

## Winter Feed Supplies

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As winter approaches and we are starting to get an idea on our winter-feed supplies and the number of animals we want to keep into next year, it is a good time to assess the quality and amount of forages that will be needed. For many, corn and purchased hay can be a reasonable option, depending on local availability. For others, there is still time to use stockpiled pasture or hay fields, and plant turnips and winter rye for fall and winter grazing.

Stockpiling fescue and orchard grass will cost the least money and require the least effort to extend forage supplies. Initiating the stockpiling (make the last clip or grazing) can be anytime through September. As a rule of thumb, the earlier you start (don't start before the middle of July), the more you will have, but the lower the quality. The opposite is also true: the later you start, the higher the quality, but a lower yield. The addition of 50 pounds of nitrogen when stockpiling begins will result in a 1000-2000 pound increase in yields. The only exception to this rule is where substantial amounts of clover are in the stand. Research shows little response to N application where the stand consists of more than 40% red clover.

The final results of stockpiling will be up to two tons of dry matter per acre, which will be available November through February with limited snowfall. Quality can slowly drop after Thanksgiving then a little faster through February, but will usually be still good enough for a brood cow or ewe in good condition. Research indicates that orchard grass protein can remain 12% into February, but yields will fall off rapidly after prolonged cold temperatures, but fescue yields will hold up better.

Turnips and other brassicas are also options to extend the grazing season. Most turnip cultivars need to be planted from mid July through early August. Although it is starting to get late to plant turnips, the cultivar that will do the best when planted late is our garden type purple top turnip. Most cultivars need 60 days to reach maximum quality and 90 days to reach maximum yield. In studies in Iowa purple top turnips reached maturity almost two weeks prior to other cultivars.

Several producers have mentioned how well turnips work when they are planning to renovate a field, because they can get an extra crop of turnips in the winter, prior to spring planting. Some have even broadcasted wheat or winter rye in October and has a crop the next spring. Researchers in Illinois have demonstrated that turnips, oats and winter rye can be successfully broadcasted over standing crops such as soybeans prior to harvest for winter grazing.

To get a good crop of turnips, all you need is two pounds of seed per acre, fifty pounds of nitrogen, seed to soil contact, and rain to get the crop started. No-till and conventional seed beds both work. This is a crop that can produce 10,000 pounds of dry matter in ninety days with tops around 16% protein and bulbs around 9%. Brassicas are very low in fiber, so consider supplementing hay or stockpiled forages to improve utilization. The crop should remain available to livestock until temperatures fall below 15 degrees.

Winter rye is another option that can produce a high quality crop for grazing in December and March. What makes this an attractive option is that it is very high in quality and is the first to green up in the spring. This is a good option for livestock with high nutritional needs such as overwintering stocker calves. Winter rye can be planted from the middle of August through the middle of September at 90-

100 pounds of seed per acre. When rye is 2-4 inches tall, 50-75 pounds of nitrogen will stimulate growth and additional applications in early March will increase production.

Any of these crops can stretch feed supplies and keep costs down, especially when stripped grazed with an electric fence.

### **Closer Look at Rye Planting**

Grazing rye and other winter annuals provides a high-quality forage alternative to traditional winter-feeding programs that rely heavily on stored forages. Rye varieties developed for high forage yield allow valuable grazing time in late fall and early winter and again in early spring. Rye pastures in combination with stockpiled perennial pastures can reduce reliance on high-cost stored feeds. The time of rye seeding, variety selection, site selection, and grazing management are critically important for successful implementation of this program. Use of winter rye is most appropriate for classes of livestock with high nutritional needs. Top-grazing rye in late fall and early winter and rotationally grazing in early spring offer the greatest advantages.

### **Why Rye?**

Livestock farms in the Midwestern United States generally have excess available pasture for grazing three months of the year, moderate amounts for another five months, and a deficit the remaining four months. The available pasture deficit is usually overcome with the use of conserved (stored) feed, primarily in the form of hay; however, the cost associated with use of conserved feed usually comprises a substantial share of the total livestock-enterprise expense. Extending the grazing season can reduce reliance on costly stored forages and improve the profitability of livestock operations.

Winter rye is a cool-season, annual cereal grain that can be used to extend the grazing season. It can provide high-quality forage in late fall/early winter (about 80 days after seeding and again in the following spring). Rye is the most winter-hardy cereal crop and the first to break dormancy in the spring. Rye is easy to establish and is characterized as being the best cereal for absorbing unused soil nitrogen.

Well-drained soils and good management are especially important when conventional tillage is used. Good drainage is important to allow good footing for grazing livestock during late fall and early spring, which are typically higher rainfall periods. It is also very important to consider the whole farm system when selecting sites. Planting rye in fields coming out of other annual crops provides a good opportunity for gaining additional grazing acreage.

Rye grows best on fertile, light-loamy or sandy soils. Most rye varieties will be more productive than other small-grain species on heavy clay, poorly drained, or acidic soils (pH 5.0-6.0) that are generally low in fertility. But to achieve good production, maintain soil tests at or above the following levels: pH of 6.0, 25 ppm of phosphorus and potassium at 75 ppm. Yield reductions can be expected if soil tests fall below these levels. At these critical soil-test levels, fertilizer applications equal to crop removal of phosphorus and potassium will be needed to maintain yields. With good management and early seeding, rye can produce as much as 2.5-3 tons of dry matter per acre combined over the late fall and spring grazing periods.

Since rye is a tremendous scavenger of nitrogen (N), little, if any, fertilizer N will be needed on fields where high levels of fertility have been maintained. In fields where little or no N has been applied or

where crop removal has depleted soil N levels, application rates of 40-50 pounds of actual N per acre will stimulate growth and produce desirable yields.

## **Planting**

Rye can be established by drilling into conventionally tilled fields or with minimum tillage following corn, tobacco, or other crops. Direct drilling will give the best stand establishment, but in emergency situations rye can be overseeded by air before leaf drop in soybeans or prior to corn being harvested for grain. Broadcast seeding, alone or with fertilizer, following the removal of summer annual crops may also be successful.

In all seeding situations, there must be some coverage of the seed to provide protection and good seed to soil contact. This can be accomplished with a drill, or with shallow disking or dragging when seed is broadcast. When overseeding into standing row crops, the leaf litter normally fulfills this requirement for seed coverage. Attention must be given to potential herbicide carryover or recrop restrictions from previous herbicide applications to the field.

## **Seeding Rates**

Recommended seeding rates vary depending on establishment method. Drilling into tilled soil will require 60-110 pounds of seed per acre. When no-tilling into an existing sod, rates should range between 90-120 pounds per acre. When broadcasting or seeding by air, rates as high as 150 pounds per acre may be needed for a suitable stand.

## **Seeding Dates**

Seeding date will have a major impact on when rye can be grazed. If the goal is to graze in late fall or early winter, seeding should be completed by late August or September. Seeding can be delayed if fall grazing is not needed or is not possible due to poor soil drainage or other conditions. In general, seeding should be completed by early October in Central Sands area of Wisconsin.

## **Rye in the Grazing Program**

Rye can be fall grazed when growth is sufficient to support livestock. Fall growth can be limited by dry and cold conditions. With good moisture, rye will grow until air temperature drops to 39°F. In late fall, begin grazing when 6 inches of growth is available. Remove livestock when 3-4 inches of growth remain, to maintain sufficient leaf area for continued growth and recovery. In a wet fall, grazing on poorly drained soils can result in crown damage, stand loss, and reduced spring growth. Managed rotational grazing is important for maintaining a healthy stand into late winter and early spring. Rotational or strip grazing will also greatly improve utilization efficiency of the available rye forage.

Spring grazing can be a challenge depending on the site, soil conditions, and the weather. Rye is probably not utilized well once cool-season grass growth begins with warming temperatures. But rye is the earliest of the small grains to break dormancy and thus allows very early spring grazing before cool-season pasture grasses have significant growth. Normally it is fairly wet at that time, and problems can develop with livestock cutting up the field. A rotational grazing system should be developed so livestock are not on the rye paddock for an extended period of time—this will allow several rotations of livestock through the paddocks during the spring. Stocking density must be aggressive in the spring to prevent the rapidly growing rye and other cereals from becoming overly mature.

Along with the high yield potential and early-spring grazing that winter rye can offer, producers need to consider the forage quality characteristics of rye. High-quality grasses have >18% crude protein (CP), < 35% acid detergent fiber (ADF), and < 55% neutral detergent fiber (NDF). The ADF and NDF values are indicators of the digestibility and the potential intake of the forage. In studies, CP levels of rye were as high as 34%, ADF values as low as 17%, and NDF values as low as 28%. When rye is grazed in the vegetative stage, it is highly digestible and intake is not limited, making it more suitable for livestock with high nutritional needs. Supplementing rye pastures with forages having higher levels of fiber (either harvested or standing) may be desirable to slow the rate of passage through the gut and improve nitrogen utilization by the animal.

Lab analysis of forage samples from studies indicated that the mineral content was within acceptable limits. However, when grazing lactating cows on lush rye forage, precautions should be taken to prevent the occurrence of grass tetany because of a high potassium-to-magnesium ratio in the forage. The level of magnesium in rye forage is not high enough to be absorbed at the necessary level and must be supplemented. Base the supplementation on lab analysis of the grazed forage and consider using mineral mixes high in magnesium.