

## DAIRY PIPELINE

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Department of Dairy Science

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[www.vtdairy.dasc.vt.edu](http://www.vtdairy.dasc.vt.edu)



“Frost seeding enables producers to improve the quality and yields of their pastures.”

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### FROST SEEDING TO IMPROVE PASTURE QUALITY

Frost seeding is an excellent way to incorporate legumes into a pasture. Preparation for frost seeding starts in the previous growing season.

Pastures that will be frost seeded need to be grazed tight or close during the previous growing season. There must be spots of bare soil showing so that there is soil/seed contact. If there is residue on the soil, it will be difficult for the seed to reach the soil and the young seedlings to grow through the residue.

There are several advantages of frost seeding legumes into grass pasture. Yields are higher with grass-legume mixtures. There will be higher tolerance to drought if a legume with a taproot (e.g. red clover) is seeded into the pasture. Legumes fixate nitrogen which is used for fertilizer in grasses. By incorporating legumes into a grass pasture there will be a major reduction in fertilizer costs because no additional nitrogen is needed. Legumes increase protein concentration in a pasture because the legumes have higher protein levels than grasses. (Teutsch, 2005).

Seed selection is important to insure that the frost seeding generates a stand. Alfalfa does not frost seed and must be drilled into a pasture. Red and white (ladino) clovers work well in frost seeding. Red clover is a key pasture legume because it is easily established with frost seeding. It is a short lived perennial with of a life of 2-3 years. One disadvantage of red clover is that it does not reseed. White clover is well adapted to short, close grazing and produces high quality forage. Another important advantage of white clover is that it re-seeds. Red and white clovers require soil pH levels to 6.0-6.5 levels. Soil testing needs to be done in the fall prior to seeding. Lime may be applied in the fall to bring pH up to desired levels. Fertility levels should be

medium or higher. The seeding rates on a per acre basis are as follows: red cover 8-10 pounds, white clover 1-2 pounds (VA Tech Agronomy Handbook, 2000).

Legume inoculation is critical to the establishment of legumes. Bacteria, called rhizobia, can live in the nodules of legume roots and can fix nitrogen from the air. The bacteria make the nitrogen available for the grasses. It is essential that the seed be inoculated with the proper strain of rhizobia bacteria prior to frost seeding. It is recommended that a type of inoculum be used that contains a sticker (a glue-like material) which makes the bacteria adhere to the seed. Because the inoculum contains living organisms (bacteria), it should be stored in a cool dry place. Additionally, do not purchase inoculum that is past its expiration date. The inoculum should be applied immediately prior to seeding (Pinkerton and Skipper, 1992).

Frost seeding can be done any time that there is freezing and thawing of the ground in your area. Freezing and thawing causes the seed to be incorporated into the soil. As previously mentioned, there must be seed/soil contact for the seed to germinate. The earlier is better. It is recommended that Virginia producers frost seed in February and March.

Frost seeding enables producers to improve the quality and yields of their pastures. In addition, frost seeding red and white clovers into a pasture provide nitrogen for grasses which results in significantly lower fertilizer costs.

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## Upcoming Activities

### 2011 Winter Forage

#### Conferences—Jan 18-20

hosted by VFGC and VCE  
see [www.vtdairy.dasc.vt.edu](http://www.vtdairy.dasc.vt.edu)  
or call 434-292-5331 ext 234  
for more information

### Virginia State Feed Association and Nutritional Management "Cow" College—Feb 16-18

see [www.vtdairy.dasc.vt.edu](http://www.vtdairy.dasc.vt.edu)  
or call for 540-231-4770  
for more information

*If you are a person with a disability and require any auxiliary aids, services or other accommodations for any Extension event, please discuss your accommodation needs with the Extension staff at your local Extension office at least 1 week prior to the event.*

## GIVE HER A REST

We are constantly being cautioned that getting enough rest is key to remaining healthy. The same holds true for cows. Lactating dairy cattle require 12–14 hours of lying time per day for optimal health and productivity. As lying time decreases, production is likely to decline, the lameness rate increases, and overall susceptibility to disease increases.

As discussed in a previous pipeline article, cows should be primarily engaged in one of four activities: eating, milking, drinking, or lying down. Most cows will consistently spend 4.5 hours daily eating and another 0.5 hours drinking. Unfortunately, many dairy cattle also spend a significant amount of time standing. Some standing time is normal, though ideally time spent standing should be limited to 3 to 4 hours per day. However, many cows spend in excess of 6 hours per day standing in alleys or stalls, not including time in the holding pen. Add in 2 to 3 hours per day for milking and very quickly cows resting times decrease below 12 hours per day.

So why are cows standing so much? Often cow comfort is compromised. Either stall dimensions discourage lying or the stall surface is uncomfortable. Stalls that are too short, barriers that prevent lunging, or narrow stalls make lying and rising difficult. As a result, cows spend more time standing or perching in the stalls. Opening stall fronts as much as possible can alleviate many of these problems. A simple cable in front can prevent cows going through the stalls, while still giving enough lunge room. Hard surfaces make cows reluctant to lay. A good rule of thumb is if you drop to your knees in the stall and it's painful, your stall surface is too hard. Maintaining deeper bedding (4"

sawdust, 8" sand) will increase lying times.

Overcrowding and heat stress also increase standing times. Avoid overstocking more than 20% and install the best heat abatement system for your facility. Decreasing time away from stalls is also important. Cows should spend no more than 3 hours per day away from the housing area (includes milking and time in lock-ups). Split the herd into smaller groups for milking to decrease time in the holding area. Scraping the lot and bedding stalls during milking will also minimize amount of time cows are disturbed. If using headlocks, cows should be held for no more than one hour.

I encourage you to take a look at how long your cows really have to rest each day. If it's less than 12 hours, take steps to free up more resting time.

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*For more information on Dairy Extension or to learn about current programs, visit us at VT Dairy —  
Home of the Dairy Extension Program on the web at:  
[www.vtdairy.dasc.vt.edu](http://www.vtdairy.dasc.vt.edu).*

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