

# AGRICULTURE

## Bruising and Cattle

By Steve Boyles,

OSU Extension Beef Cattle Specialist

Cattle bruising is an animal well-being concern, as well as a loss in economic value. When loaded, 60% of cattle are in the middle portion of a trailer, 30% in the rear compartments and 10% in the nose. Cattle rarely change position while a trailer is in motion, and the cattle typically position themselves at right angles to the direction of travel to try to compensate for the trailer movement and focus energies on keeping their balance. Road conditions can have an impact on carcass bruises as well as driver experience. In one study, it was observed that 'low' space stocking rates caused lower carcass weights compared to 'medium' and 'high' space stocking rates. However, the 'medium' space stocking rate resulted in the lowest bruising rate; the 'low' and 'high' space stocking rates had 4 and 2 times greater bruise scores.

Helen Kline (2018, Colorado State) conducted a study in five commercial slaughter facilities, located in multiple regions of the U.S. Individual carcasses were followed through the slaughtering process and were evaluated for bruising, weight of bruised meat and location of bruising. In Kline's study she found that 28.1% of carcasses observed were visibly bruised. Regions of the carcass that had the highest bruise incidence were the round, rib, and loin beef cuts, respectively. However, some carcasses had deep tissue bruises that were not visible on the surface of the carcass, but trim loss was collected once these bruises were exposed and averaged 2.2 pounds per carcass. Cattle in the top deck compartment of a trailer were less likely to be bruised when compared to cattle in the belly compartment ( $P = 0.03$ ). Although the study focused on transport other events in the supply chain are critical control points prior to transport were implicated.

Reference: [https://mountainscholar.org/bitstream/handle/10217/193200/Kline\\_colostate\\_0053A\\_15238.pdf?sequence=1&isAllowed=y](https://mountainscholar.org/bitstream/handle/10217/193200/Kline_colostate_0053A_15238.pdf?sequence=1&isAllowed=y)



## Come join us!!

The Morrow Soil and Water Conservation District and OSU Extension Morrow County are hosting an in-state Agricultural Study Bus Tour. The motor coach bus will be departing from Mt. Gilead on Wednesday, August 7th and returning the evening of Friday, August 9th. Stops will include both Agricultural Education and tourist visits in the Western part of Ohio.

A \$100 deposit per person is required for registration starting on June 25th. For questions please call the SWCD office at 419-946-7923.

Morrow County Scarlet & Gray News

## Using FAMACHA Correctly

By Rory Lewandowski, OSU Extension Educator ANR, Wayne County

Pulling from the archives, we found it timely and appropriate to share this piece from our very own Rory Lewandowski as he reviews the benefits of implementing the FAMACHA® eye scoring system in your operation. Here at the university, we began our summer grazing project with 96 lambs, all of which will be FAMACHA® eye scored every 14 days over the course of the study as one of five measurements to track parasitism. Proper use of the FAMACHA® eye scoring system will be sure to prove beneficial to you and your flock/herd over the course of this grazing year.

A number of sheep and goat owners have been trained across Ohio in the use of the FAMACHA® eye scoring system, yet problems with internal parasites, in particular, with *Haemonchus contortus* continue. This is to be expected. The FAMACHA® eye scoring system utilizes an eyelid scorecard that can help a farmer make a decision to treat or not to treat the animal with a chemical de-wormer. The FAMACHA® eye scoring system is not a cure-all, or a silver bullet for dealing with internal parasites. It is one tool that can be a part of an overall parasite control strategy. In order for this tool to be effective it must be used correctly. Let's start with what FAMACHA® is designed to do and then look at the limitations of the FAMACHA® eye scoring system.

To begin with, the FAMACHA® eye scoring system is only useful when dealing with the *Haemonchus contortus* parasite. The *Haemonchus contortus* is the parasite of greatest concern to pasture based sheep and goat production, so FAMACHA® matches up with this concern. *Haemonchus contortus* is a blood sucking parasite and heavy infestations with this parasite may result in anemia. The symptoms of anemia show up in the color of the membrane of the eyelid. In the FAMACHA® eye scoring system that eyelid color is matched up with a scorecard that ranks color on a 1 to 5 scale. A dark red eyelid membrane color is a 1 and indicates no significant anemia. A white color is a 5 and indicates severe anemia. The light red, pink and pinkish white colors in between indicated by scores 2 through 4 indicate increasing levels of anemia that generally correspond to the parasite burden the animal is carrying.

Second, the FAMACHA® eye scoring system is to be used to help make decisions about selectively de-worming animals. In general, if an animal scores a 3, 4 or 5, it is treated with a chemical de-wormer. FAMACHA® should not be used to make a decision to either treat or not treat the entire flock/herd. Finally, it is effective only when used on a regular basis.

The FAMACHA® eye scoring system has limitations. It is labor intensive. Each sheep/goat and lamb/kid must be handled and scored. As previously mentioned, its effectiveness really depends upon regular use. As we enter June, July, August and September, be aware that these are traditionally months of heavy *Haemonchus contortus* infections. Due to their smaller blood volumes, lambs and kids with heavy infections can

go from apparently healthy to death's doorstep in 10-14 days. This means that animals should be FAMACHA® eye scored every 7-10 days during this period.

I know that because of lack of handling facilities, or because of where animals are located in a pasture rotation system, it becomes problematic to score every animal every 7-10 days. I hear livestock owners say that they grabbed a couple of animals out on pasture and looked at their eyes. This quick spot check of a couple of animals is used to determine the parasite burden of the flock or herd. This is not a correct use of the FAMACHA® eye scoring system and is not likely to provide accurate information. Research has demonstrated that 20% of the animals in a flock or herd can carry 60-80% of the worm load. If a majority of the animals are not checked, how do you know if the animal grabbed was one of those 20% that has a heavy parasite burden, or is an animal with a relatively low burden? In addition, correct use of the FAMACHA® eye scoring system dictates that a scorecard, as shown in the image above, is used each time eyes are checked. Do not rely upon memory of scorecard colors.

At some point, the time and labor required to FAMACHA® eye score every animal becomes impractical as flock/herd size becomes large. Exactly what that size is, I can't say, but certainly flocks/herds of several hundred and up are not all that excited about using FAMACHA® eye scoring system. With flocks/herds of several hundred and up it probably is not necessary to check every animal. Statistically, if a significant number of animals are checked, this will provide reliable information about the entire flock or herd. It will not provide specific information about individuals that are not scored. Still, there is a necessity of bringing animals to a handling unit and checking a considerable number. In any case, FAMACHA® scoring is a good tool for small and medium sized flocks/herds. Of course the FAMACHA® eye scoring system is of limited usefulness if the farmer does not know the level of chemical resistance present in the herd/flock and which, if any, of the chemical classes will act as an effective chemical rescue treatment.

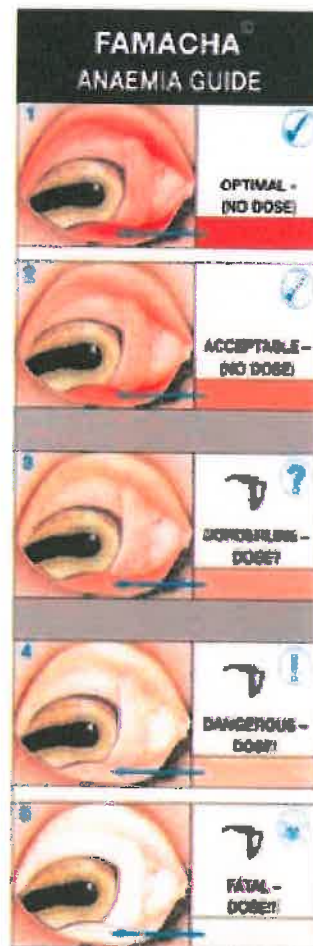
To really get a handle on what is happening with regard to infection levels in the flock/herd, FAMACHA® eye scores should be recorded and the livestock owner should look for trends. Are the number of animals that scored a "1" or a "2" staying the same over scoring periods or is there an increasing percentage of 2's, and some 3's while the number of animals scoring a 1 is decreasing? If the trend is toward higher scores that is an early warning that pastures have a high level of parasite eggs and infective L3 larvae and that animal infection levels are increasing. This is where the usefulness of the FAMACHA® eye scoring system shows up, as well as its limitation. If there is not an overall parasite control strategy to effectively use the information FAMACHA® has provided, then the health status of the animals will continue to degrade.

An overall parasite control strategy takes into account the biology and lifecycle of the parasite. Effort should be made to reduce egg shedding on pastures and to reduce the incidence of young animals grazing on heavily contaminated pastures. When FAMACHA® score trends indicate a

growing infection, plans should be made to move animals to a safe pasture, increase the nutritional plane of the animals and to FAMACHA® score animals every 7-10 days.

Animals that score a 3 or higher should be treated with an effective chemical de-wormer. Treatment and movement to new pasture paddocks should be made with the intention of keeping a "refugia population," a population of parasites that are susceptible to chemical de-wormers, on the pastures.

As a tool, FAMACHA® eye scoring can tell you when a parasite infection problem is developing, and which animals should be treated and which animals do not need to be treated. It can be a tool to slow down parasite resistance to chemical de-wormers. It is a tool that is most effective when used within an overall parasite control strategy.





# AGRICULTURE



## Current Weed Issues I: Controlling Weeds in Prevented Planting Areas

As we get closer to decisions about cropping versus prevented planting, weed control may be one of the factors to consider. The season-long weediness of bare areas that occur in some crop fields from flooding and crop loss give a good idea of what can be in store on prevented planting acres. Some observations follow on all of this.

The goals for unplanted acres are really to:

1) prevent annual weeds from going to seed and increasing the soil seedbank – anything that goes to seed will have to be dealt with in the future; and

2) treat any perennial weeds in the appropriate growth stage to reduce their population. Winter annual weeds have already gone to seed or are in the process of doing so. Summer annuals will keep emerging in a bareground area for much of the summer, depending upon rain.

At some point later in the season, though, newly emerging summer annuals will run out of

time to mature and develop much seed before frost, and the overall goal is to control them from now until then.

Control can be accomplished with multiple passes of mowing, tillage, or herbicide, or a combination of these. Assume a cost for at least two passes for the sake of any calculations used to determine whether to plant a crop or go with prevented planting. Weeds that survive/regrow following tillage or mowing become more difficult to kill with herbicides, so where a combination of these methods are used, herbicide may be best used in the first pass. Tillage is best used for relatively small weeds, because large ones are difficult to completely uproot. A single mowing may be best used later in the season, when any weed regrowth will be taken care of by frost before seed can be produced.

Where foliar-applied herbicides will be used for control, we would suggest one application fairly soon, while weeds are small enough to be

controlled, followed by a second one later in summer as needed. The most cost-effective approach is probably glyphosate plus 2,4-D, although other growth regulator herbicides that contain dicamba or clopyralid can be added also. This approach may not kill large marehail, but can stop most of the seed production. Gramoxone or glufosinate could be substituted for glyphosate in some fields, but mostly where weeds are still small, and large grasses can be a problem.

Planting a cover can help suppress weeds and reduce reliance on herbicides alone. This will most likely not eliminate the need for herbicides, and a burndown treatment or tillage will be necessary to allow planting. Planting a grass cover will allow use of growth regulator herbicides to control broadleaf weeds. If the field was previously treated with residual corn or soybean herbicides but then not planted, check to make sure it's safe to plant the intended cover after use of

those herbicides.

A common question in this situation is whether residual herbicides can be used to replace or minimize the need for foliar-applied herbicide, or extend the time until they are needed. In our opinion, it is difficult to make the case to spend money for residual herbicides here, because the ones we use on corn and soybeans struggle to provide enough control in a bare ground situation, and most are not labeled for use in noncrop areas. The herbicides used in industrial vegetation situations that will provide enough control will also persist long enough to mess up crop rotations. The goal for residual herbicide use would be a minimal investment for herbicide(s) that provide broad spectrum control for a month or more. The only possibilities we could find that have labels for true noncrop areas are pendimethalin, Valor, and Surflan.

## Management Strategies for Late Planting Current Weed Issues II: Revised Herbicide

We're running about a month behind in many cases, and with respect to weeds we are a month later than normal in implementing herbicide programs. The most important thing to know about this is that we are well into the period of summer annual weed emergence, most of which occurs between early May and the end of June, which overall shortens the period of weed control that we need and allows earlier application of POST herbicides. There are some advantages to this – here's what it means for those fields just planted or that will still be planted within the next couple weeks:

Because we are this late, the burndown has become a major part of what is usually our in-season herbicide program, and is taking care of a good portion of the summer annuals that residual and POST herbicides would usually control. The big glaring issue at this time is nasty burndown situations, and we provided some suggestions for this in previous articles. Lots of pretty yellow fields due to crisscross groundsel. Keep in mind that this and other winter annuals that have flowered are ending the life cycle, so they have

died or started dying on their own anyway. Focus should be more on the large giant ragweed, lambsquarters, marehail, etc that are present. We are also late enough that waterhemp is part of the burndown mix in some fields. Don't skimp.

Herbicide programs do not have to last as long in crops planted late. When we plant in early May, we need an herbicide program that controls weeds from then until the end of June or so, which is in part why we use residual herbicides and frequently apply POST herbicides 5 to 6 weeks after planting. Applying the POST too early in a crop planted in early May introduces the risk of poor control of weeds that emerge soon after that application, before the crop is developed enough to control them on its own. This is much less of an issue with a late-planted crop. Since summer annual weed emergence tapers off as we move through June, the POST herbicides can be applied much sooner after planting without sacrificing control. Planting soybeans this late can therefore allow earlier POST applications when weeds are small – more like 3 weeks after planting. This can help minimize carryover concerns with fomesafen, and also provide a wider window to look for the right conditions to apply dicamba (see below).

In studies of reduced-rate POST applications that we conducted a couple decades ago, planting soybeans in late May or early June allowed us to use earlier POST applications (e.g. 21 days after planting) at lower rates and still maintain control. There were just fewer weeds emerging after planting and the duration of weed emergence after planting was also shorter. It was not possible to achieve this in early-planted soybeans – we needed either two applications at

reduced rate or a later application at full rates for control.

One issue with later POST sprays is the potential for herbicide carryover from products such as mesotrione and fomesafen (Flexstar, etc), among others. Fomesafen carryover has been rare in the state but risk increases with later applications, especially if rainfall subsequently becomes limiting. Where glyphosate and fomesafen are being combined in a late POST application to control ragweeds, it may become necessary to replace the fomesafen with lactofen (Cobra/Phoenix) as applications move into July. Our research indicates that the lactofen products are less effective than fomesafen in this mix by about 10 to 20%.

Another concern would be POST applications of dicamba on Xtend soybeans shifted later into the hotter weather that occurs as we move from June into July. The consensus of the weed science community is that both of the approved dicamba formulations have potential to move via volatilization, and the risk of this would increase with increasing temperatures and increased frequency and duration of inversions. The current long-range forecast also indicates a trend for hotter than normal temperatures as we move into mid-summer. Current labels allow application through 45 days after planting or prior to the R1 stage, whichever occurs first. For soybeans planted early, the 45-day limit is often the main determinant, but later planted soybeans progress through growth stages more rapidly so the R1 stage may be the more frequent limitation. Movement of dicamba onto other types of soybeans later in summer also has increased potential to reduce yield, since long-term effects of exposure to dicamba are more severe when soybeans have flowered. Bottom line here is that there is less weather and time suitable for dicamba application with late-season applications, and movement and injury that does occur can have more substantial impact. Planting within the next couple

weeks and looking for the right conditions to spray starting about June 21 would provide more flexibility with regard to weather and weed size than deciding to wait until about July 10 to spray when it's hotter and weeds are already large.

Can residual herbicides be omitted in late-planted soybeans? Maybe. Reduced weed populations could make this more feasible, but we really hesitate to recommend it. Omitting residuals is never the right thing to do in fields with a history of weed control problems or high weed populations, or those with waterhemp and Palmer amaranth. One advantage of omitting residuals would be less risk of antagonism with burndown herbicides in mixtures. Applying certain soybean residuals in June can increase risk of carryover. The effectiveness of current soybean herbicide-tolerance trait systems makes this more of a possibility, but lack of residuals generally increases risk of problems and selection for resistant weeds, and makes timing of POST herbicides more critical. The latter point is important because with a compressed season, applicators can be required to cover a lot of acres within a short period of time. Keeping residuals in the program allows for more flexibility overall.

In late-planted corn, residual herbicides may be effective enough to reduce need for POST herbicides. Or the residuals could be applied early POST, after the rush to plant is over (keeping rotation guidelines in mind). Some corn fields are already in this situation, planted without any herbicide applied yet. The table below shows restrictions on POST use of residual corn herbicides (source – U of Illinois). This information can also be found in the herbicide descriptions in the Weed Control Guide, and is also summarized in this PSU newsletter article and this table from the MSU weed control guide. Reminder that use of 28% UAN as a spray carrier is prohibited for POST application of herbicides with the exception of Degree Xtra.

Table 1. Maximum Corn Size for Postemergence Applications of Soil-Residual Herbicides

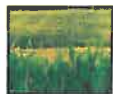
Herbicide	Maximum Corn Size for Broadcast Application
Preempt, Primara, Sharpen, Verdict	Any size
Balance Flexx, Carfax, Intrepid	2 inch cotyledons
Autumn Maxx	4 inch cotyledons
Burp-E-Go II, Vantage, Clutch ATZ, Clutch ATZ-Lite, Parallel Flow, SureStart Max	5 inches
Revolution, Breakthru ATZ, Breakthru ATZ-Lite, Degree Vira, Fall Flow NXT, Harvest, Harvest Vira, Harvest Vira, Keyhole ANZ, Keyhole LA NXT, Revolution, SureStart II TripleFLEX II, SureStart NSY	11 inches
Acclaim, Acclaim, Burp II Vantage, Lunas EZ, Lenz EZ, Outlook*, Resolve DP	12 inches
Harvest V DGL, Python W DGL, Resolve Q	20 inches (40%)
Autumn Flex, 4-Quilts, Pyralis, Zeno, Dual II Vantage, Clutch, Mix-Ten-Landier, H, SureStart II, Parallel	20 inches (40%)
TriStar	20 inches (40%)
Valor NS	20 inches (40%)

\*All of these products are labeled for directed applications to corn up to 12 inches tall.

\*Outlook is labeled for foliar applications to corn up to 36 inches tall.

Harvest is labeled for directed applications to corn up to 70 inches tall.





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### Forage Options for Prevented Planting Corn and Soybean Acres

As we sit here on May 28, we know three things for certain:

- Ohio has the lowest inventory of hay since the 2012 drought and the 4th lowest in 70 years.
- Ohio's row crops will not get planted in a timely fashion this year.
- Despite improvement in the grain markets over the past week or two, for those with coverage, Prevented Planting Crop Insurance payments may still yield more income than growing a late planted corn or soybean crop this year.

Prevented planting provisions in the USDA's Risk Management Agency (RMA) crop insurance policies can provide valuable coverage when extreme weather conditions prevent expected plantings. On their website, RMA also says "producers should make planting decisions based on agronomically sound and well documented crop management practices."

Today, insured corn and soybean growers throughout Ohio find themselves at the crossroads of a decision that pits the overwhelming desire to want to plant and grow a crop against the reality that financially and agronomically it might be a more sound alternative to accept a Prevented Planting insurance payment. Adding further support to the notion that today one might be better off not planting the corn or soybean crop is the opportunity to plant a 'cover crop' in those insured but unplanted acres and utilize it for cattle feed late this fall.

Let's start at the beginning. To an insured crop producer, what is Prevented Planting?

RMA says "Prevented Planting is a failure to plant an insured crop with the proper equipment by the final planting date designated in the insurance policy's Special Provisions or during the late planting period, if applicable." The most common cause for the failure to plant a crop in a timely fashion is adverse weather. An insured producer in Ohio can elect to receive a Prevented Planting payment for corn on June 6th and/or June 21st on soybeans if adverse weather has prevented the crop from being planted by then.

You may ask why I'm discussing this in a beef cattle publication. Once the decision to apply for Prevented Planting (PP) has been made, cover crops - including those a cow can eat - may be planted on those PP acres and hayed or grazed without affecting the PP payment beginning No-

vember 1. It may take some creativity to turn cover crops into feed beginning November 1, but considering that inventory of quality hay in Ohio is so low right now, it merits consideration.

*Before we go further, if you're considering planting a cover crop that you might hay or graze on PP acres, check with your crop insurance agent and Farm Service Agency for any restrictions or timing issues you might need to consider.*

While there are a variety of cover crops that might be planted and make feed yet by fall, I suggest spring oats be considered as a viable, affordable and productive alternative. Not only are there plenty of jobs on the farm aside from planting cover crops that need immediate attention, soil conditions across much of Ohio remain too wet for planting them today, most fields are plagued with weeds that have yet to be controlled, and in many cases fields are still rutted from last fall's harvest. And, if forage and not grain is the goal, plenty of time remains to get oats planted.

Over the years we've found it's not important to rush to get spring oats planted in order to grow lots of high quality forage late in the summer. In fact our experience has been that we get a greater yield and higher quality feed if we wait until the end of July or early August to plant oats for forage. Without getting into a science lesson, it seems the oats prefer the

cooler average daily temperatures we typically experience beginning in August, and they are more likely to not push out a seed head, but remain vegetative until extremely cold temperatures shut them down completely sometime in December.

Not only does an August 1 planting date seem to offer more yield and higher quality oats, but it will also allow ample time for fields to dry, ruts from last fall to be repaired, manure to be hauled, and weeds to be controlled. Based on our experience beginning in 2002 in Fairfield County with oats planted mid to late summer, if you can utilize a forage for haying or grazing late this fall or early winter, oats appear to be the most productive, highest quality, least cost, single harvest alternative available to Ohio livestock producers for planting during the summer months. In fact with some timely rainfall, when planted most any

time before late August, there's an opportunity to 'create' on a dry matter basis anywhere from two to five tons of forage while investing little more than the cost of 80-100 pounds of oats and 40 pounds of nitrogen.

Based on experiences with summer planted oats, Curt Stivison, who initiated this work in Ohio, and I offer these suggestions:

\* Optimum planting date for oats from the perspective of forage yield is not until the first of August. Early August plantings also have resulted in the highest total amount of TDN produced per acre. Later plantings will be slightly higher in quality, but typically not enough so to offset the yield advantage of an August 1 planting. While being more conducive to a mechanical harvest in early fall, planting in early to mid July reduces both yield and quality. The earlier oat plantings also have exhibited more susceptibility to rust.

\* Regardless the planting date, or variety, no-tilled seeding rates of from 80 to 100 pounds of oats have consistently resulted in optimum forage yields.

\* Optimum nitrogen application rate has been 40 to 50 pounds per acre. This application not only produces the highest yields, but at current values of nitrogen, it's also the most cost effective rate. Higher rates of nitrogen actually depressed yields in our 2008 plots.

\* Over the years, many growers have been successful using bin run "feed" oats originating in Canada. Most of the concerns with utilizing "feed" oats are obvious: no germination test, and the potential for bringing some weed seed onto the farm. Another problem we experienced once was that a few of the Canadian oats in the "feed bin" were apparently winter oats. After getting started in the fall, they went dormant over winter, and then elongated in the spring much like winter wheat does after breaking dormancy.

\* The optimum combination of productivity and quality of August planted oats arrives 60 to 75 days after planting. Apparently due to the heat, oats planted in July mature more quickly and thus, rapidly decline in quality beginning 50 to 60 days after planting in most years.

\* Oats harvested 50-60 days after planting and while still in the boot stage of maturity may offer some regrowth that could be grazed.

\* A weed control application of glyphosate is a necessary and cost effective practice prior to oat planting.

An additional advantage observed when using oats for an annual forage crop is the opportunity to capture the total tonnage produced with a single cutting harvest if grazing is not an option. Crops that require multiple mechanical harvests increase costs of production significantly.

As oat forage harvest options typically beginning November 1 are considered, grazing provides the most effective and affordable alternative. In 2002, locally one family strip grazed oats all winter and actually began the calving season on them before the oats ran out in mid March.

Dry baling oats in the fall has been done

around Ohio, but it's a challenge considering that oats will dry less than half as fast a grass hay. Cut in November, oats typically require at least two weeks or more to cure. Wet wrapping them is an expensive alternative. Using an in-line bale wrapper/tuber is a little less expensive per ton than individually wrapped bales if the equipment is available locally.

Oats won't die until temperatures have been in the mid 20's for several hours. That means they'll still be green and alive in December most years in Ohio. When they finally freeze, and if it's not a wet winter, growers may be able to let them die and dry while standing, get a few days of dry frozen weather in January, mow them, rake them and quickly bale them after they've essentially cured while still standing.

In Canada, growers have sprayed their oats with glyphosate and let them dry out while standing. Then, after a few weeks and at a time when they get a dry week, they mow, rake and bale them all in a day or two. Locally, that's been done once that I know of which allowed the oats to be baled in late December and January.

If grazing the standing oats is not an opportunity, while not presently approved by RMA as an alternative for cover crops grown on Prevented Planting acres, perhaps chopping and ensiling oats is the best alternative for harvest. This offers several advantages over baling or wet wrapping. Obviously the issue of curing the plants for dry harvest becomes a moot point. Chopping and ensiling into either a permanent structure or bags is also likely less expensive than wet wrapping individual bales. Perhaps even better, as detailed by Francis Fluharty a few years ago, chopped forages are 30 to 60% more digestible than long stem forages.

Admittedly chopping and ensiling is likely more expensive than rolling dry hay, but when you consider you get essentially no storage losses, the timeliness of harvest which is afforded, and the more digestible feed which results, it's a good alternative. And if you're able to bunk feed the chopped and ensiled oats, there will be no "bale ring" feeding losses to be experienced.

*Keep in mind, if you plan to accept a full Prevented Planting Crop Insurance payment, cover crops can't be hayed or grazed until November 1.* For more information on making the Prevented Planting decision, you may review this recent post from the University of Illinois farm-dodically entitled Prevented Planting Decision for Corn in the Midwest.

During the winter of 2013 Ohio Forage and Grassland Council Annual Meeting, I was invited to share the presentation found here on YouTube:

<https://youtu.be/yW124VH6R6M>, which includes a number of photos, about our past experience of growing oats late in the summer for forage. Oats, planted late in the summer, could indeed offer a productive and high quality forage alternative on insured Prevented Planting acres!

For additional information on beef cattle production in Ohio, visit: <http://u.osu.edu/becf/>

### Herb Garden Make & Take

An Herb Garden Make & Take will be held on Thursday, June 27, starting at 6:30 p.m. Attendees will learn how to grow, use and preserve herbs and will also make an herb garden to take home.

There is a small fee of \$12.00 to cover the cost of supplies. Class will be held at the Ag-Credit Building, 5362 US Hwy 42, Mt. Gilead, OH 43338.

#### HERB GARDEN MAKE & TAKE REGISTRATION

Name \_\_\_\_\_ Phone \_\_\_\_\_

Address \_\_\_\_\_

Number Attending Herb Garden Make & Take (June 27): \_\_\_\_\_ x \$12.00 = \$ \_\_\_\_\_

Return with payment to: OSU Extension - Morrow County, 5362 US Hwy 42, Suite 101, Mt Gilead, OH 43338

# AGRICULTURE

## Forage Analysis: What Numbers Do I Need

By Justin W. Waggoner,  
Kansas State University

One of the more common questions I receive with regard to analytical testing of forages and other feedstuffs is, "I have the sample, now what do I test for or what analysis package should I select?"

The basic components that nutritionists need to evaluate a feedstuff or develop a ration are dry matter or moisture, crude protein, an estimate of the energy content of the feedstuff — Total Digestible Nutrients (TDN), Net Energy for Maintenance (NEM), Net Energy for gain (NEG), and the macro minerals, Calcium and Phosphorus. These are the most basic numbers that are required, but including some additional analyses in the report can give us additional insight into the quality of the feedstuff or improve our ability to predict animal performance, which is the primary reason we analyze feedstuffs.

I recommend that the report include acid detergent fiber (ADF) and neutral detergent fiber (NDF). The amount of NDF in forage reflects the amount of cell wall contents (hemicellulose, cellulose, and lignin) within the sample. The NDF fraction is often associated with the respective bulkiness of forage and is correlated with dry matter intake of the forage or feedstuff. Therefore, the amount of NDF may be used to estimate the expected dry matter intake associated with the forage. The ADF number represents the amount cellulose and lignin within the forage and is correlated with the respective digestibility of the forage. In general, a higher ADF value is associated with forage that has a greater proportion cellulose and lignin and would likely be a more mature. Additionally, the ADF fraction is used to calculate the energy estimates TDN, NEM, and NEG that appear on the report. There are a number of different mathematical equations that the testing laboratory may use to calculate these numbers, based on the type of sample (corn silage, alfalfa, grass hay, etc.). If the ADF is included in the report, the nutritionist can adjust or recalculate the energy estimates if necessary.

If the forage will be fed in combination with

a byproduct feed such as wet distiller's grain, including an analysis for sulfur can be beneficial if the forage will be used in a growing or feedlot ration. Additionally, if the forage is a known nitrate accumulator (forage sorghums, sudangrass) or may have been stressed due to drought, including a nitrate analysis should always be considered, especially if the forage will be fed to pregnant [livestock].

Most analytical laboratories have a number of different analysis packages which encompass the most common procedures or numbers that a nutritionist or producer needs to know about their feeds. These packages will typically include the basic procedures (DM, CP, TDN) and then add on specific analyses such as NDF, or the Macrominerals (Ca, P, Mg, K, Na, Cl, S). Some laboratories may

group analysis packages by the type of sample (Forage, vs. mixed ration) or production purposes.

The objective of analytical testing of forages and feedstuffs is to improve our ability to meet the animal's nutrient requirements and ultimately predict animal performance. The unequivocal best method of evaluating the quality of a feedstuff is feeding the feedstuff to an animal and evaluating performance over a set period of time, under a specific set of conditions. Since that would not be cost effective or timely, analytically evaluating feedstuffs in a laboratory is the next best thing and although it is not perfect, it is unequivocally better than the "this looks like really good stuff" method of evaluating feedstuffs.

(Previously published in *The Stock Exchange News*: May 30, 2019)

Description (%DM unless specified)	Dry Matter Basis	Mixed Forages 60 dy Avg	4 yr Avg
Crude Protein	13.62	19.30	18.06
ADF	32.93	35.08	35.70
aNDF	57.10	44.79	47.63
Calcium	0.81	1.08	1.04
Phosphorus	0.38	0.30	
Magnesium	0.30	0.32	
Potassium	2.84	2.48	2.62
Sulfur	0.24	0.22	0.23
Starch	2.46		6.90
NDF Digest: Traditional=Goering & Van Soest Method, Standardized=Combs-Gosses Method			
NDFD 48, %NDF	61.44	50.13	53.59
Calculations			

## Feed Prices in 2019

By Brenda Boetel, Professor and  
Extension Economist, Department of Agricultural Economics,  
University of Wisconsin-River Falls

The USDA Crop Progress report released June 3, 2019 showed that as of the week ending June 2, 2019 only 67% of corn has been planted, compared to 96% in 2018. The July, September and December 2019 CME corn futures market contracts have increased an average of \$0.59 since May 1. The average May change over the last 5 years has been a decrease of \$0.11. Given the significant decrease in plantings and the percentage of corn that has been planted late, corn price may continue to increase. While the trade concerns with Mexico are the bearish indicators the decrease in acres will likely have a greater impact.

Over the last 5 years Mexico has taken an average of 24% of our exports. 24% of the average 5 years of exports is 522 million bushels of corn. If one assumes corn planting will be down 6 million acres to 86.8 million acres and we see a decrease of 2 bushels/acre to 174.6 bu/acre yield we would see a decrease in corn production of 554 million bushels. Although the market may focus on the new news concerning Mexico and trade, the long-term impact (and in my opinion the more likely scenario) of lower acres and yield will eventually have the greater impact on prices.

In addition to a lower supply of corn, we will see continued decreases in high quality hay. 2018 saw heavy rains and unpredictable weather. The decrease in production contributed to the decrease in US hay stocks of close to 6% from 2017 to 2018. Given the late wet spring, first cutting hay is smaller as forages were slow to start growing and were mature at lower height.

Feeding cost of gain is sensitive to corn and hay prices, as well as feed conversions. Using regression results obtained by Michael Lange-meier from Purdue University that found each \$0.10 per bushel increase in corn prices increases feeding cost of gain by \$0.87 per cwt. and each \$5 per ton increase in alfalfa prices increases feeding cost of gain by \$0.55 per cwt, one can estimate that even if hay price and all other costs remain constant cost of gain will increase by \$5/cwt given the May increase in price of corn. This calculation assumes price remains at this level and feeders haven't conducted any hedging activities, but it highlights the increased costs of feeding producers should expect.

## Agronomy Day on August 21

The Morrow County Agronomy Field Day will be held Wednesday, August 21 from 10 a.m. to 3 p.m. at Headwaters Outdoor Education Center, 151 Home Rd, Mt Gilead, OH 43338.

The field day will include the following topics from industry professionals:



- Elizabeth Hawkins, OSU Field Specialist, Agronomy Systems: report on effects research and how you can get involved.

- Anne Dorrance, OSU Soybean Pathology and SCN research: reporting about soybean diseases and SCN.

- Aaron Wilson, OSU Senior Research Associate - Byrd Polar and Climate Research Center climate and how it affects herbicide drift.

Please RSVP at 419-947-1070 or 419-946-7923 by August 16.

This event is sponsored by Morrow County Soil and Water Conservation District and Ohio State University Extension - Morrow County.

### Grill Smart

Hands-on learning the science of great grilling

Wednesday July 24<sup>th</sup> @ 5:00 p.m.

A satisfactory eating experience of meat is directly related to the tenderness, juiciness, and flavor of the cooked product. In this program OSU Extension will provide you the consumer, hands on education in order to maximize palatability and food safety during the preparation and cooking process when using a grill or cooking outdoors.

OSU Extension - Morrow County  
5362 US HWY 42  
Mt. Gilead, Ohio 43338  
MORROW.OSU.EDU




Please return to Morrow County OSU Extension at 5362 US HWY 42 Mt. Gilead Ohio 43338 with \$20 registration fee by July 19<sup>th</sup>. Class size limited to 16 participants on first come first serve basis. Fee includes meat product and materials.

Name(s): \_\_\_\_\_

Phone Number: \_\_\_\_\_

No. of Attendees: \_\_\_\_\_ x \$20 = \_\_\_\_\_

Any Food Allergies: \_\_\_\_\_ If Yes List: \_\_\_\_\_

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# OSU EXTENSION CALENDAR OF EVENTS

## JULY 2019

- 1 Dairy Board Meeting, 7:30 p.m., Ag Credit Building Conference Room
- 3 July 3rd Celebration, Fairgrounds
- 4 Extension Office Closed
- 9-13 Morrow County 4-H Camp
- 11 Pork Producers, 7 p.m., Ag Credit Building Conference Room
- 11 Broilers Pick-Up, Fairgrounds, 12:30-2 p.m. **Bring Box!**
- 12 Quality Assurance Deadline for Morrow County Fair
- 16 Livestock Sale Committee, 7 p.m., Ag Credit Building Conference Room
- 16-17 Cloverbud Wild Days Day Camp, 9:30-11:30 a.m., Headwaters Outdoor Education Center
- 17 Miscellaneous Project Judging, 9 a.m. - By Club
- 17 Youth Fitness Quest Registration Due
- 18 Food Project Judging, 9 a.m. - By Project
- 18 Clothing Project Judging, 2 p.m. and Style Show, 7 p.m.
- 18 Horse & Pony, Extension Office, 8 p.m.
- 20 Extension Dinner
- 22 Food Preservation: Canning & Freezing Meats, Soups & Stews - 6:30 p.m., Ag Credit Building Conference Room
- 23 CARTEENS, 6:30-8:30 p.m., Ag Credit Building Conference Room
- 24-Aug. 4 Ohio State Fair
- 24 Grill Smart Class, 5-8:30 p.m., Ag Credit Building Conference Room - **Please pre-register**
- 24 Cattlemen's Meeting, 6:30 p.m., Fairgrounds
- 25 Youth Fitness Quest - Get Energized - 9-2 p.m., Buckeye Training & Fitness Academy, Edison
- 25 Sr. Fairboard, Fairgrounds
- 29 Jr. Leaders, 7 p.m., Extension Office

- 29 Food Preservation: Make & Take Uncooked Jams - 6:30 p.m., Ag Credit Building Conference Room

## AUGUST 2019

- 1 Market Rabbit Pre-Fair Registration, 5 p.m.-8 p.m., Youth Building - **MANDATORY**
- 1 Ohio State Fair Rabbit Breed ID Contest - [go.osu.edu/rabbitevents](http://go.osu.edu/rabbitevents)
- 1 Jr. Fair Board, Fairgrounds, 8:30 p.m.
- 5 Dairy Board Meeting, 8 p.m., Ag Credit Building Conference Room
- 5-6 Mandatory Livestock, Horse, and Dog Skillathons
- 7 Cattlemen's Meeting, 6:30 p.m., Fairgrounds
- 7 Soil & Water and OSU Extension - Morrow County Ag Bus Tour - Call 419-946-7923 to register
- 8 Pork Producers, 7 p.m., Ag Credit Building Conference Room

- 10 MoMazing Race
- 15 Horse & Pony Committee, Fairgrounds, 8 p.m.
- 21 Agronomy Field Day, 10 a.m. - 3 p.m., Headwaters Outdoor Educational Center
- 26 Fair Check-In Day
- 28-Sept. 3 Morrow County Fair

## SEPTEMBER 2019

- 2 Last Day of Fair - Livestock Sale Day!
- 5 Carcass Contests
- 12 Career Exploration Workshop - Emergency Services Registration Due
- 17-19 Farm Science Review - Get your tickets at our office!
- 21 Career Exploration Workshop - Emergency Services, 9 a.m. - 2:15 p.m., Morrow County Emergency Services Building
- 24 CARTEENS - 6:30-8:30 p.m., Ag Credit Building Conference Room
- 26 Sr. Fairboard, Fairgrounds
- 30 County 4-H Award Forms Due (Contact your 4-H Advisor)

CFAES provides research and related educational programs to clientele on a nondiscriminatory basis. For more information: <http://go.osu.edu/cfaesdiversity>.

## THANK YOU Central Ohio Farmer's Co-op

for over 33 years of donations toward 4-H project books!

*Approximately \$1,200 each year is donated! Thanks for helping make the best better!*

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