

BEEF LINE

August 2021



Purdue University Extension Service-Fulton County
1009 W 3rd Street, Rochester, IN 46975

Pasture Walk

Pastures are an important resource when cared for properly for raising livestock. Correct grazing and nutrient application will keep forage species healthy. Eventually reseeded with new forage species for a productive pasture.

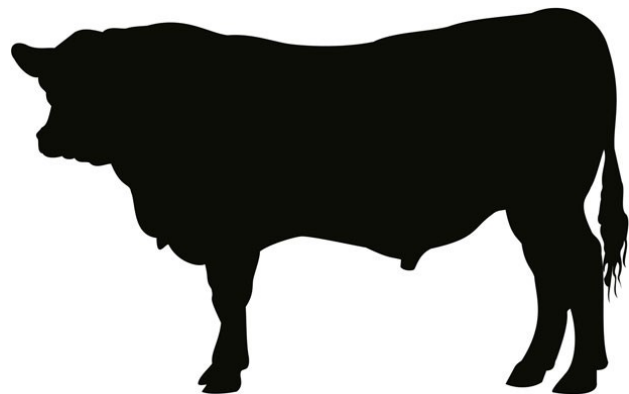
On August 16th, 2021, Purdue Extension will be hosting a Pasture Walk. This program will cover a variety of topics related to forage management in pastures.

We will be discussing the managing of soil fertility, weed management, and pasture renovation. Properly managing fertility, weeds, and grazing can prolong the life of the stand and improve yields.

Mark Kepler, Extension Educator from Fulton County will offer insights into different options for pasture renovation. Phil Woolery, Extension Educator for Starke and Pulaski Counties, will be discussing weeds in pasture and different management options.

The program will be held at 3499 W 400 S, Winamac, IN 46996 and it starts at 6pm ET. The program is free but you need to pre-register by calling the Extension Office at 574-946-3412 or emailing pwoolery@purdue.edu

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Animal House - Mark Kepler AG/NR Educator

"I just want to go home" I could hear the patient say as they walked down the hall of the hospital. We all have a time when the familiarity of home is what we desire. Being away from home is stressful and even though we constantly get told we need to embrace change. It is not easy for humans or animals to exist in unfamiliar surroundings.

I know where my home is but where is home to your animals?

My cattle have a pasture right by the house where their water is and during certain times of the year, they are fed grain. The herd's main grazing area is back a lane. Once they have had their fill they come up for water and now it is time to lay around ruminating. That is almost exclusively done in that pasture. There are times, the farthest of my pasture rotations has a water source and so they may come to the house less frequently but they do come. It seems to me that my home, in a roundabout way, is their home.

My goats are extremely home-centered. They have a place east of our house that is home. It is the area they were raised as kids and fed during the winter. It also has several animal houses for weather protection. Moving them to an area on the west side of the house where there is ample pasture is frightening to them. When I did this, I had to add more strands of electrified high-tension wire to stop them from bolting through the fence to go back "home".

With goats, I am convinced that part of the definition of home, is where the humans are. Goats are skittish. In the circle of life, cattle and goats are prey species. They must fear for their lives from predators and part of their protection is in their herd mentality. Goats take being in a group to a more extreme level than cattle. As goats wander out from home all it takes is for one of them to move quickly or even sneeze and the whole herd comes running towards the house. Their grazing is continually interrupted.

Goats do not like feeding in tall grasses as they are scared that something is lurking in that tall grass that is going to eat them. When a human accompanies them to the grazing area, the sudden running can be quickly stopped with some smooth soft talking. My goats will follow me to an area they have never been but if I leave, they will run to the house. So, for goats, is home where the humans are?

I was raised on a small dairy farm; my job was to bring in the cows from the pasture to the barn. This was never a hard job as all I needed to do was get them started and they would follow the familiar cow paths to the barn. There, they would go to the same stall every time, an area they were familiar with that also contained some grain. Occasionally a cow got in the wrong stall initiating all kinds of consternation.

Was that stall, home to them? I would like to believe that but if I would get behind them any other time of the day, other than morning or evening, they knew something was up and there was no way they were going into the barn.



For this Russian goat herd, home seems to be where the humans are found.

Cattle out on the South Dakota range, at my wife's native home, have less interaction with humans. They find themselves in large pastures well away from people's homes. The human bond is less, still it is there, as they were fed at one time in a feedlot for a short period. Do those cattle have homes? I posed that question to Dr. Karl Hoppe Area Extension Specialist for Livestock Systems at the North Dakota State University Carrington Research Extension Center and my former graduate school roommate. He says, "Cattle have places they bed down at night. It varies out on pasture. Might be next to water or corals or protected by the wind. Usually a softer place as cattle like bedding more than hard concrete or hard frozen dirt. On a hot day, cattle will seek wind and/or water to cool off. In winter cattle avoid wind if possible."

Salt blocks, mineral feeders, creep feeders, lick tubs and waterers are an attraction for a place to rest for the night. So, we usually place the feeders there and the cattle know it.

Cattle can also be trained with food – just like us. A couple of feedings with 'cake' and the cows come running when they see the pickup. An ear of corn treat will get a cow addicted to seeing you for the delicacies. If you want cows to find a new place to bed down for the night (AKA home), you can bait them with food and keep doing that for a few days, and cattle will make a new home."

Homes in these cattle is fleeting and dedicated by humans and the animal's taste buds. That is essentially my observation, when you drive through a rolling 1000-acre pasture, the cows could be anywhere. Eventually, they will come to a watering hole and stand around, or in it, depending on the temperature. Where there is good grass or another type of feed inducement, is where you will find them. And that is also where they will lay down.

I went to Russia several years back and they spent a lot of time with their animals. A dairy cow herd was accompanied by small boys to a fenceless pasture. Individuals stood along the roadside with a few grazing cows in another location and the wandering goat herd crossed the road in the accompaniment of five people. When given the opportunity, it just seems that home for many animals is where the humans are found. That may be reason they call them domesticated animals.

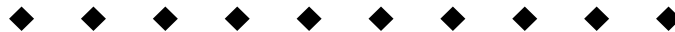
Beef Stockmanship & Stewardship Workshop

A unique two-day educational experience in Danville, IN on September 10th and 11th, 2021. Featuring low-stress cattle handling demonstrations, Beef Quality Assurance educational sessions, facility design sessions to best run your operation and industry updates you won't find anywhere else.

Come to Danville, Indiana on Friday September 10th and Saturday September 11th, 2021

There is an online \$100 registration fee per person

Register at : <https://www.stockmanshipandstewardship.org/>



Tentative Agenda:

Friday, September 10, 2021

11:30 AM Registration and Lunch
12:15 PM Welcome and Introductions
12:30 PM Nutritional Values
1:30 PM Protein Upcycling
2:30 PM Risk Management
3:30 PM Break & Trade Show
3:45 PM Cattle Handling & Farm Stewardship (Arena Side)
NCBA Clinician Experts: Curt Pate, Ron Gill or Dean Fish
5:00 PM Proper Stockmanship & Your Bottom Dollar
NCBA Clinician Experts: Curt Pate, Ron Gill or Dean Fish
6:00 PM Alternative Proteins
6:45 PM Dinner

Saturday, September 11, 2021

7:00 AM Registration & Breakfast
8:00 AM Welcome
8:10 AM Sustainability & Cattle Production
9:10 AM Beef Market Update
10:10 AM Break & Trade Show
10:30 AM Cattle Traceability
11:30 AM Handling Facilities Panel Discussion
12:30 PM Lunch & Trade Show
1:30 PM Chute-side Demonstrations
3:00 PM Beef Quality Assurance (BQA) Training & Certification Exam
4:00 PM Adjournment



So Lush, So Green, And Oh So Poisonous

Keith Johnson, Purdue Extension Forage Specialist

It's that time of year when the yew (pronounced like the letter "U") is likely in need of a trim to look best as a landscaping plant. Yews have been used as a common landscaping shrub or small tree for decades. They have closely spaced, glossy, rather tough, dark green, linear pointed-end leaves that are 1.5 – 2 inches long. Hard-to-see male and female flowers are found on separate plants and form fleshy red to yellow fruits that contain a single seed.

Many plants have poisonous compounds that can cause all kinds of concerns, and even death, if consumed. The interactions that I have had with veterinarians, suggest that the yew is right at or near the top of plants that cause livestock death. A disheartening scenario is when yew trimmings are thrown over the fence by the livestock owner or neighbor thinking that the trimmings would make a great snack for the livestock. Fresh or dry trimmings, it doesn't matter. The result will be the same – death.

Yews are hardy perennial landscaping plants, but don't toss the trimmings to your equine, herd, or flock or they won't see the light of the next day.

In memory of livestock that met "Their Maker"



A yew bush used as landscaping is in need of a trim. Don't feed the trimmings to livestock or death will occur.

(Photo Credit: Keith Johnson)

HAY STORAGE

MARK KEPLER - AG/NR EDUCATOR

As you drive around the countryside you can see multiple ways to store large bales of hay during these cold winter months. The best way to store hay is in some kind of structure (barn) but even there, a study by the University of Tennessee shows a 5% loss in round bales. Little of this loss is digestible nutrients with the exception of Vitamin A which will be greatly diminished after a year of storage. When you place round bales outside, tarped hay on pallets had a 14% loss, while round bales that were net wrapped had a 23% loss. Even with those losses, uncovered hay had a 30% loss.

Getting the hay off the ground by the use of tires, railroad ties, pallets or even crushed rock helps. As much as 12 inches of the bottom of a bale can be lost through moisture wicking absorption. Ground contact can account for over half of the total dry matter losses.

Just how you store the bales involves other issues. Currently it is advised to have large round bales in north-south rows. This allows the sun to reach both sides of the bale and allows for drying during the day. To enhance this the rows should be about 3 feet apart. Also, these bales should be running down the slope of a hill and not across it to reduce the potential for rain water retention. Some would advise staying away from the top of the hill as this is the place for potential lightning strikes.

When I travel to South Dakota I see a lot of large round bales that are triple-stacked in a pyramid shape. The main reason this is done is for machines called stack haulers that remove 20+ bales at a time from the fields to hay yards for winter storage. The hay is placed in stacks in the field and these platforms work their way, using chains, under the bales and lift them up.

When hay is store like this, the water runs off the top bale down to the next and then to the next and increases spoilage. However, because of the lower rainfall averages of around 15 inches per year versus our 35, their losses are less than ours. But there still is greater loss in this method than individual rows. However, there are other considerations. In the accompanying South Dakota picture those bales have a second purpose serving as a north windbreak around the cattle feed lot. As the weather gets warmer the wind break decreases in size as it is being fed. This hay keeps cattle warm while digesting inside, as well as protecting them from the outside.

Occasionally I see large round bales stored against the woods and under the trees. These would have even greater loss because they do not dry out. I also see bales where the bottom one is flipped on its end and another one is place on top in a "T" style. This allows the rain to still enter the ends of the bottom bale. Watch out for the weeds growing next to the rows as these weeds help retain moisture around bales.

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There is also discussion as to whether the bales in the row should be placed tight end to end or allow a space between. The University of Wisconsin says, "Densely packed bales shed more moisture than low density bales. Less damage occurs if round bales are stacked end to end. Net wrapping does not eliminate the problem, but helps bales shed precipitation better than those wrapped with twine. Bales made from flat, grassy forage shed water better than coarse, stemmy alfalfa."

Because I do not have a barn to store hay, I have my dry, large, square bales ran through an inline wrapper. For the most part this has proven to be excellent storage. Occasionally there has been moisture leak in from the bottom. When this happens there is a definite mold area. That limited problem was worse last year. I do not know if it was wrapped better this year or just the lack of overall rainfall this year made the difference as we are in an area designated as a moderate drought.

I have also used round bale sleeves. On my farm, that is a three-person job. One to operate the bale spear whether on the tractor or skid loader and two to put on the cover. You have to make sure the bale is not too big for the sleeve and also not too small as it easily can flap in the wind. I have had mixed results with bale sleeves; some I could use twice over two years and others that did not come close to lasting the one season. Those ended up ripped into smaller pieces and flying across the field.



This South Dakota ranch stores hay triple-stacked not only for the feed value but also as a windbreak. Different climates allow variations in ways of storage.

A Tale of Two Weeds

Mark Kepler—AG/NR Educator

Along the edge of my cornfield grows two weeds of separate species side by side just like old buddies, but they are not buddies, they are weeds! They are competing with the corn and each other for sunlight, water and nutrients. Around them are other weeds of their species that also want what makes them grow.

One of these is giant ragweed or what we called horseweed. Given the right spot, they will grow taller than a horse. They like the rich moist organic soils in the bottomlands and that is where they can easily be tall enough to hide a tractor in a good year.

The seeds they produce are much larger than most weed seeds and they have a type of point on the top that resemble a crown. One fall, I was rabbit hunting through a patch of giant ragweed and quite a large covey of quails kicked out. The seed is preferred and very nutritious for quail. Cows will eat on the plant. They will not want the big thick stalks, but allow cattle to graze a recently combined field of corn and they will clean up the giant ragweed. One interesting fact about giant ragweed seed, is that it is not very persistent in the soil and in two years most of it will be destroyed.

So much for the virtues of ragweed because as a weed, one plant per 10 square feet can reduce soybean yield by 52% and corn yield by 55%. It can compete.

The other plant, touching the giant ragweed in my field was pigweed. The pigweed family of plants are some of the nastiest weeds in the area for crop farmers. They include redroot pigweed (our common weed), palmer amaranth, water hemp and spiny pigweed. These can all produce a lot of seed that last for decades in the soil. One palmer amaranth plant can produce a million seeds. They also can be resistant to a variety of common herbicides.

Pigweed can be deadly to livestock. They contain two poisons. The first, always present, is called oxalates. They can cause kidney damage and death of the animal. It generally takes a quantity of weeds over time to be deadly. So, a few weeds in a pasture is not alarming, but a hog lot full of them can be deadly to their namesake. I remember the first time I went to the Purdue Animal Disease and Diagnostic Lab, there lying on the table was a large pig, dead from pigweed poisoning.

The second problem is nitrate poisoning. Nitrate poisoning can occur from many crops but it is usually precipitated by drought conditions that allow soil nitrogen to accumulate in the plant especially after a rain. It is hard to predict when it will occur and is generally an issue in cattle, sheep and goats. Low levels of nitrogen fertilizer and keeping things watered will help prevent this problem. Unfortunately, we don't always have the irrigation option.

There is a third issues with pigweeds and it is some that is now coming to light as we now talk more about soil health. Mycorrhizal fungi can be found living on plant roots. These fungi help plants grow by serving as little straws that pipe nutrients into plant roots. Its like having a network of specialized roots that help feed the plants. When we talk of cover crops and how they improve the soil health, for many of them the production of mycorrhizal fungi is a big part of the positive effects. About 90% of the plant species participate in the natural phenomena. The pigweeds do not. As pigweed numbers increase there is less biologically positive actions going on in the soil and the crop suffers even more from the competition. Tilling of the soil breaks up the mycorrhizal mass and Mr. pigweed comes on strong in that environment. Once I plowed up a lot that had never been tilled in my lifetime and the pigweed in that lot, set for grazing, was thick. Frankly I have a hard time sleeping when I know there is a potential problem, but I don't know, if there are "too many" pigweed present to cause animal death. Giant ragweed and pigweed growing side by side are robbing my corn yield, but one has an even greater potential to take my animals away from me. Just

On the left, a stunted giant ragweed and on the right, pigweed growing in a corn filed.



Mother, to be or not to be

Mark Kepler - AG/NR Educator

There is currently a popular book called "Finding the Mother Tree." It relates to the author's life with the fascinating underground world of tree roots and organisms that help plants communicate. There exists in a forest, certain trees that are at the center of the hub, that serves as the function of a mother, supporting young tree life. A fascinating complex of fungal structures called mycorrhizas will transport carbon from the mother trees and feed young seedlings. As we edge into a world fraught with climate changes this network is even more important for tree regeneration and survival.

As I read about this fascinating system I can't help but think about a plant that would never win the mother of the year award, alfalfa.

There is a multitude of plants that do not welcome others but exude in their roots toxins that can keep other plants from growing near them. We call this allelopathy. Walnuts are the classic case of having roots that are toxic to certain other plants. The walnut root will kill tomato plants. Field crops such as rye and sunflowers also have this effect on certain other plants. It is their way of saying "Back Off!"

In these cases, it is other species that it will keep from its territory. The mother alfalfa plant has this same toxicity but only to its own seed. If its kids try to grow within 18 inches of mom, it will die. No "Mother of the Year" award is given here. Farmers planting alfalfa seeds into an established alfalfa field are just wasting their time. A thin stand of alfalfa has to be rotated out into another crop before alfalfa can be grown again. This is called autotoxicity.

I was at a national Alfalfa program and the presenter was from the Western United States and he was talking about a two-year time span out of alfalfa in that dryer region. Additionally, sands have a higher level of toxin, but it goes away quicker than clays. I will now quote from a University of Arkansas publication as I have been told by people that they did not see the effect of autotoxicity.

"We reseeded alfalfa after old alfalfa using rotation intervals of 2 weeks, 3 weeks, 6 months, 12 months, and 18 months. The old alfalfa was killed with herbicides in sequence so that all treatments could be planted the same day. The new alfalfa was no-till planted in the spring. This experiment was conducted at three locations and plots at each location were monitored for plant density and yield for three years.

Plant stands and yields were greatest for the 12- and 18-month rotations. Plant density of the 2-week and 3-week rotations were 13-20% lower compared to the 18-month treatment and yields were up to 8% lower. A yield reduction of 8% over the life of an alfalfa stand can be quite significant. The 6-month treatment had stands near equal to the 12- and 18-month treatments but had a low yield. Plants dug from the 2- and 3-week rotation plots had extensively branched roots with little taproot development. Plants from the 12- and 18-month plots had prominent taproots typical of normal alfalfa plants. Exposure to the autotoxin chemical may have inhibited taproot growth, but plants survived by producing branch roots.

The difference between treatments was subtle but could be visually observed compared to the 18-month control. Stands affected by autotoxicity appeared to have slower regrowth after each cutting. Even the poorest stands in the study would have been considered acceptable when viewed alone. This underscores the observation that, without a control for comparison, autotoxicity can cause modest reductions in stand or yield that may not be noticeable in a production field."

Alfalfa originated around the northern coast of the Mediterranean in a hot dry desert. Development of this trait known as autotoxicity may have reduced competition to mom from nearby new seedlings for scarce soil moisture. It was her way of survival, at the same time forcing her seeds to develop further away and essentially increasing the growing area of this plant. These children were not coddled but given the characteristics to make it on their own. Alfalfa is one of the very few known plants that exhibit toxicity to its own species.

Several species have some non-mothering females. Most of them reproduce at such high rates that they survive based on sheer numbers. Insects fall into this category as well as snakes and lizards. Then there is the "only can handle one at a time" mother. Pandas generally have twins but will abandon one twin to the wild. A panda mom chooses the stronger child that she believes has a better chance of survival.

So, which is the better system, the mother or the anti-mother? Looking at all the mothering farm animals around the world plus the people that are reading this column, my vote goes for motherhood