



# EXTENSION

The “positive associative effect” of high protein supplements

**Glenn Selk, OSU Emeritus Extension Animal Scientist**

Oklahoma has substantial standing forage in many, if not most, pastures as we go into late summer. As the day length shortens, plants become more mature and lower in protein content. However, the protein requirements for growth, milk production, and body weight maintenance of beef cattle do not decrease as the “dog days of summer” arrive.

The micro-organisms in the rumen of beef cows and replacement heifers require readily available protein to multiply and exist in large enough quantities to digest the cellulose in low quality roughages. Protein supplementation of low-quality, low protein forages results in a “**positive associative effect**”. This “positive associative effect” occurs as supplemental protein available to the “bugs” in the rumen allows them to grow, multiply, and digest the forage more completely and more rapidly. Therefore the cow gets more out of the hay she consumes, she digests it more quickly and is ready to eat more hay in a shorter period of time. Data from Oklahoma State University illustrates this (Table 1, McCollum and Galyean, 1985, J. Anim. Sci). The prairie hay used in this study was less than 5% crude protein. When the ration was supplemented with 1.75 lbs. of cottonseed meal, retention time of the forage was reduced 32% which resulted in an increase in feed intake of 27%. Because hay intake was increased, the animal has a better chance of meeting both the protein and energy requirement without supplementing other feeds.

**Table 1. Effect of Cottonseed Meal Supplementation on Ruminal Retention Time and Intake of Low-Quality Prairie Hay**

#### Daily Supplement of Cottonseed Meal

	None	1.75 lb	Change
Rumen Retention Time, Hr	74.9	56.5	-32%
Voluntary Daily Hay Intake, % of body wt.	1.69	2.15	+27%

(Article Continued Pg. 5)

## Dividing Perennials

**David Hillock, State Master Gardener Coordinator**

As perennials mature they often need dividing to encourage vigor and continued performance. Luckily the plants provide us a few clues when it is time to divide them - smaller leaves and fewer flowers, weaker stems, the center becomes open and all the growth is on the perimeter of the clump or it may have just outgrown its spot. (Continued Pg. 5)

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## Fall Gardens

### **Lynn Brandenberger, Consumer Horticulture Extension Specialist**

Being successful with your fall garden really begins with getting an early start. I've said for quite a while that the time to begin is as soon as the first cool front comes through the state in August. Well, Mother Nature has blessed us with the arrival of an early cool front that has brought with it much cooler temperatures and even some rain. So... Now is the time to begin if your garden is ready or at least time to start preparing your garden for fall plantings. The following steps should allow you to have a great start to my favorite time for gardening!

First, begin by taking a good soil sample and having it analyzed. Fact sheet PSS 2207 "How to Get a Good Soil Sample"

does a great job of outlining the process which will help you manage the fertility in your garden, it is available at: <https://extension.okstate.edu/fact-sheets/how-to-get-a-good-soil-sample.html> The great thing about using the OSU lab for soil testing is that fertility recommendations can be tailored to specific vegetable crops if that is what you would like. If you are hoping to direct seed then pre-germinating the seed would be a great way to go if you will be seeding by hand. How to pre-germinate seed can be seen at: <https://www.youtube.com/watch?v=mOyeljWAFS4&t=10s>

Your second step is to decide what you want to produce

in the garden. Personally I prefer a mixture of brassica greens like cabbage, collard, kale, turnip, mustard, and arugula along with other greens like spinach, Swiss chard, , and leaf lettuce. Greens are some of the more nutritious vegetables on the planet so I always include some in my fall garden. Recommendations for varieties can be found in HLA-6035 <https://extension.okstate.edu/fact-sheets/commercial-vegetable-varieties-for-oklahoma.html> USDA has a website that lists nutrient content of all sorts of things, so if you are having trouble deciding on crops take a look at their website: <https://fdc.nal.usda.gov/api-guide.html> Greens are also pretty straight forward when (Cont. Pg. 3)

## Fall Gardens (Cont.)

it comes to growing them verses fruiting crops that we produce in the summer. Another group to consider for your fall garden are cool season root crops like carrot, beet, turnip, etc. The trickiest to establish is carrot which may require a little more effort to obtain a stand of plants.

With carrot or any other crop (spinach) that can be a challenge to germinate here's the deal for fall. We want to establish them in August which can be hot and dry therefore we need to make provisions to keep soil temperature down i.e. preferably in the 75oF or less range. Along with keeping soil temperature moderated we need to keep the soil moist enough to prevent the soil from crusting over, sounds challenging doesn't it. It really isn't that complicated, just use some type of organic mulch to moderate the temps and also reduce the evaporation of water from the soil surface. Using a mulch like wheat or oat straw along with light applications of water (sprinkling) of the planted area 2-3 times per day will achieve the cooling that we need along with preventing the soil from crusting over. Just keep an eye on your seeded rows and pull the mulch back a little from the plants once you notice them starting to emerge.

The other group of vegetables that can be a part of your fall garden are summer crops that we carry over into the fall season. These could include crops like tomato, or peppers, etc. The situation with these crops is that if we take care of them they will produce up to the first frost and if we can protect them we might even have a few more weeks of produce from them following the first cold snap.

Begin by controlling any pest problems that the crop may have i.e. spider mites come to mind then you may want to give them a little boost with a light application of nitrogen fertilizer. So, what does a light application mean? Well let's say that you have some tomatoes and you want to give them a "little" bit of nitrogen. So what I'm suggesting is to apply nitrogen at a rate which works out to roughly 0.05 lbs. (Approximately 0.1 of a pound of 46-0-0 or 0.15 pound of 33-0-0) of nitrogen per 100 square feet, not much is it? The situation is this: If we stimulate a little bit of growth we will see some more growth and more flowering and fruiting, if we over stimulate the plant with too much nitrogen then we will have a fantastically fast growing plant with few or no flowers and no fruit. Better to not fertilize than to over-fertilizer a fruiting plant. Another way to approach this would be to give your tomato plants a side-dress of compost which will have between 2-4% nitrogen (need 1.25-2.5 lbs./100 sq.ft.) of compost, so that's a safer approach and it's organic in the bargain. For a crop like okra which needs very little nitrogen I wouldn't fertilize it at all just keep an eye on pests and keep them in check.

## UPCOMING EVENTS and DATES

### August 6<sup>th</sup> – Quality Beef Programs (RSVP needed) 8:00.m.-10:00a.m.

BQA training

OQBN Protocol and Vaccination training

Donuts and Coffee Provided to those that RSVP

Limit 50 participants due to CDC guidelines

Contact Kay County OSU Extension to RSVP

Whitman Arena - Blackwell Fairgrounds, Blackwell, OK

### August - November 2020 –Master Gardener Volunteer Training

Wednesdays from 9a.m.-2p.m.

Room D-101 Pioneer Technology Center Business Incubator

\$100/per participant

Once a Week Gardening Training Course

Pioneer Technology Center, Ponca City, OK



# GARDEN TIPS FOR AUGUST!

***David Hillock, State Master Gardener Coordinator***

## Vegetables

- August is a good month to start your fall vegetable garden. Bush beans, cucumbers, and summer squash can be replanted for another crop. Beets, broccoli, carrots, potatoes, lettuce, and other cool-season crops can also be planted at this time. ([HLA-6009](#)).
- Soak vegetable seed overnight prior to planting. Once planted, cover them with compost to avoid soil crusting. Mulch to keep planting bed moist and provide shade during initial establishment. Monitor and control insect pests that prevent a good start of plants in your fall garden.
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## Trees and Shrubs

- Discontinue deadheading roses by mid-August to help initiate winter hardiness.
- Watch for second generation of fall webworm in late August/early September. Remove webs that enclose branches and destroy; or spray with good penetration with an appropriate insecticide.
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## Fruit and Nut

- Continue protective insect applications on the fruit orchard. A good spray schedule is often abandoned too early. Follow directions on last application prior to harvest. ([EPP-7319](#))

## Flowers

- Towards the end of the month, divide and replant spring-blooming perennials like iris, peonies, and daylilies if needed.

## General

- Water compost during extremely dry periods so that it remains active. Turn the pile to generate heat throughout for proper sterilization.
- Always follow directions on both synthetic and natural pesticide products.
- Watch for high populations of caterpillars, aphids, spider mites, thrips, scales and other insects on plant material in the garden and landscape and treat as needed. ([EPP-7306](#))
- Water all plants thoroughly unless rainfall has been adequate. It is better to water more in depth, less often and early in the morning.

## Lawn and Turf

- Grassy winter weeds like *Poa annua*, better known as annual bluegrass, can be prevented with a preemergence herbicide application in late August. Water in the product after application. ([HLA-6420](#))
- Areas of turf with large brown spots should be checked for high numbers of grubs. Mid-to-late August is the best time to control heavy white grub infestations in the lawn. Apply appropriate insecticide if white grubs are a problem. Water product into soil. ([EPP-7306](#))
- Tall fescue should be mowed at 3 inches during the hot summer and up to 3½ inches if it grows under heavier shade. ([HLA-6420](#))
- For areas being converted to tall fescue this fall, begin spraying out bermudagrass with a product containing glyphosate in early August. ([HLA-6419](#))
- Irrigated warm-season lawns can be fertilized once again; apply 0.5 lb N/1,000 sq ft in early to mid-August.
- Brown patch of cool-season grasses can be a problem. ([HLA-6420](#))

## **"The "positive associative effect" of high protein supplements (Cont.)**

Because retention time was decreased, one should expect the protein supplementation in this situation also increased digestibility of the hay. This was shown clearly in another OSU trial that indicated that low quality roughage had an increase in estimated digestibility from 38% to 48% when the cattle were supplemented with 1.5 pounds of soybean meal daily.

As producers prepare their late summer, fall, and winter feed strategies, they can see the importance of providing enough protein in the diet of the cows to feed the "bugs" in the rumen. If the forage is low in protein (less than 8 % crude protein), a small amount of supplemental protein such as cottonseed meal, soybean meal, or one of the higher protein by-product feeds, could increase the amount and digestibility of the forage being fed. This strategy requires that ample forage is available to take advantage of the "positive associative effect". As the table above illustrates, properly supplemented cows or replacement heifers will voluntarily consume about 27% more forage if they were provided adequate protein. If enough forage is available, this is a positive effect of a small amount of protein supplement. Cows that are already in excellent body condition in late summer will not benefit from the additional expense, however, young thin cows would be candidates for protein supplementation in late summer and fall. The increase in body condition can be achieved with minimal expense, especially if the spring-born calves are weaned in early fall.

## **Dividing Perennials (Cont.)**

The general rule for when a perennial should be divided is opposite its flowering time. So a plant that flowers in the spring can be divided after it flowers, usually in late summer or fall. Late August is a good time to start dividing these types of perennials in Oklahoma. Some plants don't care when they are divided, but in any case care should be taken to ensure survival of the new transplants.

Start by digging a trench around the outside of the clump and then lift the entire clump from the ground. Using a sharp knife or spade begin cutting the clump up into smaller clumps about the size of your fist or a gallon sized perennial. Each section should have at least three healthy buds or shoots.

## **Shannon's Kay County Corner**

### **Kay County OSU Extension on 100.7 KPNC and 99.3 KLOR Friday Mornings at 7:40a.m.**

We have been lucky enough to join KPNC and KLOR on Friday mornings around 7:40a.m. Kay County Educators will be talking about all types of events and timely information with the Beverly Cantrell and Sean in the Morning. Give us a listen, and let us know what you want us to talk about for upcoming shows.

### **Kay County OSU Extension YouTube Channel is up and Running**

If you have not had a chance to check out our videos on YouTube, please look. Right now, there are videos on native pasture flowers, barbed wire fence tips, and fruit tree diseases. We plan to put more subjects up throughout the year, and are always up for more suggestions!

Kay County OSU Extension YouTube Channel Link:

<https://www.youtube.com/channel/UC8PF4BmW9J4fsIUsidEvEFw/featured>

### **Kay-Osage Prescribed Burn Association Looking for New Members**

I had the pleasure of becoming a member of the K-O Burn Association, and burning ~30 acres of pasture that had a sericea lespedeza problem on August 2<sup>nd</sup>. Growing season burns are effective up until Early November, if applied correctly. By paying the \$25 annual membership fee, you have access to spray rigs, signs, rakes, shovels, and a wealth of knowledge on burn procedure. If you have a piece of ground you need, or want to burn; I highly encourage you to contact the Kay County OSU Extension Office at 580-362-3194 to learn more about prescribed burning.

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