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CropLinks

information on forages, corn and cereals

Nova Scotia Agronomist Goes South!

This issue of CropLinks highlights some key points from the first rate "Silage for Dairy Farms" conference that Jack attended this winter in Pennsylvania. This conference is held every 10 years in the NY-PA state area and is the most relevant seed-feed conference that farm managers, nutritionists, and agronomists from this area can attend. There were 325 participants with farm managers from many states, Ontario, Mexico, Kuwait and even a couple of Bluenosers. Besides benefiting from 35 excellent talks over three days, and receiving a 400+ page proceedings booklet, Jack was wowed by the usefulness of forage and silage corn research that is being produced by Penn State, Cornell, Miner Institute and U of Wisconsin.

Highlights from "Silage for Dairy Farmers" Conference — January 2006

In field forage decisions - Jerry Cherney (Cornell U.) led off the agronomy section with a presentation on newer tall fescue varieties as an alternative grass for alfalfa-grass mixtures. Amongst cool season grass species grown in New York, Jerry says tall fescue have yielded up to 20% higher than most others. Tall fescue is persistent, similar in fibre digestibility to other grasses when compared at the same growth stage, but lower in protein (than other grasses except timothy). Dr. Cherney's feeding studies have shown good performance from early cut tall fescue silage.

Jerry Cherney has developed a predictor of proper 1st cut harvest date. This predictor is based on multiple years data of looking at NDF quality (which is ADF plus hemi-cellulose) from varied cutting dates, height measurement and percentage of alfalfa versus grass in the 1st cut harvest. For 80:20 alfalfa-grass stands he says the target 40% NDF can be reached when alfalfa is at a maximum height of 30 inches, while to get the target 44% NDF from a 50:50 alfalfa-grass stand you need to cut at 23 inches of maximum alfalfa height. In questioning Jerry about cutting these 50:50 mixtures at 23 inches in height, he said alfalfa longevity may be shortened, however he thinks that if you're going to make milk on early maturing grass-alfalfa mixtures you need to cut early. When alfalfa drops below 50% in the forage stand, NY state fields are then managed for the grasses in terms of nitrogen fertilizer rate, manure and harvest date.

Dan Undersander (U of Wisconsin, who will speak at a farmer's forage workshop at NSAC on April 28 @ 9:30am) spoke about minimizing wheel-track damage on alfalfa. He setup a six state research trial that is currently collecting yield loss data from wheel traffic at 2-days and 5-days after cutting. Alfalfa yield losses were 0-3% for traffic 2-days after cutting, but had average losses of 9-20% on fields traveled 5-days after cutting. Dr. Undersander says field traffic from haying and manure spreading 3-5 days after cutting is inevitable, but on better alfalfa fields try to reduce the number of passes, weight of tractor, and restrict hauling across fields to designated lanes (not just anywhere in the field). Wisconsin is now testing alfalfa varieties for their tolerance or inability to handle 5-day post cutting traffic.

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Pennsylvania Conference Highlights...continued

There were a couple talks on wider mower swath widths. A survey done last year of manufacturer's specifications for 72 different makes and models of mowers found that 43% had a swath less than 60% of mower width, and another 33% had swath widths that were 60-70% of mower width (U of Wisconsin). Tom Kilcer (NY agronomist) is really promoting this wide swath mowing approach saying that the traditional narrow swath bunches heavy 1st cut silage into 40-50% of the field surface area. He claims "Wide Swath-More Milk" in that increased wilting speed reduces dry matter losses in field by 2-16%, lowers excessive levels of soluble protein, and provides 300 lbs more milk/DM ton. Kilcer says the keys to wide swath mowing, are to cut at the proper stage of immaturity, mow in morning, and only mow what can properly be raked and chopped that day (if you have too much forage mowed, then harvest moisture could become too variable). He only talked about the positive aspects of accelerated wilting, and didn't touch on the dangers of bound protein and molds in silos that can occur if haylage is put up too dry.

In silo research and recommendations – Both Penn State and Wisconsin personnel are looking at dry matter losses and spoilage in bunker silos when packing density of at least 14 lbs of dry matter per cubic foot is not achieved. The Penn State crew worked on-farm in 2004 and 2005 and were able to get farm managers to improve packing density from 11-13 lbs/ft³ to over 14 lbs/ft³ dry matter densities. Denser silage resulted from heavier packing tractors, using 2-3 inch packing layers, spreading silage out more evenly and more packing passes particularly within 8 feet of walls and the upper portion of the pile.

Larry Berger (U of Illinois) is trying to make an effective and edible seal to bunkers and driveover piles to replace plastic. He is working with a "starch-salt matrix sealed with wax" and once perfected will form an air-tight seal with forage (not the air-layer interface that plastic does). In addition, the salt diffuses into the top 10-15" of silage and acts as a preservative to prevent growth of yeast and mold. When the edible cover was fed at 2.5% of the ration (DM basis) there was no reduction in DM intake. Dr. Berger said that as long as the silage was more than 3 feet in depth and the desired application thickness of 0.5-0.75 inches occurred, this edible seal would be less than 2.5% of the silage mass. Most of the ingredient cost of the edible silage seal is recovered when fed, and the application costs need to be recovered through reduced surface spoilage. Ease of application of the edible silage seal and its effective protection from air and rainfall is the current focus of this Illinois research (no advancements have been made recently on edible polyethylene or other chemical based silage sealants).

Les Vough (U of Maryland) spoke of how baled silage has a much slower fermentation rate than chopped silage. Chopping ruptures cells, makes the cell contents (juices) more readily available for fermentation and increases the surface area available to the bacteria. The chopping also "inoculates" silage by spreading and increasing populations of naturally occurring lactic acid producing bacteria. Round bale silage can take 60 days to drop to the same pH level that chopped silage can reach in one day. This situation can be improved with the use of precutter or slicer options on balers. A pH of 4.5 or less is generally indicative of a good, complete fermentation. With baleage, often the pH does not drop below 5 and can remain above 6 for a week or

more post-ensiling, especially when baleage is made from forage containing more than 60% moisture. Dr. Vough concluded by saying that research has shown that 6 mils of plastic thickness with 50% overlap is important in reducing spoilage and external white mold. Baleage needs to be wrapped within 12 hours of baling, stacked on the flat end, and orient rows in north-south direction. Check bales weekly for holes and repair with proper tape.

Forage feeding considerations – Presentations in this section came from Rick Grant (Miner Institute) on using NDF Digestibility analysis in ration formulation. He talked about plant cell wall anatomy and rumen digestion, and the relationship between NDF digestibility and cow performance. Researchers have found that for every 1% increase in NDF digestibility, there is a .44 lb/day increase in DM intake, .51 lb/day increase in milk yield, .55 lb/day increase in 4% fat-corrected milk yield and 0.09 lb/day increase in body weight. Rick Grant said that between 2002 and 2004 the use of NDF digestibility has more than doubled. He suggested that everyone should be regularly testing their forages for NDF digestibility and benchmarking their current forage quality with previous forage quality so that needed changes in ration formulation can be made in a timely manner. Daniel Scothorn, in his consulting dairy nutritional services through AgraPoint, is utilizing 30-hour NDF digestibility analysis from the Dairy-One lab in Ithaca, New York.

William Stone (Cornell) talked about using a Fermentation Analysis to assess harvest moisture and silo filling management and whether there are layers of poorly fermented silage within the bunker which will drag down performance. Researchers have seen that silages high in acetate have been linked to reduced DM intake, and silages high in butyrate have been linked with ketosis.

There were also a few talks on management of mycotoxins in animal feeds (G. Rottinghans – U of Missouri) and pre-harvest strategies for reducing mycotoxins in corn silage (E. DeWolf, Penn State) of which I'll share in a future CropLinks issue.

This was definitely the best conference I've ever attended. Copies of any of these presentations highlighted here or others are available if requested.

Focus on Forage – Workshop for Producers

Where: Cox Institute, Room 24, NSAC, Truro

When: Friday and Saturday, April 28th and 29th 2006

Time: 9:30am to 4:00pm (both days)

Cost: \$25 per day including refreshments and lunch

Note: CCA credits have been allocated

Topics: Choosing, establishing and managing forage crops for hay, silage and pasture; riparian zone stewardship; and agroforestry

Featuring: Dan Undersander (Wisconsin), Duane McCartney (AAFC), Bruce Coulman (U of Saskatchewan), Andy Gordon (U of Guelph).

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