

## DAIRY LOAFING LOT ROTATIONAL MANAGEMENT SYSTEM

*Jerry M. Swisher, Jr., Harlan E. White, and Scott B. Carr\**

Virginia dairymen frequently utilize a "loafing lot" to allow cows to get off concrete and on soil for 4-14 hours per day. These areas are usually bare soil and are located outside the free stall barn and away from the feed bunk area. Loafing lots help cows maintain better muscle tone and mobility while reducing stress created by confinement on concrete. Major causes for the 35 percent level of culling cows from Virginia dairy herds each year are foot and leg problems which are often related to the extended time cows spend on concrete with restricted exercise. Also, cows tend to express stronger signs of heat on soil than on concrete. Good managers have an opportunity to capitalize on this increased activity to improve the reproductive performance of the herd. Another benefit is that manure and urine are deposited in the loafing lot rather than in the barn, making it easier and less time consuming to keep the barn area clean.

### Concerns With Existing Loafing Lots

Loafing lots on many of today's dairy farms pose significant environmental and economic concerns. Because of heavy cow traffic and constant use, many loafing lots have no vegetative cover except for weeds growing in patches. When raindrops hit bare soil, erosion results. Soil erosion can cause large quantities of sediment to be deposited in surface waters which lowers water quality. Since dairy loafing lots are a natural collection site for large amounts of manure and urine, surface water runoff from these lots can be a source of nitrogen and phosphorus pollution for nearby above and underground water sources. Runoff from lots can also lead to bacterial contamination (coliforms) of nearby streams.

Weather conditions have a tremendous impact on the effectiveness of loafing lots and cow comfort and health. Bare soil loafing lots in winter and other times of the year are often wet and muddy, conditions that can cause "environmental mastitis" and reproductive infections. Cows standing or lying in wet, muddy conditions present a poor image to the general public who view the dairy farm as the source of the milk they consume. Cows with muddy udders also require time to be washed at milking time.



*Example of muddy loafing lot.*

\*Area Dairy Extension Agent; Extension Agronomist, Virginia Tech; Extension Dairy Scientist, Virginia Tech, respectively



655  
762  
404-  
252  
VPI  
Spec

## Grass Loafing Lots Are An Alternative

Instead of bare soil, the milking herd can have access to loafing areas covered with clean grass. If several paddocks are available so the cows are not on one area for extended periods, grass sod can be maintained. An area designated as a "sacrifice lot" can be used during wet periods or when grass cover is short and likely to be injured by the cows. A system referred to as the "Dairy Loafing Lot Rotational Management System" was demonstrated in an Innovative Best Management Practice Demonstration Project started in 1985 in Augusta County, Virginia, on the Ron and Katy Roudabush dairy farm (Ron-Rou Holsteins). Virginia Cooperative Extension, the Soil Conservation Service, and Headwaters Soil and Water Conservation District cooperated in development of the system.

The system designed for the Roudabush Farm utilizes 10 acres that were formerly a bare soil loafing area on a moderately sloped hillside beside the dairy complex. The area was developed to use three grass paddocks on a rotational basis so cows could lay on grass rather than mud; and to reduce erosion, surface water runoff and improve cow hygiene.

An electric fence divided the 10 acres into 3 paddocks consisting of 2.5, 3 and 3 acres respectively, plus a 1.5 acre sacrifice lot (see below). The sacrifice lot is an area where the herd can be kept when the grass paddocks are extremely wet or when vegetative growth is insufficient. Use of the paddocks during these critical periods would lead to their destruction. The sacrifice area was scraped twice annually to remove the built-up manure.

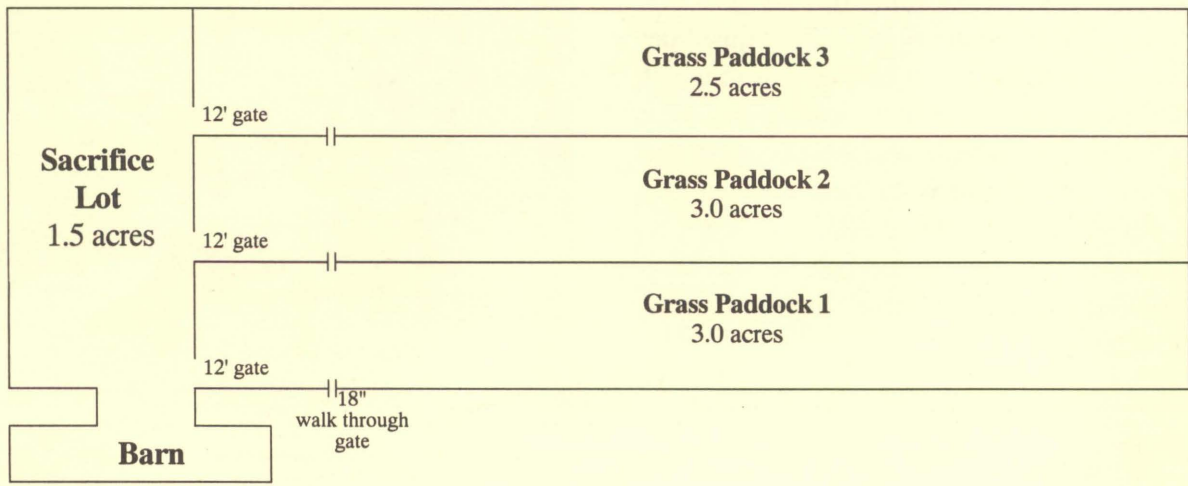
Shown below is a schematic design of the Roudabush Farm loafing lot system.

Since the loafing area was divided into smaller paddocks rather than the previous 10 acre lot, time required to bring cows to the barn for milking was reduced by about 33 percent. The cows' udders were much cleaner which resulted in less time required to clean udders for milking. Observations indicated a reduction of 15 minutes per milking for 50 lactating cows.

Another advantage of grass covered lots is that bare soil areas usually average 8 degrees Fahrenheit hotter during the summer months than grass covered areas. This additional heat is undesirable for cows using bare soil lots and may have a negative effect on milk and fat production as well as reproductive efficiency. Heat stressed cows during summer are a serious problem for Virginia milk producers.



Three grass loafing lots in a rotational system.





## Developing a Dairy Loafing Lot System

Based on experience gained with the Roudabush and other systems, the following guidelines are recommended for planning and establishing a dairy loafing lot system.

- \* The sacrifice lot and grass paddock area should be well drained, no more than 1/4 mile from the barn, and capable of supporting a strong sod.
- \* The area selected should have adequate slope (4-10 percent) for effective surface drainage but should not be so steep that it is unsafe to operate equipment.
- \* A thick, vigorous tall fescue stand should be established which will withstand heavy traffic from dairy cows.
- \* Clean drinking water should be available either at the barn or in the sacrifice area. Watering areas in the paddocks soon become bare soil and are unnecessary.
- \* Shading in each grass paddock is not desirable because shaded areas soon become bare soil. Shade should be accessible in the barn, in the sacrifice area, or portable if located in the grass paddocks.
- \* A minimum of three grass paddocks and a sacrifice lot should be established.

- \* Allow an acre of grass sod in each grass paddock for every 15- 20 cows.
- \* The minimum size for the sacrifice lot is one acre per 50 cows.
- \* The sacrifice lot should be cleaned (scraped) periodically to remove accumulated manure.
- \* An approved electric fence system with 2-5 strands should be adequate.

## Establishing Grass Sods

If sod is to be established on an existing bare-soil loafing lot, the first step is to disk the area with a heavy disk. Disking breaks the compacted surface, smoothes the area, and incorporates manure into the soil. Although soil nutrient levels are usually adequate, sample the soil to determine if pH is adequate and if additional fertilization is necessary. Smooth the surface with a lighter disk. Then with a cultipacker seeder, broadcast 25-30 lbs per acre of endophyte-infected Kentucky 31 tall fescue. If a cultipacker seeder is not available, cultipack the area, broadcast the seed on the soil surface, and follow with the cultipacker a second time.

If loafing lots are being established on existing sods, the 25-30 lbs of Kentucky 31 fescue can be seeded following tilling and preparing the seedbed. Seeding can also be accomplished no-till by grazing or mowing



*Cows loafing on grass sod*



the existing cover as closely as possible, allowing 2-3 inches of regrowth, and applying Gramoxone or Roundup herbicide to kill the plants. When using Gramoxone, apply 1.5 pt. per acre followed in 10-14 days by a second application of 1 pt. per acre. Roundup applied at 2-3 qt. per acre will usually kill most sods. Seeding can be done immediately following the application of Gramoxone. Wait one week before seeding following Roundup application.

Successful seedings in either tilled or no-till seed beds can be made in either late summer (August 15 - October 1) or early spring (March 1 - April 15). Killing the sod in late October and seeding no-till in early spring has advantages. An excellent approach is to kill the sod in late spring after it is grazed or harvested, seed 20 lbs per acre of foxtail (German) millet no-till, harvest the millet for hay after 7-8 weeks of growth, and then seed tall fescue no-till in late summer.

### **Management of the Grass Paddocks**

Management of the grass paddocks involves rotating the lactating herd from one paddock to another or the sacrifice lot depending on condition of the paddocks. During wet periods or times of poor grass cover when the sod is likely to be damaged or destroyed, the cows should be restricted to the sacrifice lot and/or the free stall barn until paddock conditions improve.

Cows on grass paddocks should have ready access to feed and water located in the barn. The cows will show some interest in grazing the lots in spring and late fall. However, it is not the purpose of the grass paddocks to be grazed. If cows are fed a balanced ration, they will actually graze very little tall fescue. Adequate fertilization of the paddocks is provided by manure and urine produced by the cows.

The tall fescue should be mowed periodically to maintain its vegetative growth and sod density. If excess growth is present in any of the paddocks, it can be harvested for hay or grazed by livestock other than the milking herd. The lots can be used to house close-up dry cows, giving the producer an opportunity to observe the animals more closely at calving time. Harvesting hay reduces soil nutrient build-up that is likely to occur after several years.

Weed invasion is likely to occur both during and following establishment. This is especially true if the

loafing lot sods are established in an old loafing area where many weed seeds were present. Many broadleaf weeds can be controlled by mowing. However, some such as horsenettle, thistles, burdock, and chicory are best controlled by spraying with a mixture of Dicamba (0.25- 0.5 lb) plus 2-4,D (0.75- 1.5 lb.) at the rate of 1.0-2.0 qt. per acre. Do not allow the milking herd on the paddocks for seven days after application. (Follow the recommendations on the label.) It may become necessary to overseed with tall fescue if the sod thins out due to heavy use or from damage during wet periods. Overseeding with a no-till drill in late February-early March is recommended to repair or maintain stands.

### **Summary**

The "Dairy Loafing Lot Management System" paddock has been approved as a cost-shared "Best Management Practice" under the Virginia Department of Conservation and Recreation through the Division of Soil and Water Conservation beginning with the 1990 Cost-Share program. Eligible dairymen may receive 75 percent cost-sharing for installing the new system. However, there is a limit of \$7,500 per applicant per year. This program is funded with state and federal monies through local soil and water conservation districts. County Agricultural Stabilization and Conservation Service money may also be used by utilizing a combination of innovative ASCS practices. The ASCS limit is \$3500 per applicant per year.

The "Dairy Loafing Lot Management System" is a simple, common-sense solution to growing concerns about soil erosion, water pollution, herd health, and public impressions associated with bare soil loafing lots. The system is not perfect, nor will it be the same for each farm. While it is not complicated, it does need to be managed properly to accomplish its basic benefits.

### **Disclaimer**

*Commercial Products are named in this publication for informational purposes only. Virginia Cooperative Extension does not endorse these products and does not intend discrimination against other products which also may be suitable.*