

## Cover Crops/Annuals and Grazing

Roger Staff

USDA-NRCS Grassland/Grazing Specialist

The use of annual forages (cover crops), both summer and winter, have been utilized for several years. When cover crops first were used to extend the grazing season, it began with one to three species in a mixture. That was before the soil health benefits were being observed and discussed as they are now. There have been a wide variety of planting methods used: airplanes, helicopters, conventional and No-till drills. Some seeding methods is simply broadcast on the soils surface and lightly tilled in or just rained in depending upon the weather. Then we discovered the herbicides and amounts used can impact the species being planted. Also, the corn hybrid varieties can affect the planting and germination as well depending upon how erect the leaves are and how much sunlight can penetrate the canopy when flown on. Since the beginning, there has been many adaptive applications made. Some farmers added seed applicators to their combines, and some fertilizer companies equipped the high wheeled spray rigs with equipment to aerial seed over the standing crops, etc. Planting cover crops after small grain crops were harvested or silage chopping were found to be good methods, with a wider date range for establishing these forage species. In high forage demand locations, some farmers dedicated a few acres to rotating summer annuals with winter annuals without grain cropping the land. Some farmers find this may lead to a high cost per grazing day, compared to perennial forages.

Now we strive for a variety of grasses, legumes and forbs to create a mixture of plants to have varying root depths and growth patterns and to form a synergistic growth pattern between the plants. There may be 10 -15 different species all planted together to take advantage of the benefits shared between the plants. The warm season and cool season varieties are all planted together and then grazed by the livestock.

The adaptive high stock density grazing (AHSDG) practice technique or management intensive grazing can be used to effectively graze the forage, by the strip grazing method, thus increasing the utilization rate of the forages. This will allow for a better regrowth process and more forage production at the same time. Established forages and cover crops, will lower erosion, improve water quality, increase infiltration rates and scavenge excess nutrients left from the cropping systems. AHSDG has been shown to increase plant diversity in a grazing system as well. If all the forage is not grazed off, then the organic matter may be improved as well! This will vary depending on the amount of forage left un-grazed. For more information on the species and planting dates of cover crops go to the Midwest Cover Crop Tool located at <http://mccc.msu.edu/covercroptool/covercroptool.php> . This program has been developed specifically for the states of: IA, IL, IN, MI, MN, OH, WI and Ontario, by the Midwest Cover Crop Council.

The most common feed source for cows and other livestock in the winter is hay. I encourage my clients to have all their hay tested for its nutritional value before feeding to their livestock. All animals have different nutritional requirements at different stages of their lives and production stages during the year. A lot of hay is baled in a low-quality stage, especially in a wet year. This will impact the overall health and production of the animal. Corn stalks is a good food source but can be low in quality, so the livestock may need supplemented, depending upon the amount of grain lost at harvest. The use of grazing stalks with cover crops is an easy way to meet many of the livestock's needs. You will need to monitor your livestock in case you need to supplement with hay or another energy source. Any growing crop will have higher nutritional value than most mature hay unless baled in the best quality stage. U of I Extension publication [http://web.extension.illinois.edu/oardc/eb275/entry\\_11983/](http://web.extension.illinois.edu/oardc/eb275/entry_11983/) contains much of this information. Stockpiled forages will meet the animal's needs more closely than poor quality hay (mature Fescue). Stockpiled tall fescue grazed in Jan-Feb. will meet the nutritional need of most dry cows. Through the Nutritional Balancing Program, NUTBAL, at Texas A & M University, I have run numerous forage analysis through the fecal sampling process in the winter months on stockpiled tall fescue. The Crude Protein can range from a high of 12.13 percent to a low of 8.88 percent and the Digestible Organic Matter (this is 5 percent higher than TDN by comparison) ranges from 64.09 percent to 56.2 percent.

NUTBAL samples have also been ran on annual cover crop species as well. Sorghum Sudan grass and Pearl Millet will meet the nutritional needs of cattle, sheep and goats during the growing season. Even in the August and September the CP ranges from 19.8-11.6 percent. Cereal Rye can have a CP as high as 17-20 percent in Dec. planted alone or in

a mix. Turnips and oats over-seeded into standing corn then grazed can range from a CP of 19.02-15.32 percent with a DOM ranging from 68.82-68.48 percent in Nov. and Dec. Turnips and cereal rye can range from a CP of 17.75–19.27 percent with a DOM of 58.71 – 64.01 percent in Dec. as well. The turnip tops are higher in protein than the bulbs from 1-4 percent normally. Cereal rye over-winters and if grazed in the spring will have a CP ranging from 13.6-19.3 percent and a DOM ranging from 66.31 - 72.4 percent. Another cover crop used and grazed is Red Clover. It can provide multiple soil and plant benefits. The NUTBAL CP samples analyzed for red clover in July run from 15.56 – 17.51 percent, in Nov. from 13.96-18.32 percent, and in Dec. from 16.58-19.88 percent. You will need to watch your cattle for possibilities of bloat when it frosts on the legumes.

**TABLE 1. Typical feedstuff values**

	TDN. %	CP, %	DM, %	Cost, \$
Corn	92	9	88	3.50/bu.
CGF (dry)	84	20	89	100/ton
WCGF (wet)	85	21	53	35/ton
Corn Silage	70	8	38	35/ton
DDGS (dry)	92	27	88	130/ton
MWDGS (Modified-wet)	92	28	47	65/ton
Alfalfa hay (good)	60	19	85	185/ton
Grass hay (good)	54	11	85	140/ton
Poor hay (mature fescue)	46	7	85	65/ton
Cornstalks	52	5	80	45/ton
Soybean meal	85	44	90	308/ton

**TABLE 2. Hay waste**

Feeding method	% wasted
Limit TMR -- limit-fed total mixed ration in a bunk	0
Ad libitum ("unlimited") -- bunk, small bales or ground hay	10
Ad libitum -- big bales	30
Ad libitum -- big bales (outside)	40

**TABLE 3. Calculated diets for a dry cow (1,300 lbs.)**

	Lbs. (as fed)	Cost/d, \$*
Limit TMR poor hay/DDGS	15/10	1.14
Limit TMR poor hay/CGF	15/10	0.99
Limit TMR poor hay/MWDGS	17/14	0.80
Limit TMR poor hay/WCGF	19/20	0.97
Limit TMR alfalfa	26	2.41
Limit TMR Good Grass hay	33	2.31
AdLib alfalfa big bales	39	4.63
AdLib Good Grass hay	32	3.01
AdLib poor hay/corn	26/5	1.42
AdLib poor hay/ DDGS	26/5	1.43
AdLib poor hay/ CGF	26/6	1.41
AdLib poor hay/ MWDGS	26/10	1.40
AdLib poor hay/ WCGF	26/13	1.33
AdLib Stalks/MWDGS	26/6	1.01
AdLib Stalks/WCGF	26/9	0.97
Limit TMR Corn silage/DDGS	39/3	0.88

\*Includes the cost of wasted feed for AdLib @ 30% waste of forage

In the presentation I have compared the cost of feeding different winter feeds. According to information from U of I publications and Travis Meteer, U of I Beef Educator, the costs for grazing corn stalks can run as much as \$0.50 per day. From my comparisons using current Urea Nitrogen prices for an application of 50# N /acre for stockpiling tall fescue, then strip grazing, can range from \$0.35 - 0.23 per head per day. The use of annual forages, or cover crops, will range from \$0.75 - 1.00 per head per day. With the specific example from Ted Krauskopf's grazing system shows a cost of \$0.93 per head per day for cattle. In comparison to the hay cost per day or \$4.63 (Adlib alfalfa big bales) - \$1.42 (Adlib poor hay [mature Fescue] /corn). The cost associated with hay and/or TMR mixtures with co-products range from \$2.41 (limited TMR Alfalfa) - \$0.88 (Limited TMR corn silage/DDGS) per day. But the big question is how much do you value your time and machinery cost for all this extra work? As mentioned in many publications 60 percent of the annual cow costs are from stored winter feeding annually. If you can reduce the cost by \$100- 400 per head per year that can make a major difference/savings in your bottom line with today's economic situation!

The Conservation Stewardship Program (CSP) and Environmental Quality Incentive Program (EQIP) are two conservation programs that NRCS has to assist clients with improving and sustaining their resources. EQIP helps "Fix" resource concern problems, erosion, water quality, animal waste, forestry, and grazing and plant health issues. The CSP program is to encourage land stewards to improve their conservation performance by installing and adopting additional activities, and improving, maintaining, and managing existing activities on agricultural land and Non-industrial private forest land. There are many enhancements to choose from that may be applied or can be applied on your farm. The enhancement purpose is to encourage adoption of new technology, meet identified purpose (objective), and continued enhancement throughout the contract period and beyond. The grazing of the cover crops is considered a secondary purpose in the Cover Crop Practice Standard 340 and programs. Grazing is allowed but with specific guidelines and requirements that must be met, if in a contract.

To find out more about these programs and other conservation benefits contact your local USDA/NRCS office.