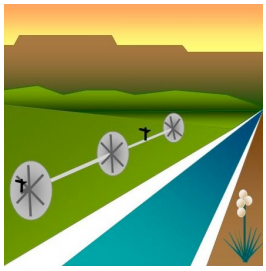

Hammond Conservancy District
August 2008 Newsletter

Fact Sheet:
Late Summer Planting of Alfalfa

There are several reasons why August may be the best month for planting new alfalfa in the Hammond Conservancy District (HCD). August is the first full month of our so-called "monsoon season" when average monthly precipitation (September and October included) exceeds 1 inch (NMSU Agricultural Science Center - http://cahe.nmsu.edu/pubs/research/weather_climate/RR756.pdf).

Unlike in spring, when intermittent low pressure weather fronts create drying winds and extremely variable day to day weather conditions, August is one of the calmest and most humid months of the year and provides the high temperatures required for rapid seed germination. If the field to be planted has been cultivated and kept free of weeds during the summer, weed pressure on the August alfalfa planting is much less problematic than in a spring planting. One of the primary concerns when planting alfalfa in late summer is winterkill of the new seedlings before they are sufficiently established. To minimize this risk, seeding and initial irrigation should occur 6 weeks before the first anticipated freeze. The average date of the first fall freeze (32^{o}F or less) at NMSU's Agricultural Science Center (ASC) on the bluffs southwest of Farmington is October 14. Therefore, alfalfa is usually planted and irrigated before September 1 at that site. Down in the river valleys, the average date of the first fall freeze can vary considerably from site to site due to air movement patterns created by the uneven topography. The latest safe planting date for alfalfa should be based on the landowner's experience and past observations and, of course, the level of acceptable risk.

Numerous publications (including many website references) are available that provide research-based guidance on planting and establishing alfalfa in the Intermountain West including northern New Mexico (http://www.sanjuanweeds.com/FactSheets/AlfalfaProdFS.pdf) and southern Colorado (http://www.ext.colostate.edu/Pubs/crops/00703.html). A few of the major points gleaned from these references are:

- Do not immediately plant new alfalfa into a field that was previously in alfalfa or that still contains alfalfa. Wait at least 6 months after removal of the old alfalfa and insure that no old alfalfa remains in the field before seeding the new alfalfa. It has been common practice to plant a grass or corn crop during the interim. This practice not only takes advantage of the nitrogen (N) that has been fixed in the soil by the previous alfalfa crop but also allows for use of a (non-residual) broadleaf herbicide to control volunteer alfalfa and other broadleaf weeds that may have been a problem in the old alfalfa. It may also help break disease and insect pest cycles that may have affected the previous alfalfa stand.

- Fertilize prior to planting, especially with phosphorus (P) and maybe potassium (K). In new plantings, a small amount of N (i.e. 20 lbs/acre) may also be beneficial until root nodules are formed for N fixation. In fields that have never been planted to alfalfa, Rhizobium-inoculated seed should be used. To determine fertilization rates, soil samples taken well ahead of planting time should be sent to a laboratory for nutrient analyses. If soil samples were not taken, consider this: for each ton of alfalfa produced, 50 to 60 pounds of N, 50 to 60 pounds of K (K_2O) and 10 to 15 pounds of P (P_2O_5) may be removed from the soil. A six ton/acre yield then would remove more than 300 lbs of N and K and more than 60 lbs of P per acre per year. Since alfalfa is a legume, 'fixing' its own N through a relationship between the roots and microorganisms in the soil, N fertilization is usually not required. Also, because adequate levels of K are generally available in most soils of San Juan County, K fertilization may not be required. Phosphorus fertilizer, however, should be applied and incorporated prior to planting since surveys and research has shown it to be the most limiting nutrient to maximum alfalfa production in the soils typical of the HCD.

- In preparation for planting, the field should be plowed, disked, and harrowed but **should not** be overly worked into a powder. The field should be evened out as much as practical, eliminating low depressions (where water can collect) and high spots (which can dry out quickly). A firm (but not compacted) planting bed is essential for good seed/soil contact. If soil moisture is low, a deep (4 to 5 inch) irrigation prior to planting should be beneficial. This will provide a reservoir of soil water that the newly developing alfalfa root system can draw from while becoming established. This deep irrigation should be applied before applying fertilizers and pre-plant herbicides which may otherwise be lost through leaching or runoff.

- Seeding rate should be between 12 and 20 lbs of seed per acre depending on the planting method. Use a lower rate within this range if using a precision drill or roller type planter with a cultipacker (i.e. Brillion) and the higher rate if broadcasting and harrowing. Recommended seeding depths range from ¼ to ½ inch in heavy clay soils to ¾ inch in sandier soils. The goal is to have between 15 and 20 seedlings per square foot emerged after planting. This density will decrease by about half during the first full year.

- Choose a high yielding, pest and disease resistant alfalfa variety. Check these references for varieties that have done well in northern New Mexico and southern Colorado:

    - http://cahe.nmsu.edu/pubs/variety_trials/welcome.html#alfalfa
    - http://cahe.nmsu.edu/aes/farm/projects--results.html (Click on annual progress reports)
    - http://www.colostate.edu/Depts/SoilCrop/extension/CropVar/alfalfa/2006/AlfalfaVarFruita2006.pdf

- http://www.colostate.edu/Depts/SoilCrop/extension/CropVar/alfalfa/1999/yellowjacket99.html

Archer, Archer II, Legend, Megaton 35, and Champ are a few examples of varieties that have yielded well at NMSU's ASC.

- Try to keep the seedbed moist (but not overly wet) until seed germination and seedling emergence by irrigating lightly but frequently. After an adequate stand of small plants is noted, reduce irrigation frequency but irrigate more deeply. Do not over-irrigate during establishment. Too much water encourages diseases such as damping off and root rot and can leach away essential nutrients and applied herbicides from the topsoil. Keep in mind that the alfalfa plant needs not only nutrients and soil moisture for adequate growth but also heat units for rapid establishment. Irrigation water cools the atmosphere, the plant foliage, and the soil and when applied excessively, can retard growth.

Weed Control

Weeds can be the number one cause of poor alfalfa seedling establishment but there are many effective techniques that can be used to control them. With a late summer planting, there is an opportunity to repeatedly irrigate (for weed emergence) and cultivate during the spring and summer prior to planting in August. This technique results in elimination of many residual weed seeds that could potentially germinate with the first irrigation after planting.

Several chemical controls are effective at controlling or reducing weed pressure on newly planted alfalfa. Some herbicides can be applied before planting to inhibit weed seed germination (i.e. Balan, Eptam) or after planting to control weeds that have already emerged (i.e. Poast, Pursuit, Raptor). The method and timing of application is critical and the weeds controlled by each herbicide are variable. Poast, for example, controls grasses only while Raptor controls a variety of grasses and broadleaf weeds.

For more detailed information see:
http://www.sanjuanweeds.com/FactSheets/AlfalfaProdFS.pdf
or…
http://www.sanjuanweeds.com/FactSheets/weedsinalfalfaFS.pdf

Rick Arnold, weed control specialist with NMSU's ASC has found that Raptor, sprayed at a rate of 4 to 6 ounces per acre with 1 pint of crop oil in an ammonium sulfate solution (17 lbs per 100 gals of water) when the new alfalfa is at the 2 to 3 trifoliate leaf stage is effective at controlling weeds in newly seeded alfalfa.

Whatever chemical method is used, be sure to read and follow the label directions. To do otherwise can have undesirable or disastrous effects.

Some other references pertaining to alfalfa establishment and management include:

- Intermountain Alfalfa Management. Univ. California Publ. 3366 (cost) http://anrcatalog.ucdavis.edu/Alfalfa/3366.aspx
- Alfalfa Management Guide - Establishment (free) https://www.agronomy.org/publications/pdfs/alfalfa_guide_establishment.pdf
- Alfalfa Management Guide – After Establishment (free) https://www.crops.org/publications/pdfs/alfalfa_guide_production.pdf

Questions? Comments? Suggestions?
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