Forage News

Keeping Forage-Livestock Producers in Kentucky Informed

Dr. Ray Smith and Krista Lea, editors

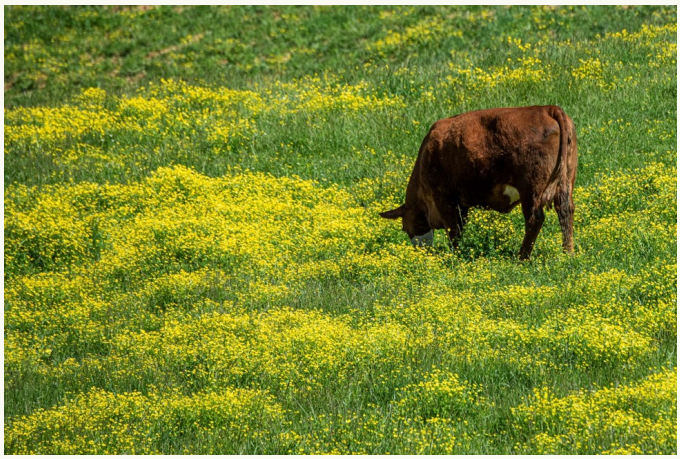
June 2022

Pub of the Month: Conversion of Toxic Tall Fescue to Novel Endophyte Tall Fescue

Successful conversion from toxic KY-31 to novel endophyte tall fescue begins much earlier than most people anticipate. Seedheads need to be clipped before maturation, the existing stand needs to be sprayed out in July/August and reseeding needs to be in early September. Check out this simple checklist for how to make the transition this summer and fall on page 4 of this publication.

Buttercup in hay and baleage

Kentucky pastures have exploded with the signature yellow flower of buttercup. Buttercup is the common name for a group of species from the genus Ranunculus. Buttercups are sometimes classified as short-lived perennials, but often grow as winter annuals. Four species of buttercups that may be found in Kentucky: bulbous buttercup (*Ranunculus bulbosus*), creeping buttercup (*Ranunculus repens*), tall buttercup (*Ranunculus acris*), and small flower buttercup (*Ranunculus arbortivus*). Each of these species have somewhat similar flower heads but differ in their leaf



characteristics. New seed are produced during the time petals are showy. Waiting until after flowers appear can be too late to implement control tactics. This is one reason buttercups can survive year to year.

Buttercups are more than an unsightly weed. They can also be toxic. Grazing or mowing will release a powerful vesicant which causes blistering of the skin, mouth, and digestive system on contact. **Fortunately, the blistering agent is detoxified rapidly by drying, such that it is not generally a problem in hay.** Limited research in Europe indicates that it is detoxified in baleage as well.

Death of livestock due to buttercup is rare - A review of University of Kentucky Veterinary Diagnostic Laboratory records over the last 13 years found no cases of livestock deaths attributable to buttercup ingestion. If other forage is available, grazing livestock will usually avoid buttercup because the leaves, flowers, and stems have a sharp, acrid taste.

Most buttercup plants emerge from seed during the fall or late winter months. Therefore, pasture management that maintain thick stands and promote growth of more desirable plants during these months is one of the best methods to help compete against the emergence and growth of this plant. Mowing fields or clipping plants close to the ground in the early spring before buttercup plants can produce flowers may help reduce the amount of new seed produced, but mowing alone will not totally eliminate seed production.

Herbicides registered for use on grass pastures that contain 2,4-D will effectively control buttercup. For optimum results apply herbicide in the early spring (February - March) before flowers are observed and when buttercup plants are still small and actively growing.

Forage Timely Tips: June

- ✓ Make plans to attend the KFGC's Summer Forage Tours.
- ✓ Continue hay harvests. Minimize storage losses by storing hay under cover.
- ✓ Clip pastures for weeds and seedheads as needed.
- ✓ Use slower grazing rotations allowing for a longer recovery periods.
- ✓ Use portable fencing to decrease paddock size and increase paddock number.
- ✓ Do NOT graze below the minimum desired residual height (4 in for most forages).
- ✓ When present, johnsongrass can provide high quality summer forage when managed.
- ✓ Crabgrass, a warm-season annual grass, can provide high quality summer grazing. It is a annual grass highly preferred by livestock. If desired, remember crabgrass needs some annual soil disturbance to keep coming back.
- ✓ Begin grazing native warm-season grasses. Start at 20-24" and stop at 8-10 inches.

For best herbicide activity wait until daytime air temperatures are greater than 50 degrees for two or three consecutive days. Consult the herbicide label for further information on grazing restrictions, precautions, or other possible limitations.

Applying broadleaf herbicides like 2,4-D will damage clover. However, buttercup is able to germinate and grow because of insufficient ground cover of desirable forage species. In these cases, clover stands are likely not that thick or need rejuvenating.

Management Options

To prevent or inhibit buttercup germination in the fall, manage grass pastures to retain residual heights of three or four inches. Realistically speaking, pastures used for overwintering, hay feeding or calving will always be overgrazed and therefore will be prime spots for buttercup and other winter weeds encroachment. Overseeding these pastures in early spring with forages that establish aggressively (like red clover or ryegrasses) will add some desirable forage species to the spring flush of growth even though they will not eliminate buttercup emerging at the same time. Follow up with an early spring mowing to clip the buttercup and release the desirable species.

Cover up bare ground. Fall applications of nitrogen will produce taller grass (shading the ground) and will stimulate existing grasses to thicken up or tiller out the following spring. Timely mowing in the spring followed by nitrogen application can reduce buttercup seed production and will stimulate spring forage growth that helps shade the lower growing buttercup.

No matter how go about it, controlling buttercup is not a 'once and done' project. Nor will one method work alone – chemical control alone with leave bare ground unless there is a strategy to replant or fill in that area. However, we can manage pastures to reduce buttercup incidence and improve your pasture productivity at the same time. Happy foraging. ~ Jimmy Henning for Farmers Pride

Hay could be in short supply next winter

Have you started thinking about next winter's hay supply? The question seems ludicrous given that we are in the beginning of the hay making season. But is it?

Kenny Burdine doesn't think so. The extension agricultural economist with the University of Kentucky says it's never too early to plan for winter hay needs, especially this year. He comes to this conclusion based on experience.

In 2007, a spring freeze in Kentucky damaged the spring forage growth, and summer drought impacted production for the remainder of the growing season. By late fall, it became clear that hay was in much shorter supply than expected. Average-quality grass hay prices more than doubled. Burdine recalls that a lot of cow-calf producers ended up feeding commodity feeds that winter instead of hay. "At that time, alternative feeds were relatively inexpensive, but that is not going to be the case this year."

Burdine cites several reasons why he thinks it will be prudent to ensure adequate hay stocks going into winter. Currently, producers in drought-stricken areas have continued to feed hay during a time that is normally reserved for grazing. This will eat into hay reserves that might normally be available later in the year.

Burdine also points out that continuing dry conditions out west will impact hay supplies throughout the upcoming growing season. "I think it would be naïve to think that there isn't potential for lower hay yields and increased demand for hay if the (drought) situation continues," the economist notes.

Although hay markets are largely regional, Burdine writes that the potential for hay availability concerns are not just confined to areas dealing with drought.

"Hay is expensive to transport, but the wider hay value differences across regions become, the more incentive there is to move hay into greater deficit areas," he explains. "We have seen this in the past, and this is one of the ways markets allocate resources when they become scarce."

The potential implications of drastically higher fertilizer prices also need to be taken into consideration. Even where adequate soil moisture is available, Burdine thinks it is likely that producers will apply less fertilizer on their hay acres than what is normally done. If this occurs, lower hay production will occur in otherwise responsive fields and cut into future hay inventories.

Burdine is not necessarily predicting a repeat of 2007, but he does think it is valuable context and underscores the importance of planning for winter hay needs early. ~ Mike Rankin, Hay and Forage Grower. Read the full article here. https://hayandforage.com/article-3969-Hay-could-be-in-short-supply-next-winter.html

12th Eastern Native Grasslands Symposium

Join us in Kentucky at Louisville's renowned Galt House Hotel, October 3-6, for the 12th Eastern Native Grasslands Symposium! This year's Symposium will feature two days of speakers and poster presentations, as well as a full day of field trips. Continuing Education Units (CEUs) will be offered for professionals. Find out more information at ENGSymposium.org.

Upcoming Events (see Forage website for details and to register, click on EVENTS)

June 16—Equine Farm and Facilities Expo, Lexington
Aug 11—Eastern KY KFGC Field day, Quicksand, KY
Sept 13-14—KY Grazing School, Versailles, KY
Oct 3-6 Eastern Native Grass Symposium, Louisville
October 26 and 27—KY Grazing Conference, Leitchfield and Winchester, KY
Nov 14-17—World Alfalfa Conference, San Diego, CA
Feb 21, 2023—KY Alfalfa and Stored Forage Conference, Cave City, KY
May 14-19, 2023—International Grassland Congress, Covington, KY

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Corn that acquires its own nitrogen identified, reducing need for fertilizer

A public-private collaboration of researchers at the University of Wisconsin–Madison, the University of California, Davis, and Mars Inc., have identified varieties of tropical corn from

Oaxaca, Mexico, that can acquire a significant amount of the nitrogen they need from the air by cooperating with bacteria.

To do so, the corn secretes copious globs of mucus-like gel out of arrays of aerial roots along its stalk. This gel harbors bacteria that convert atmospheric nitrogen into a form usable by the plant, a process called nitrogen fixation. The corn can acquire 30 to 80 percent of its nitrogen in this way, but the effectiveness depends on environmental factors like humidity and rain.

Scientists have long sought corn that could fix nitrogen, with the goal of reducing the crop's high demand for artificial fertilizers, which are energy intensive, expensive and polluting. Further research is required to determine if the trait can be bred into commercial cultivars of corn, the world's most productive cereal crop.

The findings are reported Aug. 7 in the journal PLOS Biology. "It has been a long-term dream to transfer the ability to associate with nitrogen-fixing bacteria from legumes to cereals," says Jean-Michel Ané, a professor of bacteriology and agronomy at UW–Madison and a co-author of the new study.

Legumes, such as beans, are the only group of crop plants previously known to acquire a significant amount of nitrogen through fixation, which they perform in specialized tissues called root nodules.

Howard-Yana Shapiro, the chief agricultural officer at Mars, a senior fellow in the Department of Plant Sciences at UC Davis and a co-author of the report, identified the indigenous varieties of corn in a search for cultivars that might be able to host nitrogen-fixing bacteria.

The corn is grown in the Sierra Mixe region of Oaxaca in southern Mexico, part of the region where corn was first domesticated by Native Americans thousands of years ago. Farmers in the area grow the corn in nitrogen-depleted soils using traditional practices with little or no fertilizer, conditions that have selected for a novel ability to acquire nitrogen. The biological materials for this investigation were accessed and utilized under an Access and Benefit Sharing Agreement with the Sierra Mixe community and with the permission of the Mexican government.

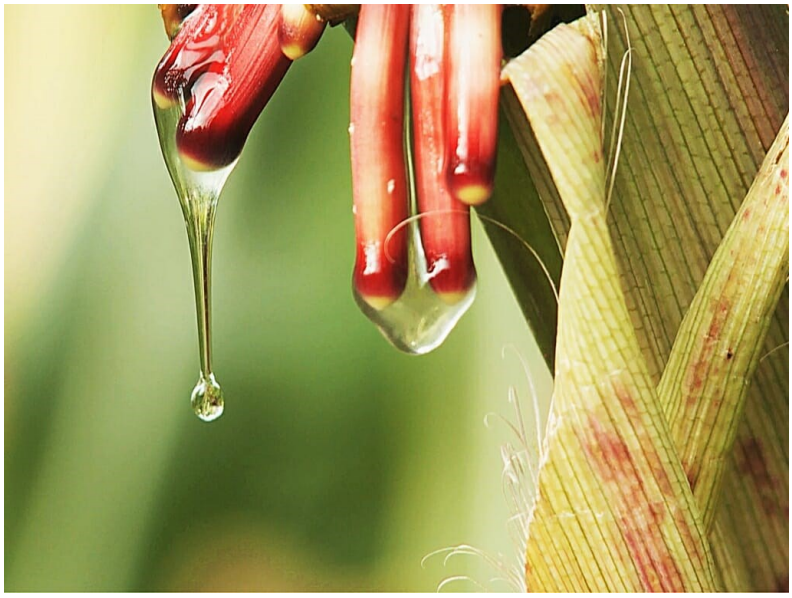
The corn is striking. Most corn varieties grow to about 12 feet and have just one or two groups of aerial roots that support the plant near its base. But the nitrogen-fixing varieties stand over 16 feet tall and develop up to eight or 10 sets of thick aerial roots that never reach the ground. Under the right conditions, these roots secrete large amounts of sugar-rich gel, providing the energy and oxygen-free conditions needed for nitrogen-fixing bacteria to thrive.

Establishing that plants are incorporating nitrogen from the air is technically challenging.

"It took us eight years of work to convince ourselves that this was not an artifact," says Ané, whose lab specializes in studying and quantifying nitrogen fixation. "Technique after technique, they're all giving the same result showing high levels of nitrogen fixation in this corn."

The group used five different techniques across experiments in Mexico and Madison to confirm that the Sierra Mixe corn's gel was indeed fixing nitrogen from the air and that the plant could incorporate this nitrogen into its tissues.

"What I think is cool about this project is it completely turns upside down the way we think about engineering nitrogen fixation," says Ané.



The gel secreted by the corn's aerial roots appears to work primarily by excluding oxygen and providing sugars to the right bacteria, sidestepping complex biological interactions. The research team was even able to simulate the natural gel's effects with a similar gel created in the lab and seeded with bacteria. The simplicity of the system provides inspiration to researchers looking to identify or create more crop plants with this trait.

"This corn showed us that nature can find solutions to some problems far beyond what scientists could ever imagine."

Breeding the trait into commercial cultivars of corn could reduce the need for artificial nitrogen fertilizers, which have a host of disadvantages. More than 1 percent of the world's total energy production goes toward producing nitrogen fertilizer. Developed countries contend with waterways polluted by leaching nitrogen, while adequate fertilizer is often inaccessible or too expensive for farmers in developing countries. Corn that fixes some of its own nitrogen could mitigate these issues, but more research will be required.

"Engineering corn to fix nitrogen and form root nodules like legumes has been a dream and struggle of scientists for decades," says Ané. "It turns out that this corn developed a totally different way to solve this nitrogen fixation problem. The scientific community probably underestimated nitrogen fixation in other crops because of its obsession with root nodules."

"This corn showed us that nature can find solutions to some problems far beyond what scientists could ever imagine," Ané says. ~ Eric Hamilton, University of Wisconsin-Madison. Read the full article here. https://news.wisc.edu/corn-that-acquires-its-own-nitrogen-identified-reducing-need-for-fertilizer.

Conversion of Toxic Tall Fescue to Novel Endophyte Tall fescue

S. Ray Smith and Krista Lea – University of Kentucky

Replacement Protocol:

Spring

Soil sample; adhere to lime and fertilizer recommendations

1. Take soil sample in May.
2. Follow recommendations in soil test.

Remove/prevent all tall fescue seed heads in the spring via mowing or early hay cutting

1. Clip/mow the pasture in early May as low as possible.
2. Clip/mow the pasture a second time in late May to remove tall fescue seed heads (Note: Fescue seed can be viable 15-20 days after pollination and then germinate in the fall).

Mid-Late Summer

Herbicide spray to kill out existing stand before planting novel endophyte tall fescue or other forages

1. Graze tall fescue heavily during periods of growth.
2. Stop grazing and allow tall fescue to regrow to five to six inches in height.
3. Spray with glyphosate 4-6 weeks before planting – mid to late-July.
4. Allow weeds and toxic tall fescue to germinate or re-grow from escapes.
5. Re-spray glyphosate before planting – early September

Early-Fall

Plant novel endophyte tall fescue seed

1. In early to mid-September, just after last weed spray, plant a novel tall fescue variety using a no-till seed drill.
2. No-till drill at 20 lbs/ac, and ¼ inch deep. To achieve better ground cover, set drill at 10 lbs/ac and go over field twice, the second pass perpendicular to the first pass.

Late Fall or early next Spring

Tall fescue seedling management

1. Low rates of N can be used to enhance stand establishment (~40 lbs/N/ac)
2. After planting, wait until tall fescue seedlings reach the 4-leaf stage (4 to 5 inches tall) before weed control.
3. If needed, apply Weedmaster (2,4-D and dicamba) or similar herbicide to control broadleaf weeds.
4. Allow good sod development before grazing next spring. Ideally, wait until plants are 8 inches tall and flash graze (a large number of animals for half a day) or mow at 4 inches residual height or simply cut for hay in the spring (4 inch stubble height).

College of Agriculture, Food and Environment
Animal and Food Sciences

Kentucky Dairy Notes

June 2022

Let's Celebrate National June Dairy Moo-nth

- National Dairy Month celebrations began in 1937 as a way to promote drinking milk and originally was called National Milk Month.
- In 1939, the name was changed to National Dairy Month to promote all dairy products, not just milk.
- In 2005, KY proclaimed milk as its official beverage.
- In 20 states, milk is the official state beverage. Besides KY, these states include AR, DE, LA, MD, MN, NE, NY, NC, ND, OK, OR, PA, RI, SC, SD, TN, VT, VA, and WI.
- In RI, coffee-flavored milk (my favorite) is the official beverage and is sold beside chocolate-flavored milk in grocery stores throughout eastern New England.
- In Mo, the official dessert is the ice cream cone.
- Yogurt is the official state snack in NY.

Hats off to all those involved in the Dairy Industry!!!!!

Manage Your Grazing System for Optimum Dairy Cow Performance

By Donna M. Amaral-Phillips

Allowing dairy cows to graze forages versus harvesting and storing them can be an economical way to provide some or all of a dairy cows' forage needs. Grazed forages can provide as little as 15% of the forage needs of dairy cows or up to the majority of the forage component of their diets. The amount of grazed forage consumed can vary with growing conditions and/or the time of year.

Grazing forages for the milking dairy herd is nothing new. It has been practiced for years, but what has changed over time are some of the forage management practices. Today, we pay more attention to the forage species in the pasture fields, try extra hard to graze young, vegetative plants for higher quality forages through managing the rotation of fields or paddocks using temporary fencing, and making sure water is always close to the cows (within 800 ft). One of the biggest realizations is that pasture systems must be managed closely and the movement of the cows must constantly evolve and change to match the availability of forages. Outlined in this article are some of the key components in managing a grazing system for the milking dairy herd.

1) Manage the forage rotation to allow the forage plants time to rest and regrow. In the summertime, rest periods need to be approximately 28 to 35 days between grazing periods. Grasses regrow from the tillers that are close to the soil surface, thus it is important for 3 to 4 inches of growth to remain after grazing orchardgrass or fescue plants. Closer grazing increases the time of regrowth, decreases survivability of the plants especially during drought conditions and decreases the nutrition provided to the dairy cow. In contrast to grasses, alfalfa and red clover plants regrow from the carbohydrate stores in the plant's roots thus a lower residual grazing height is possible. In stands that you want to favor the growth of the legumes, the stand is grazed lower. If you want to favor the growth of the grasses, graze the plants higher.

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Managing Grazing System ...

Continued from front page

2) Graze young lush plants in their vegetative state. Vegetative plants contain more nutrients, such as carbohydrates, starches and sugars, for energy and protein that cattle can use for their nutrition. More mature plants have more lignin and are less digestible in the rumen. This results in forages "staying in the rumen longer" which in turn decreases intake and decreases milk production.

3) Dairy cows graze about 8 hours daily with the heaviest grazing periods in the early morning and later in the evening. Dairy cows do selectively graze forage types. In addition, the first bite of forage is from the top of the plant containing the highest concentration of nutrients. The next bite is the middle of the plant where the nutrition is somewhat less than the top. The lower part of plants contains more stem and thus fiber than the upper parts of both legume and grass plants. Requiring animals to consume most of the plant in a single grazing pass results in more even consumption of nutrients found in the plant. Strip grazing using temporary fencing allows one to achieve this objective. Remember with dairy cows we want to take half of the available forage and leave half behind.

4) Like any feeding system, maintaining dry matter intake in dairy cows is important. Dry matter intake on grazed forages is determined by bite rate, time spent grazing, and the bite size. Cattle usually are capable of 50 to 70 bites of forage per minute, spend up to approximately 8 hours daily grazing, and average a bite size of 0.2 ounces per bite. Bite size is the most variable of these three factors that determine dry matter intake from grazed forages. Bite size is directly related to stand density and forage height. The take home message is that cows need to be able to consume a mouth full of feed from pasture plants to optimize forage intake.

5) Forage programs should be designed such that dairy cows have quality forage to graze at all times. Stored forages should be used when quality forages to graze are not available or the amount available does not match the dairy cow's nutrient needs. In the summertime, cool season grasses such as orchardgrass and fescue do not grow when temperatures exceed 70 °F. Alfalfa, sudangrass, pearl millets or other warm season perennials will grow during summertime temperatures and in full sun radiation. Brown midrib varieties of sudangrass improve digestibility since they contain less lignin. (Sudangrass, other sorghum crosses, and johnsongrass should be at least 18 inches in height (knee high) before grazing to prevent prussic acid or cyanide poisoning.)

6) Do not forget to provide plenty of cool, clean water in every grazing area. Limiting water intake can decrease milk production quickly. Dairy cows producing 50 lbs of milk drink approximately 25 gallons of water daily when the ambient temperature is 60°F. When the temperature increases to 90°F, water intake increases by approximately 5 gallons daily.

7) In the day time, provide plenty of shade or allow the dairy cows to return to the barn. Rotation of shade trees is important to prevent environmental mastitis. A study in the British Columbia showed that given a choice, dairy cows preferred the barn during the day and the pasture area at night.

Maintenance of Fans Impact Electric Bills

Ventilation systems which circulate air within barns can account for a large proportion of an electric bill. Some estimate they may account for 20 to 25% of the total electricity usage, especially when barns are mechanically ventilated. Even with increased costs for electricity, the use of circulation fans for increased air speed are a necessary expense to reduce heat stress and to prevent the associated decreases in milk production, reproductive performance, and performance of future generations. When temperatures are greater than 65ºF, fans are needed to move air to help cool cows. The goal during the warm time of the year is to exchange the air in these facilities 40 to 60 times per hour with the air moving at the rate of 300 to 400 feet/min (3.5 to 5 mph) at the level of the cow. Poor or inadequate fan maintenance can decrease the overall airflow by fans as well as the efficiency of these motors by as much as 40%; thus, increasing electric bills unnecessarily. As little as 1/8 inch of dust on the fan blades can decrease the efficiency of the motor of the fan. Maintenance on fans should be completed not once, but 3 to 4 times per year, to improve/maintain the efficiency of the fan motors and air speeds within the facility. These steps include:

- Clean dust from the blades, motor windings, sensors and thermostats.
- Lubricate the fan according to the manufacturer's recommendations.
- Check the belts for wear and stretch. Belts should ride on top of the pulley. Replace belts as needed.
- Check the electrical cords and wiring for breaks or disintegration of wiring covering.
- Check that the thermostat is operating properly- i.e. comes on at the proper temperature (65ºF)
- Check the angle of each fan such that the air movement of the fan "blows' to the ground level below the next fan.

Don't Fall for the Dairy Robo-Call Storyline

By Donna M. Amaral-Phillips

Just the other day, I was listening to my phone messages to get the time for an upcoming medical appointment. A new robo call had entered the mix along with those wanting to extend my car warranty or get rid of my debt. This new message stated, "you can get $50 off your electric and gas bill plus another 35% off your bill, to get your compensation press 1". Now who wouldn't like a rebate on their utility bill, especially with all of the recent increasing amounts owed for many bills? But, I think most of us quickly realize, this was a scam to get my hard earned money. If the electric company was going to issue a rebate, it would have been credited to my next bill, not issued through a phone conversation. The sad part is someone pressed 1 or stayed on the line and was their next victim.

Just like with this mentioned scam, we need to be diligent and do our homework to make sure claims are real as they relate to dairy businesses. When evaluating a potential product, one should review actual data related to its performance. Will it indeed deliver the results claimed? Although there are no guarantees in life, using products that have sound research data behind them increase the probability they will perform as advertised. The problem is that not all research and collected data meet the definition intended by scientists. So what constitutes "good research" data for you to use to evaluate a potential product or feed additive?

If The Results Seem Too Good To Be True—They Probably Are.

You need to be realistic in the response expected. For many products fed with a good nutrition program, milk production increases of a ½, 1, or 2 lbs might be realistic, not 5 to 10 lb increases in production. I still remember from many years ago, a feed salesperson claiming that if my husband fed his feed they would eat half as much and give more milk! This claim ranks up there with the phone message of getting 35% off my electric/gas bill!

Testimonials Are Just That.

Someone comments that they used product X and they saw such and such response. The mentioned product may have increased milk production, reproductive performance, or saved money. The response seen may have nothing to do with the product itself. Management practices may have changed when starting to use said product or the cows responded regardless of whether you used the product. Testimonials are often used in sales literature.

Farmers tend to believe other farmers over scientists, sometimes to their betterment, but also their detriment. Just because it works for your neighbor or another local farmer does not mean it will work for you. Your cows, climate, forage base, and management style are different than the neighbor's herd. I still have to chuckle at the former practice where the multitude of feed salespeople traveled the countryside in the fall claiming their feed would increase milk production as seen with so-and-so. For those that have been around for a while, understand that most milk companies used to have a financial incentive for fall-produced milk. Thus, more cows calved in the early fall/late summer to meet this flush of milk and income. Early lactation cows produce more milk than later lactation cows—no great news there! Thus, expectations should be that milk production would increase, not because of the feed, but related to the stage of lactation of most of the cows in the herd.

What Data Should You Believe?

Just because a salesperson shares what they call "data" which shows their product has a positive response, does not mean it should be trusted. Data need to be collected in experiments that test whether the product really does have a beneficial response on an adequate number of animals or rows of a crop that were randomly assigned to

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Visit our additional resources on the web at http: // afs.ca.uky.edu/dairy/extension

Robo Call Storyline…

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each "treatment" group. One of the treatments should be cattle or crops that did not receive the product and the average response is compared to cattle or crops receiving the product.

When scientists use the term "research study" or "trial", they usually are referring to a specifically designed experiment(s) where a product/practice is tested on individual animals or crops. To be considered an unbiased research study, animals or crop-rows receiving the new treatment, product, or practice must be managed identically within the same time frame as animals/crops not receiving the product or practice. Those not receiving the new treatment or product are called the control group. The only difference between the control group and the group receiving the treatment or product is the treatment itself. For example, in field crop experiments, all rows in the comparison would be planted at the same time, under similar soil characteristics, and would receive the same amount of rainfall. With experiments utilizing lactating dairy cows, selected cows often are similar in number of days in milk or days till expected calving and each treatment group contains equal numbers of first lactation versus mature cows. The most important point here is that the treatment group should be exactly the same as the control group and the animals or crop rows were assigned randomly. Each treatment, including the control group, contains multiple replications (not just one pen per treatment) of animals, crop rows, or pens of animals.

Yes, this is a long answer to the question. But, you may see that there is a list of criteria that needs to be met. This increases the probability the response is real and not just due to chance. So the next time you ask or are provided data on a product, ask yourself:

a) Were all animals or crops in the mentioned experiments treated the same, with the only difference being the product tested?

b) Do the data represent an average of many different cows or pens of cows on each of the treatments?

c) Did an equal number of the cows or rows of a crop receive each treatment and are the results compared to the no treatment or control group?

d) Were there the same kind of cows in both the control and treatment groups? Same stage of lactation and number of lactations (first calf heifers vs mature cows)?

e) Were the data reviewed by other scientists not associated with the products company?

f) Also, scientists look for a response which is repeatable. Was the response seen in multiple trials and locations or just one trial?

Reviewing this information on how to evaluate a product can prevent one from being the next victim of the "Dairy Robo Call".

Top 5 KY Counties for Total Milk Production

1. Logan
2. Adair
3. Warren
4. Christian
5. Barren

Top 5 Counties for Number of KY Dairy Farms

1. Christian (80 farms)
2. Todd (36)
3. Lincoln (27)
4. Barren (25)
5. Adair (24)