



Dairy waste management

TRICAL® TRITICALE MANAGEMENT SYSTEMS

DAIRY WASTE APPLICATION:

One of the most valuable uses for TRICAL® triticale products is as a double crop forage and nitrate nitrogen catch crop for waste management systems. TRICAL® 102, 103BB, 815 and 336 are candidates for this system. Our research has shown that these varieties have the ability to consume up to 300 units of nitrogen.

Primary Uses: TRICAL® 815 and 336 are excellent candidates for double cropping with corn silage while TRICAL® 102 and 103BB are the preferred for grazing and can also be used for silage. These varieties have responded very well to the use of livestock manure and lagoon water to supply part or all of the nutrient needs of the silage crop. These dairy nutrient applications are often made just ahead of planting in the fall and then directly on the growing crop before dormancy break in the spring.

N, P & K management: Nutrient accumulation occurs in the soil when a significant portion of feed for the dairy is imported from off the farm where the manure and lagoon water is applied. That brings in addition N, P & K to the farm in the feed. Since much of these nutrients go out the back of the animal after feeding they accumulate where the manure is applied. The benefit of double crop triticale for this system is two-fold. First, triticale is very efficient at recovering and recycling these nutrients from the soil. Second, and almost more important, double cropping triticale and corn silage can reduce the need to buy feed from off the farm. The key is to balance the amounts of N, P & K applied back to the soil through manure with the amounts extracted by the corn and triticale.

Testing and Monitoring: Test manure and lagoon water for nutrient content so they can be applied at agronomic rates. Also test soil and feed produced to monitor the success of your system. Testing and records not only help to show compliance with written dairy plans, but can also help produce feed of higher quality. By managing nutrient recycling, nitrates can be kept down in the feed and P & K & other nutrients can be managed closer to optimum levels for herd health. This in turn can improve the bottom line of the operation at the same time it can protect your soil and ground water.

Managing Nutrient Content of Lagoon Water: Managing the lagoon for nutrient content will balance the N, P, & K for consistent fertilizer applications. Without proper management N can be lost out of the lagoon, thus making the P & K ratio too high when being applied to the soil. There are aerobic aeration systems for lagoons that minimize N loss. This can preserve N fertilizer value (reducing cost) and better protect the N, P & K balance for application as fertilizer.

Soil Nitrate Management: As the need for dairy waste disposal is relatively constant and the TRICAL® triticale forage growth is somewhat static during the winter, some nitrogen accumulation in the soil profile is bound to occur. The first key is that nitrates can not leach down in the soil profile if the soil is moderately dry. The best way to prevent winter leaching is to have vigorous fall growth to extract the moisture and extend roots deeper. TRICAL® 102, 103BB, 815 and 336 can accomplish this when planted by mid October in the Central Columbia Basin. Adjust timing for other areas accordingly. Then as the triticale breaks dormancy in the spring, nitrate nitrogen consumption increases dramatically. The peak nitrogen accumulation is soon balanced by an explosion of a dense canopy of dark green leaves.

Soil Nitrate Management (continued)

Root growth studies have documented that TRICAL 102 has a greater and deeper root system that keeps fall soil moisture levels in check by capturing and recycling nutrients. TRICAL® 102 roots can pull nitrogen from 6 feet of soil profile in soils with good structural aggregate.

Biomass: TRICAL® 102, and others to a lesser degree, put an amazing amount of organic matter back into the soil simply because they have an immense amount of roots that will decompose and provide food sources for beneficial micro-flora. These root channels also provide enhanced water percolation into the soil for future crops.

Management Tips:

Planting: Plant winter triticale in the fall, typically after silage corn. Plant triticale into a well prepared seed bed approximately one inch into good moisture. The triticale should be well tillered and have an extensive secondary root system before the temperatures in the winter falls below freezing.

Starting Fertilizer: Starter fertilizer can actually increase the ability of your triticale crop to extract nitrogen from the soil by producing a more vigorous seedling.

Nitrate Nitrogen levels in forage: Avoid grazing the forage immediately after the application of commercial fertilizer or manure. Nitrate nitrogen levels are typically high immediately after application. They will decrease quickly as the plant accumulates biomass and converts the nitrogen into protein. Nitrate nitrogen levels are easily tested. Levels below 1000 parts per million are safe for animals to consume. While excessive nitrate levels are rare, **always test for nitrates before feeding.**

Success Tips:

For optimal utility of this system, more than one field is needed for larger application needs. By alternating the applications between several sites, the triticale plants have a better chance to fully reconstitute the waste into a usable feed source.

A simple monitoring technique to measure the utility of this system, and address DOE issues, is to have a base line nitrogen reading before the first application of manure and then continue to test periodically to avoid nitrogen accumulation in the field.

Additional information is also available from WSU Grant/Adams Cooperative Extension Service at, <http://www.grant-adams.wsu.edu/>.

Your conservation district dairy specialist can also be a resource.