Agricultural Newsletter

UW-Madison College of Ag & Life Science
University of Wisconsin-Extension

July-August-September 1999
Volume 5, Issue 3

Inside this Issue

Safety is No Accident

Kevin Schoessow
Area Ag Development Agent
Burnett, Sawyer, & Washburn Counties

In the spring and early summer every year, UW Extension Agents, high school Vo-Ag instructors, Vo-Tech instructors, and countless volunteers teach and instruct youth about the hazards of living and working on farms and how to safely work around tractors and machinery. This is done through the *Wisconsin Safe Operation of Tractor and Machinery Certification Program*. Wisconsin state law requires youth under age 16 to have this safety training to legally drive a tractor on public roads. The Federal Child Labor Regulations also requires youth ages 14 or 15 to have this certification if they are to work with tractors or machinery on a farm not owned by their parents.

This Tractor and Machinery safety course was recently held at the Spooner Ag Research station with a group of 15 youth ages 12-15. The kids were great, a little rowdy, and always anxious to get outside and drive tractor. Every year we try to bring in volunteer instructors to help with the course. One of these volunteers this year was a farmer. After watching the videos and helping teach his section, he commented, "A person sometimes forgets just how many hazards and dangers there is out on the farm. I think adults could learn a thing or two in this course." Those comments are so true. We can never learn too much about safe work habits and how to prevent farm injuries.

As adults we are always teaching children. Be a good safe role model. Educate kids about farm hazards and provide safety rules. Make your farm equipment, buildings, and farmstead safe by correcting hazards. Give children age-appropriate tasks. Never allow a child to be an extra rider on a tractor and know where youngsters are at all times.

Laws and regulations aside, personally I feel any training, required or not, on farm hazards and tractor and machinery safety is morally the right thing to do. According to the National Safety Council, agriculture is consistently one to the three most hazardous industries in the U.S. Every year young and old are killed on Wisconsin farms. Don't become a farm accident statistic. Remember--*Safety is No Accident*.

We're on the Web!

You may find this newsletter and other useful information by visiting the websites of the **Spooner Ag Research Station**:

http://www.uwex.edu/ces/sars/index.htm

and the **Ashland Ag Research Station:**

http://www.uwex.edu/ces/aars/

Questions and notes from Dairy-L

Tom Syverud
Extension and Outreach Educator
Douglas, Ashland, & Iron Counties

Have you used Quarter Milkers?

A farmer from Canada posed this question. There are times when one quarter of only a few cows in a herd will contribute significantly to the bulk tank somatic cell count. Quarter milkers have been used for isolating the milk of one quarter of the cow from the other three quarters. It is best to use QM in the case of observed evidence of high SCC in one quarter. Culturing is preferred. Organic milk producers have also used QM to take advantage of substantial premiums as well. The disadvantages are that they are cumbersome and need extra cleaning and storing. One farmer suggested an alternative may be to eliminate machine stripping. Never use QM for treated cows, as this is illegal. Even if only one quarter was treated, antibiotics can be found in each other quarter. There are numerous places to buy QM, farm supply stores, route trucks, dealers and Nasco. Cost is $60 - $70.

Feed Prices: A Few Web Sites

Oklahoma State

http://www.ansi.okstate.edu/EXTEN/feedbull/

USDA Market Wire Reports

gopher://shelley.ca.wky.edu:70/11/agmkts/market wire

Morgan Research Group Ltd.

http://www.morgan-research.com/forages/hay/pricewkly/index.html

Round Baling Wrapping and Baling Rates

In a discussion about custom rates, farmers from Canada and the upper Midwest participated. They gave the following price estimates for round baling: For a 4½ to 5 foot bale, baling ranged from $5 to $6, wrapping ranged from $1 per foot up to $9 total. Total costs per bale were about $15 to $16.

Bovine Luekosis Virus

A farmer with a 500 cow herd was very frustrated with this disease. He had purchased several cows in the early 80s which later exhibited staggering and eventual loss of their hind legs. An autopsy revealed they had lymph sarcoma. After many years he is still haunted by the disease. Luekosis has been more of a financial loss than any other disease including Johnes, on the diary. How can you eradicate this disease from a herd?

Unfortunately, this experience with BLV is similar to many other dairy producers. The BLV virus incorporates itself into the cells of cows and the disease progresses through several different stages. So, once infected, always infected. The first step is to identify all cows with the disease. A serological or blood test is good at identifying positive cows, but it only means that the cow is carrying the virus, not that she is showing signs of the disease. There are costs to this stage of the disease, but they are hard to pinpoint. Positive cows can progress to the second stage and develop lymphosarcoma. Usually these cows are 4 - 8 years old and clinical signs will be associated with the location of the tumor. Common places are abomasum, heart, uterus, behind the eye, spinal cord and kidney.

The virus can be transmitted to the calf at birth, however, this occurs less than 10% of the time. The major source of transmission is through blood, such as: tattooing, eartagging, dehorning, castration, bloody rectal exams, and needles. Biting flies have also been suggested as means of transmission. To prevent the spread, cull infected cows, feed colostrum from a BLV negative cow, and use different needles and rectal sleeves on each animal.

Manure Management Program

A program has been developed to help farmers in Ashland, Bayfield, Douglas, and Iron counties utilize the manure on their farms and realize the full value of using that manure in an economically and environmentally safe manner. The program, by way of cost incentives, helps farmers determine the nutrient content of manure, soil sampling their fields and helps develop a nutrient management plan.

To qualify for this program, a farmer must agree to three components. A representative manure sample must be analyzed for nutrient content. Not every field needs to be soil sampled, but a field in this program, must be soil sampled every five acres. A nutrient management will be developed with help and then followed. Once these steps are completed, you will be eligible for reimbursement at a rate of $4.35 per acre on eligible acres, plus the full cost of manure analysis. Contact Tom Syverud at 682-7268 or Sandy Schultz at 682-7187 for more information.

Formula aids hay pricing

John Markus
Area Agricultural Agent
Bayfield & Ashland Counties

Jim Linn, University of Minnesota Dairy Nutritionist, recently provided the following formula to determine the value of hay or haylage:

Relative feed value (RFV x .91)-12 = Price of hay per ton.

For example, hay with a RFV of 150 would be worth $124.50 per ton, (150 x .91) – 12.

Linn developed the formula based on average hay prices in Wisconsin over the past 14 years.

Nutrition for the milk-fed calf

John Markus
Area Agricultural Agent
Bayfield & Ashland Counties

Although the nutrient requirements for weaned calves are fairly well established, only limited information exists for the neonatal calf. Cornell University researchers conducted a study to evaluate the energy and protein requirements of preruminant calves, theorizing that energy is limiting growth and the protein requirement is greater than current recommendations suggest. Sixty male Holstein calves were fed a milk replacer with 30 percent crude protein and 20 percent fat to provide target growth rates of 500, 950 or 1,400 g (1.09, 2.08 or 3.06 lbs) per day. Dry-matter intake goals were 1.5, 3.0 and 4.5 percent of body weight for the respective treatments. The calves were slaughtered at weights of 65, 85 or 105 kg (143, 187 or 231 lbs) to determine empty body composition.

During the period to 65 kg, calves on the highest dry-matter level of 4.5 percent did not consume the target intake; however, calves on this treatment did achieve the level at the two greater target weights. Calves on the two higher growth regimens reached their target weights in about half the time it took the slower-gaining group to reach its target weight. Results from the body composition analysis indicated that calves fed to gain 950 g per day had less body protein and body fat content than the two treatments.

If a target weaning weight is projected at twice the birth weight, feeding for faster growth rates significantly reduced both the time to weaning and the cost. This study suggests that the most effective feeding programs are designed toward earlier weaning, with greater dietary dry-matter intake than is currently recommended. If early weaning programs are implemented, further changes will be required in nutrition and management recommendations. From Roche Animal Nutrition and Health Newsletter.

Ashland Station Crops Field Day to be held on July 13

Mike Mlynarek
Superintendent
Ashland Ag Research Station

You're invited to attend the UW - Ashland Station's Crops Field Day held from 1p.m. - 3 p.m. on Tuesday, July 13. This year's tour will include alternative crops which have excellent potential for our area.

Tom Osborn, UW Agronomy, will discuss his efforts in developing high-yielding canola varieties adapted to regional soil and climatic conditions. Canola is an oilseed crop with a huge international market due to its "healthy" food-grade oil content. Visitors will view Tom's research trial containing 40 different canola selections, both commercially available varieties and experimental lines.

Visitors will also see a ten-acre canola field at the Station and hear about our experience with growing this crop on a field scale for the first time. Michigan State University Extension Agents will discuss their experience with canola production over the past several years in Upper Michigan.

Ken Albrecht, UW - Agronomy, will discuss kura clover and cup-plant. Kura clover is a very long-lived clover from Russia, which spreads by rhizomes or underground stems. Although slow to establish, kura clover will ultimately spread one to two feet per year, often choking out weeds like dandelions and quackgrass. It can be used for pasture and in hay or silage systems. Ken will discuss efforts to develop improved kura clover varieties and production management strategies. Four different kura clover plantings will be viewed.

Cup-plant, native to North America, is found in moist, open prairie or meadow sites and also along stream banks. Cup-plant shows promise as a high yielding, high quality perennial silage. Again, Ken will discuss efforts to develop improved cup-plant varieties and production management strategies. A 1998 planting at the Ashland Station was 3 to 4 feet tall on June 15, 1999.

The Ashland Research Station is located on HWY 2, four miles west of Ashland and can be reached at 715/682-7268.

Milker Skills Workshop scheduled July 20-21

Dr. Larry Baumann
Dept. Animal & Food Science
UW-River Falls

A Milker Skills Workshop for dairy producers and dairy employees will be held July 20 - 21, 1999 at the University of Wisconsin-River Falls. The Milker Skills Workshop is an interactive, hands-on workshop designed to help dairy producers and employees achieve a better understanding of harvesting milk and the factors impacting milk quality. The two day workshop will cover raw milk quality, udder health, prevention and control of mastitis, milking machine function and milk room management.

The Milker Skills Workshop will be conducted by University of Wisconsin-Extension specialists Dr. Pam Ruegg and Dr. Larry Baumann. The workshop is being sponsored by the UW-Extension, UW-River Falls Dairy Outreach Program, and UW-Madison Department of Dairy Science. The cost of the workshop is $200, which includes the two-day workshop, two lunches and a take-home manual that will help dairy producers and their employees evaluate the strengths and weaknesses of their dairy operation, and find ways to improve their dairy's milk quality.

Applications for the workshop can be obtained by contacting Dr. Michelle Wieghart at 715-425-0641 or by writing to: Dairy Outreach Program, Coordinator - Michelle Wieghart, Agricultural Resource Center, University of Wisconsin-River Falls, 410 S. 3rd St., River Falls, WI 54022. The workshop will be limited to 20 people and applications will be accepted on a first come, first serve basis.

More on direct marketing

Kevin Schoessow
Area Ag Development Agent
Burnett, Sawyer, & Washburn Counties

In the last issue of this newsletter, I wrote about direct marketing of meat. In keeping with this theme I would like to share with you some more thoughts on direct marketing and how it might be used on your farm to help supplement current on-farm income.

In doing a bit of research on direct marketing, I found the following statement from a USDA newsletter on Direct Marketing. Although it came from Dr. Larry Lev, Associate Professor & Extension Marketing Economist, Oregon State University I feel it is appropriate for what is happening in NW Wisconsin. Dr. Lev states, *"Oregon has a growing number of small farms. While the small farm operators have many technical questions related to production practices, their number one priority (based on local focus group data) is finding out how to better market what they produce. Most small farmers in our state can't earn the returns that they need to stay in business by selling through the standard commodity channels. The shortening of the marketing chain opens all kinds of new possibilities for providing unique, higher valued products to consumers. And direct marketing helps small farmers form the types of close relationships with consumers that can lead to the identification of profitable new niches for the future."*

Direct marketing as defined by USDA is "Agricultural products sold directly to individuals for human consumption." In its truest form it is the farmer selling directly to the end consumer. These markets may be local or they may be distant. The farmer may perform all marketing functions from farmer to consumer (direct marketing) or the farmer may have minimal involvement with middlemen doing most of the marketing. The middlemen perform these functions with a profit motive. Producers vary in their comfort level as they participate in the direct marketing of their products.

The 1997 USDA Agricultural Census included direct marketing data for the second time. The first time USDA collect any information on direct marketing was in 1992. According to the census Wisconsin had 3159 farms direct marketing in 1992, in 1997 there were 3843, a 21.7% increase. The total value of this direct-marketed production was $13.8 million in 1992 and $21.8 million in 1997, a 57.8% increase. The average per farm value was $4397 in 1992 and $5690 in 1997, a 29.4% increase. Wisconsin was also ranked eighth in the U.S. for the number of farms involved in direct marketing.

States with the highest direct marketing product value were California with $73.2 million and Pennsylvania with $48.7 million. Per farm sales were highest in Rhode Island and Massachusetts with sales of $17,210 and $16,170 respectively. I would attribute these higher per farm sales in the eastern seaboard states due to their proximity to urban and suburban populations.

In northwestern Wisconsin we may not have the proximity to urban populations; however, the Duluth and Twin Cities metropolitan areas may offer some opportunities, as well as the nonresident weekend or summer populations. Even the local resident population may be willing to purchase more locally produced products.

Farmers and consumers are beginning to realize that there are alternative to the usual commodity driven prices and products. Not every consumer, or every farmer for that matter, is willing to buy or market through more direct channels; however, for those who are, a niche market may be an opportunity to add more income to the farmer and provide a quality, local food product to the consumer.

Besides direct marketing of meat, other possible direct marketing alternatives may be roadside markets, farmers' markets, subscription farming or community-supported agriculture, home delivery, or producer to producer. As some producers expand and become more specialized, they may require custom crop work or be looking to purchase some of their feed rather than grow it themselves. Again, these are marketing opportunities farmers need to be looking into.

Less direct marketing might be contracting with local restaurants, or grocery stores, or marketing farm products to processors, wholesalers, and brokers.

Like so many things in agriculture, there is no guarantee. Direct Marketing will emphasize specialization – a strategic focus – a niche. It will require new skills and willingness to partner and work with a whole group of new people. For some it can be a wonderful change of life and an exciting way of doing business.

Spooner Agricultural Research Station hosts 47th Annual Sheep Day

Yves Berger
Asst. Superintendent
Spooner Ag Research Station

On Saturday, August 28, 1999, the Spooner Ag Research Station will host the 47th Annual Spooner Sheep Day.

The morning session starts at 8:30 a.m. in the Station auditorium. Different speakers will present the results of new research in the sheep industry and topics relevant to the everyday operation of a sheep farm.

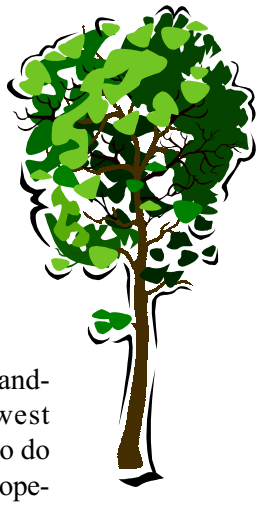
Whole lamb on the spit is offered as the main course for lunch.

Afternoon seminars held at the sheep barn are more hands-on related. Advanced sheep farmers and beginners always get a lot of good information to bring back home.

The public is welcome to attend. If you are not in the sheep business, please feel free to come and learn about the raising sheep. Registration is free; however, a fee of $5.00 is charged for lunch.

News from the Spooner Agricultural Research Station

Robert Rand
Superintendent
Spooner Ag Research Station



Hybrid Poplar Trial

A concern facing landowners in Northwest Wisconsin is what to do with vacant land. Hopefully a crop exists that will net the owner a return or at least keep the taxes paid. This problem is becoming more prominent with the decline in dairy farms. Some lands are suitable for crop production, but much pasture land and other lands are only marginally suitable for crop production lie idle, to be overcome with weeds, unmarketable brush and trees, or worst of all, houses.

Short rotation intensive culture poplar trees are being investigated as a crop for Northern Wisconsin landowners at the Spooner Ag Research Station.

Why these trees? In Wisconsin, the supply of wood fiber doesn't meet the demand, driving up raw material costs. These hybrid poplars require relatively low inputs of chemicals and fossil fuels. The hybrid poplars have a variety of possible end uses, including pulp (for paper), lumber, and millwork.

Hybrid poplars are clones. That means that they are vegetatively propagated. Segments of stems or branches, called cuttings, are collected from superior trees and used to produce new trees. That is, a piece of stem with no roots or leaves is planted, sprouts, and grows into a new tree. Many poplar clones will grow more than 6 feet per year. Some at the Arlington Research station have grown 11 feet in 6 months. The economic rotation for hybrid poplar is 12-15 years. Forecasted yields are in the range of 3-5 cords/acre/year.

There are five acres of cuttings planted at the Spooner Ag Research Station. They can be observed in the field where our red sign is located along Highway 53, just south of Ojibway road. Call the station for more information concerning establishment costs, soil preparation, etc.

Alfalfa Pest

Potato leafhopper numbers are rapidly on the increase in regrowth alfalfa. Leafhoppers can cause considerable yield reduction and decrease overall plant health. Leafhoppers are best counted with a sweep net. Numbers of 0.5 per sweep in 6-inch alfalfa warrant spraying.

Big Bale Storage

Big round bales appear to be a favorite way of making hay. Remember, considerable spoilage on big round bales can come from the bale wicking water up from the ground. Big round bales are best stored on posts or a gravel bed, where good drainage limits water from standing under the bale.

Summer Seeding Alfalfa

Seeding alfalfa in summer is an alternative to the normal spring seeding system. In trials from the Spooner Ag Research Station conducted from 1993 to 1998, it was shown that seeding alfalfa during the months of August and the first two weeks in September produced good stands and yields in the following years. Yields were not as high as if the alfalfa had been spring seeded. Soil should be clean tilled prior to seeding and moisture should be adequate. Watch for leafhopper problems and treat if necessary.

New Ag Research Station Director

Mr. Dale Schlough will retire as Director of U.W. Ag Research Stations on June 30, 1999. Many of you remember Dale as Superintendent of the Ashland Research Station. Dale will be moving to the Minoqua area where he has a home. Replacing Dale will be Professor Dick Straub, from the Department of Biological Systems Engineering, U.W. Madison.

This Quarter's Events

July 8-11, 1999, Central Burnett County Fair, Webster

July 13, 1999, Crops Field Day, 1 p.m. - 3 p.m., Ashland Ag Research Station

July 13-15, 1999, Farm Progress Days, Lancaster

July 20-21, 1999, Milker Skills Workshop, UW-River Falls

July 28-August 1, 1999, Head of the Lakes Fair, Superior

July 29-August 1, 1999, Washburn County Junior Fair, Spooner

August 5-8, 1999, Sawyer County Fair, Hayward

August 5-15, 1999, Wisconsin State Fair, West Allis

August 6-8, 1999, Iron County Fair, Saxon

August 12-15, 1999, Burnett County Fair, Grantsburg

August 12-15, 1999, Bayfield County Fair, Iron River

August 12-15, 1999, Rusk County Fair, Ladysmith

August 19-22, 1999, Ashland County Fair, Marengo

August 28, 1999, Spooner Sheep Day, Spooner Ag Research Station

August 31, 1999, Garden Plots Tour, 6:30 p.m., Ashland Ag Research Station

Spotted knapweed weed on the move

John Markus
Area Agricultural Agent
Bayfield & Ashland Counties

Spotted knapweed is invading new territory in Wisconsin, warns Jerry Doll, UW-Madison weed scientist. Typical of biennials, it has vegetative growth the first year and flowers the second. Once established, it displaces other plants by releasing chemicals from its roots. Spotted knapweed is bast adapted to light-textured, sandy soils and is common along railroads and on roadsides, in pastures, and other nondisturbed areas. It isn't a common weed in annual crops as long as tillage is used, but may invade CRP land, along with pastures.

Doll says seed bank studies on spotted knapweed found that more than 25% of its seeds were viable for eight years. Twenty-two percent of the seeds passed through the digestive system of sheep were viable.

Doll says farmers should prevent spotted knapweed from taking hold. Report infestations along highways and roads to local highway departments. Mow to prevent seed production. Products listed against spotted knapweed on non-crop land include:

Banvel/Clarity, Vanquish (same formulation as Clarity for use in non-crop areas), Weedmaster (a premix of dicamba and 2, 4-D amine) and Transline (the non-crop version of Stinger). In pastures, Banvel, Clarity, Stinger, or Weedmaster can be applied. North Dakota, Doll notes, has gotten good spotted knapweed control with low volatile ester formulations of 2, 4-D applies to rosettes in the fall or spring. No residual control is provided by 2, 4-D and once plant stems elongate, control is poor.

Any control program will take several years of annual mowing or treatment to eliminate an infestation. Reseeding and fertilizing may be necessary if desired pasture species are already gone.

Factors affecting bunker silo densities

R.E. Muck and B.J. Holmes
University of Wisconsin-Madison

Attaining a high density in a silo is important for two reasons. Firstly and most importantly, density and dry matter content determine the porosity of the silage. Porosity, in turn, sets the rate at which air can move into the silo and subsequently the amount of spoilage that can occur during storage and feedout. Secondly, the higher the density, the greater the capacity of the silo. Thus, higher densities generally reduce the annual cost of storage per ton of crop by both increasing the amount of crop entering the silo and reducing crop losses during storage.

The factors affecting density in bunker and pile silos are not well understood. General recommendations have been to spread the crop in 15 cm layers and pack continuously with heavy, single-wheeled tractors. In a survey of alfalfa silage in 25 bunker silos, Ruppel et al. (1995) found that tractor weight and packing time (min/t as fed or min/m^2) were the most important factors affecting density. However, both factors only explained a small fraction of the variation observed, and layer thickness was not measured. The objectives in our study were to measure density in a wider range of bunker silos and correlate those densities with filling practices.

Twenty collaborating county extension agents in Wisconsin measured densities in over 160 bunker silos containing either haycrop or corn silage. Density was measured with a 5-cm diameter corer, taking cores at approximately chest height at four locations accross the silage face. Core depth, distance from the top, and distance from the floor were recorded. Cores and grab samples were express mailed to the Center for determination of weight, dry matter content, and particle size distribution.

A survey was filled out for each silo sampled. Information requested from farmers included: number of packing tractors, tractor weight, number of tires per tractor, tire pressure, tire condition, number of drive wheels, silage delivery rate, packing time per day, harvest time per day, filling time, filling technique, intitial layer thickness, silo dimensions, maximum silage height, crop, crop maturity, and theoretical length of cut. These factors were then correlated with measured dry matter densities.

Ranges of dry matter densities were similar for both haycrop and corn silages. Densities on the low end suggested little packing whereas the highest densities were in the range observed in tower silos. Average dry matter densities were slightly higher that a recommended minimum density of 225 kg/m^3.

Preliminary analyses indicated that dry matter densities were most closely correlated with total tractor weight and initial packing layer thickness. Use of rear duals or all duals on packing tractors did not have a large effect on density. Packing time per ton appeared to be less important than total tractor weight or layer thickness; however, this may have been due to an inverse relationship between silage height and packing time. Taller silos tend to receive less packing time per ton, but density increased with silage height, indicating more self-compaction in deeper bunker silos.

Another issue raised in the preliminary analyses was packing time relative to crop delivery rate to the silo. Packing time per ton was highest under low delivery rates and generally declined with increasing delivery rate. Packing times were consistently less than 1 min/t as fed at delivery rates above 60 t/h in our survey. These results suggest that farmers using contractors for harvesting their silage crops probably will need to pay particular attention to spreading the crop in a thin layer and would benefit from using several packing tractors simultaneously.

Densities in bunker silos across Wisconsin were highly variable. Preliminary analyses of the results indicate that weight of the packing tractor, initial crop layer and thickiness, and packing time per ton are the most important factors. Finally, the results suggest that continuous packing with a single tractor may not be sufficient to obtain a high density in silos receiving high delivery rates such as with custom harvesting.

Silage bag capacity

Brian Holmes
University of Wisconsin-Extension Engineer

We frequently get questions about the amount of silage in a silo bag. One way to estimate this value is to calculate the volume in the bag and multiply by the silage density. The volume of a round bag is calculated as:

$V = 3.14 \times (D^2 / 4) \times L$

where: V = Volume (ft^3)

D = Diameter (ft)

L = Length of Silage

When full length bags are used, the length of silage is the bag length minus the unused portion needed to seal the end of the bag. The quantity of dry matter in the bag is the volume multiplied by the dry matter (DM) density. The dry matter density can vary from bag to bag and depends on machine type and adjustment as well as forage type. Typical densities range between 11 and 15 lbs. DM/ft^3. Table 1 has been developed to show silo bag capacity based on the following assumptions:

Round bags

Silage Length = Bag Length - (2 x Diameter)

Density = 13 lbs DM/ft^3

Table 1. Capacities of silage bags at 13 lbs DM/ft^3 density.

	Bag Diameter			
	8 ft.	**8 ft.**	**9 ft.**	**9 ft.**
Bag Length (ft)	Silage Length (ft)	Capacity (lbs DM)	Silage Length (ft)	Capacity (lbs DM)
100	84	54,900	82	67,800
150	134	88,600	132	109,200
200	184	120,200	182	150,500
250	234	152,900	232	191,900
300	284	185,600	282	233,200
	Bag Diameter			
	10 ft.	**10 ft.**	**12 ft.**	**12 ft.**
100	80	81,700	76	111,700
150	130	132,700	126	185,300
200	180	183,800	176	258,800
250	230	234,800	226	332,300
300	280	285,900	276	405,800

Use the multiplier in Table 2 to adjust the values in Table 1 for a different silage density. For example, the quantity of silage in a 200' 9' bag packed to 15 lbs DM/ft^3 is:

150, 500 lbs DM x 1.15 = 173,100 lbs DM

Table 2. Multiplier to adjust Table 1 capacities to a different silage density.

Density (lbs DM/ft^3)	Multiplier
11	0.85
12	0.92
13	1.00
14	1.08
15	1.15

Table 1 lists dry matter in one bag. If you need to know the capacity in lbs of silage as-fed , divide the table value by the dry matter content. Example: the weight of 65% moisture silage that has a dry matter density of 13 lbs DM/ft^3 in a 200' long bag of 9' diameter is:

Silage dry matter content $= \frac{100-65}{100} = 0.35$

Silage weight as fed, lbs $= \frac{\text{dry matter weight}}{\text{dry matter content}}$

$= \frac{150{,}500 \text{ lbs DM}}{0.35}$

$= 430{,}000$ lbs

Silage weight as fed, tons $= \frac{430{,}000 \text{ lbs}}{2{,}000 \text{ lbs/T}} = 215$ T

Milk production during the complete lacation of dairy cows fed diets with different amounts of protein

Z. Wu and L.D. Satter
University of Wisconsin-Madison

The increase in milk production following incremental additions of protein to the dairy cow diet is a diminishing response, and the point of maximum profitability is likely to be at a dietary protein level that is slightly below that need for maximum milk production.

Issues relating to nutrient management as well as costs associated with excessive protein supplementation point to the need for closer matching of animal requirements with dietary allowance of protein. It is suggested that early lactation diets contain approximately 17.5% CP, 35-37% of which is rumen undegradable. Reduction of dietary protein in later lactation as milk production decilines needs to be done cautiously, and for cows receiving BST and producing approximately 11,000 kg/lactation or more, this reduction should not occur before midlactation, and then not be reduced to below approximately 16% CP. This recommendation assumes that the supplemental protein offered throughout lactation will have approximately 50% rumen undegraded protein.

AGRICULTURAL NEWSLETTER

PRODUCED BY
THE UNIVERSITY OF WISCONSIN EXTENSION
AND
UW-MADISON COLLEGE OF AG AND LIFE SCIENCES

BURNETT • SAWYER • WASHBURN COUNTIES
RUSSELL KIECKER, AREA AGRICULTURAL AGENT 635-3506
KEVIN SCHOESSOW, AREA AGRICULTURAL DEVELOPMENT AGENT 635-3506
BOB RAND, SPOONER AG RESEARCH STATION SUPERINTENDENT 635-3735
YVES BERGER, SPOONER AG RESEARCH STATION SHEEP RESEARCHER 635-3735

PHONE: 1-800-528-1914, 715-635-3506, or 715-635-3735

ASHLAND • BAYFIELD • DOUGLAS • IRON COUNTIES
JOHN MARKUS, AREA AGRICULTURAL AGENT 373-6104
MIKE MLYNAREK, ASHLAND AG RESEARCH STATION SUPERINTENDENT 682-7268
TOM SYVERUD, EXTENSION AND OUTREACH EDUCATOR 682-7268

PHONE: 715-682-7268, or 715-373-6104

JULY • AUGUST • SEPTEMBER 1999 VOL. 5, ISSUE 3

UW Extension

UWEX Area Agricultural Agents
Burnett, Sawyer, & Washburn Counties
Spooner Agricultural Research Station
W6646 Highway 70
Spooner, WI 54801