Cropping Strategies

By Tom Kilcer

Winter triticale, harvested as forage, can be combined with short-season energy crops to increase overall forage yields

Winter triticale – a cropping opportunity

Dairy producers have an opportunity to try a new cropping system that not only reduces weather risks by spreading planting and harvest to off-peak season but can increase total crop yields by 20 to 25% from that same acre. This forage, with a potential 4,000 to 4,200 lbs. of milk per ton, matches brown midrib (BMR) corn silage with its 3,800 to 4,000 lbs. of potential milk per ton. Together, the two can support forage diets greater than 70%.

Is it a corn or haycrop replacement? Neither. It's a high energy, moderate (16%) protein, high sugar forage with high rate of digestion (kd/hr) (**Table 1**). This is forage for high producing cows with limited rumen space to meet their production needs.

The crop is winter triticale harvested as forage. It can be combined with short season, high yielding summer energy crops to increase yields on a wide range of soils. What's exciting is the adaptability of the crop to various cropping systems.

The strategy

For several years I've successfully tested double-cropped short season – less than 85-day – corn after harvesting winter triticale. Yield potential of this maturity can be seen in the average five years when 75- to 85-day varieties were planted at the Cornell trials at Madrid, N. Y. The solo corn silage yield is slightly lower than the averages of the full 95-day varieties (**Table 2**).

By planting short-season corn after winter triticale harvest, May 15 to 18 in the Albany area, and harvesting it the last week in August, you can boost yearly yields by 8 tons per acre, or 2.5 to 3 tons dry matter (DM) per acre, of high quality forage. This raises the total yield to well over 30 tons per acre (**Figure 1**). You can compensate for some of the yield drop in short-season corn by increasing the planting population to more than 40,000.

A large part of the yield advantage of this system is the off-season sunlight winter triticale captures from fields that are too wet for traffic and are bare in September, October, April and early May.

The big advantage of this double cropping system is on problem soils. It keeps you off wet fields in early spring and late fall.

A flexible crop

Flexibility in a wide range of farm systems is a key advantage of triticale. It can be grazed in the fall and early spring. Flag leaf harvest in May fits nicely just before cool season grasses and alfalfa. Flag leaf in a double-crop system has the benefit of spreading the risk, as triticale isn't planted or harvested in corn and alfalfa windows.

Flag leaf is not boot stage (Stage 10). That might have been sufficient when cows were milking 12,000 lbs; now they need the high quality forage of Stage 9 where the last leaf is out but no head is showing.

Some farms let the crop mature until the

Table 1. Winter triticale forage quality, fermented samples, flag leaf stage

Crude Protein	15	NFC	16
Sol Protein	73	NSC	11
ADF	34	Starch	2.1
NDF	58	Sugar	8.5
Lignin	2.9	Kd/hr	6.58

Table 2. Day length corn and yield

Day Length Corn	Tons 35% DM Silage
75 - 85 day	26.6
85 – 90 day	26.7
91 – 95 day	27.9
96 – 100 day	28.5

FYI

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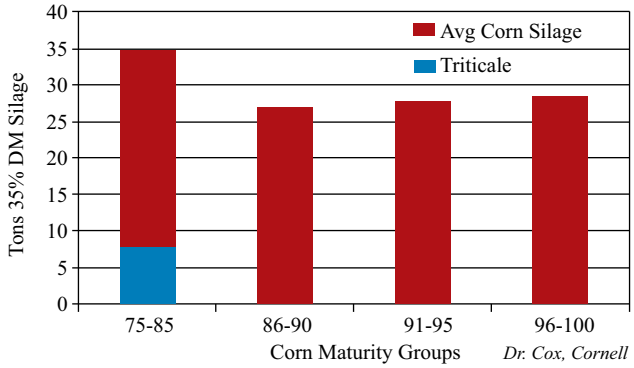
■ For further information on winter triticale, see www.advancedagsys.com. Click on newsletters, then on Triticale Fact Sheet.

■ Also see the winter triticale fact sheet, number 56, at the Cornell Nutrient Management Spear Program website: http://nmsp.cals.cornell.edu/

Figure 1. Double crop short season vs. full season corn silage



heads are out and harvest it for a premiere straw product. Triticale yields 25 to 35% more straw than head cut rye without the lodging issue.

Triticale harvested at soft dough has available energy close to that of corn silage but with much more effective dietary fiber. It doesn't have to be dried and can be direct cut or immediately swathed and chopped. This reduces the potential loss to adverse weather.

Late milk or soft dough triticale makes excellent forage for heifers without the excess fat risk that accompanies high corn silage diets. Instead of feeding straw to dry cows, triticale that's headed to soft-dough stage can fit this ration use if manure wasn't applied, which increases potassium levels.

Triple crop with legumes

In the double cropping system of short season corn and winter triticale, red clover can successfully be seeded if planted by Sept. 5. This establishes better than frost seeding and reduces the spring work load to a less stressful time period. Intercropped clover establishes easily and grows well on wetter soils. If you miss the August window, you can get a second chance frost seeding clover in late winter.

Harvesting the triticale at flag leaf allows the clover to put on tremendous growth for two to three more cuttings after the triticale.

Clover has a reputation for not drying, but recent research at the Cornell Valatie Research Farm shows that may not be the case. On first-cut red clover haylage vs. alfalfa mowed wide swath with no conditioning, research showed that tedding at 75% moisture dramatically dropped the clover moisture level to the alfalfa level. Both were below optimum for silage in 4.5 hours after mowing. With a tedder, clover can be ensiled as wide-swath-same-day-haylage.

HEL land more productive

Highly erosive land (HEL) can be a challenge to manage. Many of the rotations that allow you to save soil can cause you to lose the farm. Long hay rotations, for example, don't produce crop yields or forage quality for today's economy. But ignoring HEL can cause permanent long-term yield loss to soil.

Cover crops can help, but they are an extra expense. With winter triticale forage you can turn cover crops into income. Besides solving many of the soil loss issues, cover crops have been shown to increase soil health and soil structure critical for high yields. They also protect fertilizer nutrients from loss.

Soil is exposed only two weeks of the year in the double-crop rotation of short season corn followed by winter triticale. If you plant clover in the triticale, the ground is potentially exposed only once every four years. Each planting can be one pass minimum tillage, zone tillage or no-till to further save soil, fuel and time.

Flag leaf harvest of winter triticale in May fits into most cropping systems, coming before harvest of cool season grasses and alfalfa.

Conserve nutrients from manure

If soil is bare from mid-September to mid-May as in most corn systems, any leachable nutrients will leave a field or enter the water table. Winter forage such as triticale soaks up available unused plant nutrients and incorporates them in organic matter for slow release to other crops. This minimizes nutrient losses to the environment. It also acts as nutrient pump bringing deeper leached nutrients back to the surface for future crops.

The off-cycle cropping system provides opportunity for dairies to apply manure in late August and May when other fields aren't available. This reduces the cost to grow triticale and corn while cutting the risk of nutrient loss to the environment. Manure can also supply up to half of the spring N needs of triticale. Research has found that additional fertilizer N will be needed to meet the needs of this rapidly growing crop.

There is no perfect crop. Winter triticale is eaten by deer and can be decimated by geese. It can rain for two weeks when you want to harvest. But you can harvest it later as another type of forage so all is not lost. As with any crop, the better the management, the better the results. ❐