crops for weed control and to introduce organic matter into the soil; it allows you to rip fields to help alleviate compaction issues; and it allows seed to be broadcast to ensure rapid canopy closure. Some of the disadvantages include the loss of soil moisture during the tillage operation as well as the loss of soil organic matter during tillage. The above lists of advantages and disadvantages are not meant to be exhaustive but to point to some of the important factors you should consider when deciding on seeding method.