

# Twin Falls County

University of Idaho, U.S. Department of Agriculture, and Idaho counties cooperating.

July 2012 Volume 3 Issue 2



## Planning for High Quality Silage

Steve Hines, Extension Educator

It won't be long and the 2012 corn silage harvest will be underway. High quality silage doesn't just happen. You must plan for the harvesting and storage of ensiled feed. You want to do the very best job you can during silage harvest to ensure high quality feed for cattle over the next several months. Along with that thought, you also want to reduce as much harvest and storage loss as you can to preserve that high value feed.

The first step is to ensure that harvest goals are clear with everyone involved. The farmer, dairyman, nutritionist, and custom harvester should meet well in advance and discuss the harvest goals to make sure everyone understands them. Along with corn maturity, other critical factors for discussion include particle chop length, amount of kernel process, packing requirements, and covering requirements. Certainly these things don't just happen and any custom work will need to be scheduled well in advance.

Once the harvest begins, the steps taken during harvest are critical for high quality silage. Much of what happens during the mechanical stage of harvest determines the outcome of the final product. Once the corn reaches the desired moisture level it is critical to get it off and packed as quickly as possible. Chopping corn too wet can lead to insufficient carbohydrate development, nutrient losses through leaching of water in the pile, as well as the development of undesirable bacteria in some cases. Chopping corn too dry leads to difficulty making a well packed pile, slow ensiling, and greater dry matter losses. Research has shown it is ineffective to add water to a pile of dry corn. (Continue on page 2)

### WORKSHOP OFFERED . . .

#### Home Food Preservation Workshop

**When:** September 10, 12, 17, 19, 2012 and Lab September 22, 2012

**Where:** Twin Falls County Extension  
246 Third Avenue East, Twin Falls, ID 83301

**Cost:** \$35.00 (includes notebooks, publications and lab supplies)

**Pre-register by: August 31, 2012 by calling 208-734-9590**



## Planning for High Quality Silage (continued from page 1)

Chop length should be between 1/2–3/4 inches. The reason is that proper length is necessary for the cow to properly use the nutrients and fiber in the silage. If the piece is too short it can lead to insufficient rumination and if cut too long it may not pass through the digestive system quickly enough leading to lower dry matter intake by the cow. If the corn in the field is a bit too dry, keeping chop length on the short side can aide in helping the corn to pack better. If you have planted a BMR (brown mid-rib) variety of corn, it is critical that you discuss the desired chop length with your nutritionist. The recommendation is generally to chop BMR corn longer, about one inch, because it has less fiber in it. If you chose to use a kernel processor, it is recommended to crack at least 95% of the kernels. Processed kernels allow digestive juices quicker access to the carbohydrates once inside the cow. The dairyman or nutritionist should check the amount of processing during harvest. After harvest, is too late if an adjustment is needed.

Packing of the pile is one area where Idaho producers can improve. The University of Idaho Extension did a study in 2008 and 2009 looking at silage all across southern Idaho. We found the average density in Idaho is 14.3lbs/ ft<sup>3</sup> on a dry matter basis. The recommendation for bunkers and piles is a minimum of 15 lbs/ft<sup>3</sup>. The highest density we found was on a dairy that used a sheepsfoot compacting roller. The density of that silage was over 20lbs/ft<sup>3</sup>. We also found many piles where the density was below 12lbs/ft<sup>3</sup>. Poorly packed piles lead to slow fermentation and high dry matter loss. Dry matter loss is hard to see but it is easily quantifiable. A 20,000 ton pile that has a small loss of 10% equates to 2000 tons of silage lost in storage. Until the better storage plastics and oxygen barriers came along, losses of 15-25% weren't uncommon.

Microorganisms in the silage digest the carbohydrates in the silage for food. Lack of oxygen through good packing and a properly fermented low pH pile greatly reduces dry matter losses. Here is where good communication with the harvest team is important. The packing tractor or tractors must be able to keep up with the delivery rate of the harvester and trucks. There are several loose rules of thumb for the numbers of tractors. One is that a tractor can pack

its own weight in corn every hour. Another is that you will need 800 lbs. of tractor for every ton of corn delivered per hour. Whatever method you choose to determine packing tractor needs, if you misguess here it will affect the silage quality the rest of the year. You can't go back and repack a pile. Forage harvesters are being built with over 1000 horsepower and silage is hauled in semi-trailers. Those machines can deliver huge amounts of silage to the pile. Make sure the packing tractors can keep up. The goal is fill the bunker or build the pile quickly and then get it covered as soon as possible.

The last step is to get the silage covered quickly. Most producers now use white plastic sheeting. Two layers are better than one, and oxygen barrier film works very well but it is expensive, so that option will have to be weighed. When covering the pile and especially a bunker, make sure that all the edges and seams are well covered and sealed. Place tires or some other weight over the pile to keep the cover from billowing. I have observed many dairies sealing the edges on both bunkers and piles with straw bales. The better job you do here will reduce the overall storage losses. To reduce loss during feedout , it is recommended to feed off the entire face in one day. That can be difficult to do with such large piles. Good planning on daily needs can help establish proper pile size developed during harvest. Feedout management is a topic for another article.

Dry matter storage losses are very real, and they are expensive for the producer. The actual loss is hard to see,so it is easy to overlook after harvest. I have estimated the dry matter losses of silage in Magic Valley in the millions of dollars of lost feed. With dairy profit margins so tight, it is imperative to find those places in the operation where money can be saved. Needlessly losing feed is one of those areas.

UNIVERSITY OF IDAHO EXTENSION UPDATE

## Twin Falls County

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# More Than the Fish Farmer Wants to Know about Feeds

Gary Fornshell, Extension Educator

Feed cost is the largest operating expense in aquaculture production. So, the cost of feed is important – but quality is important too. Fish should be fed a nutritious feed in a manner that results in fast and efficient growth without degrading water quality.

What makes a quality feed? A feed is only as good as its ingredients. Aquaculture feeds are changing and will include a wider variety of alternative ingredients to fishmeal than are currently being used. Several of these ingredients are much more complicated than fishmeal and they require a complete evaluation to determine their nutritional value and their suitable level of inclusion in the feed.

Ingredients are evaluated based on compositional analysis, palatability, digestibility, functionality and performance in laboratory, pilot scale and on-farm feed trials. Compositional analysis involves detailed laboratory analyses resulting in the determination of levels of nutrients (i.e., protein, lipid, ash, vitamins, and minerals) and anti-nutrients (i.e., trypsin inhibitors) in an ingredient. Once the complete compositional profile of an ingredient is known, the potential for that ingredient to be a functional ingredient can be determined.

Palatability is defined as the combination of attractiveness and ingestion of a diet. Palatability is important because no matter how digestible and available the nutrients and energy from an ingredient may be, if the ingredient reduces feed intake its value as a feed ingredient is diminished. While it may be difficult to determine whether or not a fish “likes” some ingredient, it is possible to determine differences in the amounts of feed eaten. It is within this context that nutrition researchers refer to palatability of a feed, and by extrapolation an ingredient.

Nutrients in a feed cannot be used until they are absorbed into the body and transported to cells where metabolism takes place. Apparent digestibility coefficients (ADCs) can be determined for each nutrient category (crude protein, crude lipid, etc.). ADC values indicate the percentage of the nutrient that is absorbed by the fish and are used by researchers and feed manufacturers to formulate feeds to meet the dietary requirements of the animal. ADCs are also used to compare the nutritional and economic value of alternative ingredients.

Ingredient functionality evaluates the effect of that ingredient on feed manufacture and pellet quality. Regardless of the nutritional value of an ingredient, if it cannot be practically included in a feed with the physical properties required to optimize its delivery to a given fish species, then its value as an ingredient is significantly reduced. By assessing the effects of an ingredient on pellet quality and properties, the ability to manage pellet quality through ingredient selection is improved. The interaction between the feed manufacturing process and the mixture of ingredients used in a feed formulation has a significant and varying effect on the final cost, stability, consistency and acceptability of the feed.

Determining the effect of a new ingredient on growth, feed efficiency, nutrient retention, and health of the fish, and on the sensory characteristics of the final product (i.e., flavor, texture, and aroma) are the final steps in the evaluation of ingredients. It can take several studies to determine all these effects, but answers to these questions are critical if the new or modified ingredient is to be used in commercial feeds. Once initial laboratory feed trials are concluded and the results suggest that the ingredient is feasible for commercial feeds, production-scale trials should be conducted to evaluate the newly formulated feed against commonly used commercial feeds under real-world conditions. Such trials are beneficial to demonstrate to growers and feed manufacturers whether or not the ingredient is suitable for commercialization based on growth, feed conversion ratio, product quality or yield, or cost of feed per pound of weight gain (economic feed conversion ratio).

For the grower the bottom line is economics. In commercial aquaculture the feed conversion ratio dramatically affects the profitability of the operation (see table below).

**Feed cost in cents per pound produced at different feed conversion ratios and feed prices**

	Feed price, cents/pound					
Feed conversion ratio	45	48	51	54	57	60
1.00	45	48	51	54	57	60
1.10	50	53	56	59	63	66
1.20	54	58	61	65	68	72
1.30	59	62	66	70	74	78
1.40	63	67	71	76	80	84
1.50	68	72	77	81	86	90

(Continue on page 4)

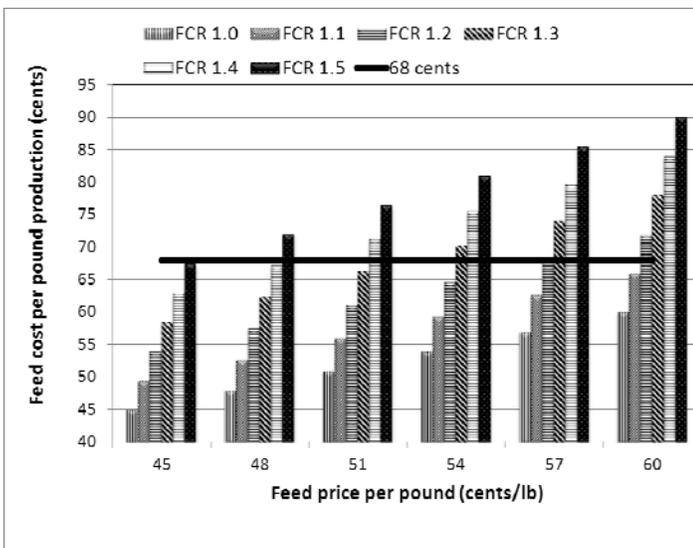
## More Than the Fish Farmer Wants to Know about Feeds (Continued from page 3)

Once considered a simple chore, feeding was usually assigned to the least experienced employee on the farm. While it is true that fish do not grow if essential nutrients are lacking in the feed, it is also true that a feed cannot efficiently produce fish without being consumed.

The feed conversion ratio (pounds feed per pound fish) is commonly used to measure feeding efficiency. The feed conversion ratio is influenced by several factors, including feed quality, feed size, fish size, feeding rate and frequency, water temperature, water quality and other factors such as fish health.

Given that feed costs consume 50 to 60% of operating costs, it's tempting to compare feeds on a cost per pound basis, but this is not necessarily the most effective method of feed selection. It is much better to compare feeds on a cost per unit output basis, such as cost of feed per pound produced, or for processor/producer companies to evaluate cost of feed per unit of product (i.e., fillets, dressed).

The chart below is a visual presentation of the table above. The least expensive feed at \$0.45/lb fed inefficiently at a FCR of 1.5 costs \$0.68 per pound fish produced, whereas more expensive feeds fed more efficiently can produce a pound of fish at or under \$0.68.



## Consumption of Sports Drinks by Children and Adolescents

Rhea Lanting, Extension Educator

Children's and adolescents' consumption of sports drinks is increasing. Over the past three decades, U.S. children and adolescents have significantly increased their consumption of sugar-sweetened beverages (SSBs). The per-capita calorie contribution of SSBs to children's and adolescents' diets increased from 204 calories per day in 1988-1994 to 224 calories per day in 1999-2004. Adolescents now obtain 10-15% of their calorie intake from SSBs. SSBs are the main source of added sugars in the diet of American children, accounting for 46% of added sugars in their diet. Consumption of SSBs is associated with excess weight gain, poor nutrition, displacement of healthful beverages, and a higher risk for obesity and diabetes. The American Heart Association recommends that most children and adolescent girls consume no more than 20 grams of added sugar per day, and adolescent boys consume no more than 33 grams of added sugar per day.

The term "sugar-sweetened beverage" is often associated with traditional carbonated beverages, such as sodas. However, this category of beverages also includes sports drinks or electrolyte drinks, sweetened tea, fruit-flavored drinks and punches, and other beverages that contain large amounts of added sugar.

Sports drinks were created in 1965 in the United States as dietary supplements for athletes, in an effort to address certain sports-related physiological and nutritional issues. Sports drinks are recommended only for individuals engaged in prolonged vigorous physical activity for more than one hour and/or those activities performed in high temperatures and humidity. The average American child or adolescent does not engage in enough physical activity to warrant consumption of sports drinks. For most children and adolescents, consuming water before, during, and after physical activity provides the necessary hydration.

Depending on the brand, sports drinks usually contain nutrients, such as water, electrolytes (primarily sodium and potassium), and carbohydrates. Carbohydrate options found in a number of popular sports drinks include high fructose corn syrup, fructose, sucrose, sucrose syrup, brown rice syrup, cane juice, and maltodextrin. Depending on the brand, some sports drinks contain as much as 19 grams of added sugar, 200 milligrams of sodium, and 80 calories per 8 ounces.

**PARENTS need to be good role models.** Parents, teachers, coaches, and children and adolescents need to understand the potential risks of consuming sports drinks. (Continue on page 5)

## Consumption of Sports Drinks by Children and Adolescents (continued from page 4)

Many parents are confused by the nutritional content of sports drinks. They need to learn how to read the labels on sports drinks and to ensure that health and nutrient claims are accurate and not misleading. They also need to learn how to counteract marketing that leads children and adolescents to believe that consuming sports drinks will enhance athletic performance.

**What we can do.** We can make sure sports drinks are not available or advertised throughout the school setting and should not be available as options for purchase from school vending machines, school stores, the cafeteria and other school facilities. We all need to do our part in educating the school and community about the need to consume water instead of sports drinks, except when participating in prolonged vigorous physical activity. And, let's make sure that free drinking water is available at all times for children and adolescents.



Reference: Healthy Eating Research – A National Program of the Robert Wood Johnson Foundation.



## Bring on the Berries

Cammie Jayo, Extension Nutrition Program Coordinator

Berries signify summer and rightfully so, as the warmer months are the peak harvest for these fruits. Berries are bursting with vitamins, minerals and antioxidants, which may help increase our immune function and protect against cancer and heart disease.

When shopping for berries, avoid buying bruised or oozing berries, and make sure you turn the container over to check berries at the bottom. Look for firm, plump, full-colored berries. At home, cover and refrigerate until ready to serve. Before serving, wash berries under cool running water, rinse the berries gently, and pat dry. Berries do have a short shelf life, so to enjoy them year round, buy them fresh and freeze them yourself. The secret to successful freezing is to use unwashed and completely dry berries before placing them in a single layer on a cookie sheet in the freezer. Once the berries are frozen, transfer them to plastic bags or freezer containers. Frozen berries should last approximately ten months to one year.

Check out these tips to include more berries in your diet:

- ◆ Add extra berries to muffins or pancakes
- ◆ Top a bowl of berries with a dollop of light-whipped topping and a sprinkling of chopped nuts
- ◆ Add berries to a bowl of whole grain cereal or oatmeal
- ◆ Sprinkle berries on a salad with chicken, spinach, pecans, and a vinaigrette or poppy seed dressing
- ◆ Stir fresh berries into yogurt or light ice cream
- ◆ Combine frozen berries with bananas and low-fat milk to make a smoothie

Berries are nutritious, colorful, flavorful and easy to prepare. Whether you get them fresh from the store, grow or pick your own, buy them frozen or dried, berries are a wonderful treat in the summertime and throughout the year as well.

For a light summer salad, try this recipe with blueberries.

### Lemon Blueberry and Chicken Salad

#### Ingredients

- 2 cups fresh or frozen blueberries, divided
- ¾ cup low-fat lemon yogurt
- 3 tablespoons reduced-calorie mayonnaise
- 1 teaspoon salt
- 2 cups cubed cooked chicken breast
- ½ cup sliced green onions (scallions)
- ¾ cup diagonally sliced celery
- ¾ cup diced sweet red pepper

#### Instructions

- Reserve a few blueberries for garnish
1. In a medium-sized bowl, combine yogurt, mayonnaise and salt
  2. Add the remaining blueberries, chicken, green onions, celery and bell pepper
  3. Mix gently
  4. Cover and refrigerate to let flavors blend, at least 30 minutes
  5. Serve over endive or other greens garnished with reserved blueberries and lemon slices, if desired

**Number of servings:** 4

**Yield:** About 5 cups

**Per portion:** 244 calories, 25 g protein, 6 g fat, 22 g carbohydrate

Recipe from [www.blueberrycouncil.org](http://www.blueberrycouncil.org)



## **Master Gardener Plant Clinic**

Answers for your home garden/lawn questions

May 1– September 18, 2012  
(Tuesdays only)



The Master Gardener Plant Clinic for Twin Falls County is now in session through September 18, 2012. The clinic will be held every **Tuesday** from **1:00 – 4:00 p.m.** at the Extension Office, 246 Third Avenue East, Twin Falls.

**To contact a Master Gardener call:** 208-734-9590, ext. 30.  
or email them at [tfmg@uidaho.edu](mailto:tfmng@uidaho.edu)

# Twin Falls County

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