



ADVANCED AG SYSTEMS'

Crop Soil News

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August 2023

"It is the crops that feed the cows that make the milk which creates the money."

Advanced Ag Systems
Research, Education, Consulting

Why Triticale Winter Forage

Over the past 25 years, we have worked on focusing the management steps for high yield with triticale winter forage. These were summarized as recently as the [July 2023](#) issue. While focusing on the trees, we missed talking about the whole forest – why winter forage? What initially started out as a cover crop, is now a premier forage in the normal part of crop rotation, for increasing number of dairy farms across the US and into Canada. Ironically, you still have all the cover crop benefits – but with the elevated management and high yields it is a cover crop with your benefits magnified. It is also one of the most profitable crops to grow.

More than just another crop, this is primo forage for high-producing animals. Crude protein has been dealt with in earlier letters. Using sufficient spring nitrogen and sulfur, it is relatively easy to harvest 17 – 20% crude protein forage. Harvested at the flag leaf stage, it is the NDFd digestibility that has attracted attention. One study by John Winchell, Alltech, in Pennsylvania compared alfalfa to properly harvested winter forage. The alfalfa NDFd 30 was 46 while the winter forage NDFd was 65. This represents 9.5 pounds more milk from the same dry matter. Many winter triticale forage samples come back much higher at 70 NDFd. Where properly harvested winter forage really shines is during the heat of mid-summer. Because of the high fiber digestibility, the dreaded "**Summer Slump**" disappears when **highly digestible winter forage is added** to the ration.

The benefit farmers discovered when growing winter forage triticale is the **25 – 35% increase in total yield** from each acre covered. To get the triticale in on time in northern regions, we grow a slightly shorter season corn. Dropping from 105 to 85-day corn will lose an average of 3 tons of corn silage/acre or 1.05 tons of dry matter. That is replaced by getting the triticale planted on time, with 6 to 12 tons of silage yield; **2 to 4.2 tons of dry matter of winter forage** (over 5 tons of dry matter in areas depending on higher management used and climatic zone) . The bonus is that the as you saw in the previous paragraph, winter forage at flag leaf has more milk/ton than the corn silage you gave up. A second bonus is that we have growing evidence that planting corn no-till into triticale stubble yields higher than conven-



Winter forage digestibility is nearly all driven by the loose nut at the tractor steering wheel. WHEN you harvest (flag leaf) is more important than fertilizer or triticale/rye grain choice.



This vegetable producer grows off season winter triticale forage for a dairy. The sweet corn response to the improved soil health from winter triticale forage is huge ears of 20 rows.

tionally tilled and planted corn. Research has found that bare soil over the winter suffers a tremendous decrease in soil health and structure. Both are improved under winter forage. Instead of going backwards over the winter, the soil is improving like a sod was growing there. Thus the 3 tons corn silage loss from shorter season corn may not even occur, as the corn responds to growing in agronomically superior soil structure, porosity, and moisture management that winter forage generates.



Winter triticale stubble is perfect to no-till into. The clearing coulters removes any allelopathic effect on corn.

It is the earliest mechanically harvested forage you can produce. Farms with a tight or short supply of haylage were able to harvest early varieties of triticale at the flag leaf stage and get it into the ration weeks before the first cutting was ready and fermented. Ironically, some farms have dropped alfalfa and simply grow a winter triticale forage and a summer energy forage for year-round cropping systems. They got higher yields of high-quality forage at less cost.

One of the key benefits of winter forage is that the soil is protected from washing away. Winter thaws where the top of the soil liquefies over frozen ground and then gets rained on, can remove an incredible amount of the best part of your soil structure. Tillage hides much of this erosion, but the yield loss over time does not. For fields with repeated top-dressed manure, the very high fertility of the surface is washed away, directly losing money. On time winter forage is superior at protecting the soil all winter.

After corn silage is harvested in September on a heavily manured field, the manure continues to release nitrogen and convert it to nitrate until the ground temperature drops below 50 F. This is often 2 or more months after harvest. With no roots to absorb it (other than winter annual weeds), the nitrogen is denitrified in wet conditions or leached out of the soil. Further south it is lost longer, and the loss is greater. Either way, you are losing money like it was running out of your pocket. My research and that of Dr. Ketterings of Cornell found that for every pound of dry matter growing on the soil as winter forage, it is 22% crude protein. That **ton of winter forage dry matter is holding more than 70 lbs. of nitrogen safely** until it is used the following spring. For on-time or early planted triticale, we have measured over 1.5 tons of dry matter and over 120-150 lbs. of nitrogen held in living tissue until next spring. That nitrogen savings alone would more than pay for the cost of the winter triticale seed. The key to that benefit is that you will **NOT** get these nitrogen storage benefits unless you plant the crop on time - maximizing the dry matter produced before winter shuts things down. Late planted winter forage going into the winter 3 to 5 inches tall in our research had saved only 4 pounds of nitrogen. The much taller, on-time planting right next to it contained 123 lbs. of nitrogen/acre. As I said in the July issue, it will not winter kill from the high nitrogen or lush growth.



Dr. Ketterings, Cornell, and my research found that the more dry matter yield going into the winter, the more nitrogen is stored in the plant for use next spring. It cleans the environment while saving money in your pocket.

Winter annuals and perennials such as quack grass will get a running start when corn ground is bare from harvest until the corn is planted the next spring. This builds a weed reservoir and eventually weed resistance, resulting in crop loss or an expensive increase in herbicide cost. Under a properly planted and fertilized winter triticale, there is little or no chance for any weeds to get established. I once tried winter forage with shade-tolerant red clover seeded at the same time. The only place the red clover survived was where there was no triticale. Winter triticale forage smothers weeds.

Winter forage helps in the spring as there is 60% less soil moisture because the growing forage consumed it. This allows the soil to warm sooner and the crop to be ready earlier. One wet spring a farmer I

worked with found he could safely harvest all his triticale, spread manure, and plant corn without damaging the drier soil structure. He then had to wait until the rest of the corn ground, without winter forage, dried out before he could begin cropping them. Yes, in a spring drought, this would not help but another farm found the corn on the winter forage-cropped ground in a drought did as well as that on non-winter forage-covered ground due to the vastly improved soil structure from the winter forage. He had the benefit of harvesting 10-12 tons of silage before planting the corn, so he was ahead of his neighbors who did not grow winter forage.

Finally, the winter forage stubble after harvest is the **perfect surface** in which to **no-till corn, soybeans, or legume seedings**. Infrared from the sun will penetrate green growing winter forage and warm the ground. After the harvest, there is only a stubble, and the ground continues to warm. More importantly, there is little or no residue to interfere with planting or give a place for slugs to hide and then eat your crop. The stubble keeps the drying wind off the soil surface so what you plant next has maximum moisture. The stubble and massive decaying root system protect the soil from erosion. As one farm found out when he planted alfalfa no-till into winter triticale stubble and three weeks later got 4 inches of partly cloudy downpour in 20 minutes, the new crop is protected from erosion. The conventionally tilled field across the road was a complete wipeout.



No-till alfalfa and soybeans work perfectly in triticale winter forage stubble. The surface stays moist to help small seedlings get a running start

Isn't it time for you to add triticale winter forage to your rotation and forage supply.

Sincerely,

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Hand
to Better
Agriculture**

