

Extension Ag News

Spring 2017

Volume 5, Issue 1

Editor's Note

This is the Spring issue of a four-county agriculture newsletter. Agriculture Extension Agents serving Albemarle, Fluvanna, Greene and Louisa Counties are collaborating to offer in-depth information on a wide variety of topics. **Extension Ag News** is published quarterly.

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The Low-down on High Sugar Levels in Horse Pastures

Written by Carrie Swanson, Extension Agent, Albemarle County

Our pasture grasses are getting an early start this year, and that is a good thing if you are tired of feeding hay, but probably not if you have an “easy keeper” or a horse who gains weight quickly on fresh grass. Spring grass is especially high in fructans or sugars, and many horses need to be managed to ensure they do not gain too much weight during the spring (and to a lesser extent, the fall), which can lead to founder. If you have a horse with a history of laminitis, insulin resistance or equine metabolic syndrome, you may need to remove them from the grass altogether.

So how do you know if your horse is at risk? Well, if they have a history of founder or laminitis, insulin resistance or equine metabolic syndrome, they are at high risk. I like to see these horses kept in a dry lot and fed hay instead. Horses or ponies with no history of issues, but who pack on the pounds easily, are at moderate risk. For these guys, grazing muzzles and limited turnout may be helpful. But

remember, a horse can eat as much in 4-6 hours as they can in 24...and that means to restrict intake, turnout must be less than 4 hours! The one study I have seen using grazing muzzles estimated a 30% reduction in intake (when worn 24 hrs a day), which means this could be a very effective strategy...but not if you “give him a break” from it at night or during the day. If you take the muzzle off while your horse is in the pasture each day, you might as well never put it on, plus he will be harder to catch than if it is on all the time. A final option is to increase the amount of exercise your horse gets. The more calories he burns, the more sugar and carbs his body actually needs.

Aren't the sugar levels lower at certain times of the day? Yes. Sugar content of grasses varies seasonally and throughout the day. Sugar levels in the grass increase with photosynthesis, so bright sunny days with optimum temperatures (for our cool season grasses, 55-80 degrees for high temps) usually mean a peak sugar level by around 4-5 pm and a low point at about 5 am. BUT when the plant doesn't use up those sugars at night for growth (because of drought or freezing temperatures) the sugars levels may still be high in the morning. AND just because the sugar level is lower, doesn't mean it is a safe level for your particular horse.

But didn't horses evolve eating grasses? Yes, but not the varieties that we plant in our pastures. Many of our “improved” pasture grasses were developed to be rich in sugars and carbs so that they would be more effective at putting weight on cattle and encouraging higher milk yields. Unfortunately, converting fields to native grasses would not be much help either, as they do not withstand the hoof-traffic and heavy grazing, and you would need many more acres per horse for this to be sustainable.

Your best bet is to talk with your veterinarian about your horse's risk and about his ideal Body Condition Score. Generally, the ideal Body Condition Score is between 4 and 6. The following link describes how to score your horse:

https://www.vetmed.vt.edu/vth/services/equine/docs/BCS_Chart.pdf

Taking pictures of your horse every few weeks and comparing them over time can also help you catch subtle weight gain.

Kidding and Lambing Prep

Edited by John Thompson, VCE Fluvanna 2016. Written by Scott P. Greiner, assistant professor, and Mark L. Wahlberg, associate professor, Department of Animal and Poultry Sciences, Virginia Tech

Immediate Post-Lambing Management

We covered the process of kidding/lambing in the previous segment, but that leaves the “What Next?” in my mind. The doe/ewe and her single/twin/triplets need to be monitored closely for the first few days after birth. Healthy kids/lambs are content, and will stretch when getting up and wag their tails when nursing. A gaunt and weak appearance may be indicative of starvation. Check mom to be sure she has milk. In the case of multiple births, the smallest offspring may not be able to compete for the milk supply. Constipation can be a problem in newborns if feces dry and mat down on the tail. Cleaning the area with a damp rag will alleviate this problem.

Time spent in the jug will depend largely on the number of jugs available and how quickly the jugs are needed again. Strong, healthy singles may be removed from the jugs in 24 to 36 hours after birth and twins after 48 hours. Triplets and mothers with weak ones may need to stay in the jug for three or more days. Remove them from the jug as quickly as possible, as the longer they are confined, the greater the chances of them contracting pneumonia and diarrhea. Labor requirements are also much greater when does/ewes are confined to the jugs.

Before turning out of the jugs, record pertinent information. Appropriately identify the offspring (ear tags, paint brands, ear notches, etc.) at this time. The ability to match the ewe with her lambs can be a very helpful management tool. Thin, poor-doing kids/lambs may indicate a health problem in the mother (mastitis) or inferior milking ability.

Most of Virginia is deficient in selenium. Selenium and/or vitamin E deficiency causes white muscle disease. To prevent this disease and for all-around flock health and performance, provide the doe/ewe flock with a high-selenium complete mineral mix specifically formulated for sheep or goats (these are not interchangeable!) during gestation (fed free-choice). Additionally, lambs/kids should receive 0.5 cc Bo-Se a day or two after birth. Bo-Se is a combination of vitamin E and selenium. Do not use Mu-Se. This is specific, Bo-Se is the way to go.

For systems in which mothers and offspring will be going to pasture immediately after birthing, mothers should be dewormed either two to three weeks prior to birthing or upon leaving the jug. Pregnant shed an increased number of worm eggs during the last weeks of gestation and continue through just after birthing.

Upon removal from the jugs, ewes and lambs should be put into a mixing pen with three or four other ewes and their lambs. This will help acclimate them, and they should be closely observed to identify abandoned and rejected lambs. After a day or two, the ewes can then be put into larger groups.

Jugs should be cleaned and rebedded after each doe and her kids are removed. Even though the area may look clean, urine and manure in the pen will release ammonia, which is harmful to the newborn lamb's lungs and can lead to pneumonia.

Complications with Newborns

Hypothermia and Starvation

Hypothermia is defined as low body temperature. This condition may result from a variety of factors including exposure, weakness, trauma, and starvation. Lambs with hypothermia appear weak, gaunt, and hunched up. In severe cases, the lamb may be unable to hold its head up and may even be unconscious. The ears and mouth may feel cold, and the lamb may lack a suckling response. The normal body temperature for kids/lambs is 102° to 103°F. Lambs with temperatures below 100° are considered hypothermic. Use a rectal thermometer to measure body temperature.

In newborns, true hypothermia may result from exposure. In these cases, it is necessary to get warm colostrum into the lamb immediately to bring its body temperature up. However, if the kid/lamb is too cool, get the body temp up first, then tube feed them colostrum. It may also be necessary to move the lamb into a warmer environment to elevate its body temperature. If wet, the lamb should be dried off and wrapped in a towel. A cardboard box can be used to confine the lamb, with jugs of warm water used as a heat source. This method is similar to the heating boxes that are sold commercially. Heat lamps may also be effective. However, heat lamps should not be used routinely in the barn. They are expensive to operate, and do not supply enough heat to prevent hypothermia. They also are a fire risk. Healthy lambs are adaptable to very cold temperatures, provided the environment is dry and free of cold drafts. As the lamb warms up, monitor its body temperature. Water baths have also been used to warm lambs, although care should be exercised not to use very hot water (>105°F), which will warm the lamb too quickly and cause shock. In the case of winter/early spring born goats, especially Boers, they are NOT cold hardy, and will need greater attention and likely more intervention than lambs.

For kids/lambs that are older than 24 hours, hypothermia usually is a result of starvation. Without energy from milk, they become hypoglycemic, then hypothermic and may die. Treatment for these situations is similar to that used for the newborn, with the exception that older kids/lambs need not receive colostrum. Milk replacer can be fed with a bottle or feeding tube. The milk should be warm, but not hot when a drop is placed on the inside of your wrist. As a guideline, these older ones should receive 6 to 8 ounces of milk per feeding.

Orphans

Orphans may result from abandonment, rejection, or the death of the mother. Options to consider are grafting onto another female, artificial rearing with milk replacer, or selling if an outlet is available.

Many methods are used to graft orphans. The largest, most aggressive kid/lamb is usually the best candidate to graft. Grafting works best when the kids/lambs to be grafted are similar in age to the mothers own. Grafting a triplet lamb to a ewe with a single is the usual case. The grafting process should be initiated as soon after birth as possible. The longer the ewe and her lambs are together, the stronger

the bond to each other becomes. Older lambs are difficult to graft not only due to rejection by the adopting ewe, but also rejection of the ewe by the orphan lamb. In all cases, as described previously, colostrum intake by the orphan lamb in the first 24 hours is important.

To get a doe/ewe to accept an orphan, the dam must think the kid/lamb is her own. Some are easier to fool than others. If grafting to a ewe that has just given birth to her own lamb, rub the orphan lamb in the birthing fluids and afterbirth to give the orphan lamb the smell of her own. Another method involves a stocking that is worn by the adoptive ewe's own lamb for a day or two, and then placed on the orphan lamb. In all cases, place the ewe's head in a stanchion so she can eat and drink but not turn to smell and fight the lambs. This forces the ewe to allow the orphan to nurse. The length of time required for successful grafting varies. Over a period of three to seven days, most females will accept the new kid/lamb. Does or Ewes with grafted offspring should be monitored closely once they are turned out.

Kids/lambs may also be raised artificially on milk replacer. The milk replacer should be specifically formulated and labeled for kids or lambs. Again, kids/lambs require colostrum within the first 24 hours after birth and then may be placed on milk replacer. The best candidate for artificial rearing in a multiple birth situation is the smallest, weakest lamb. The sooner the lamb is taken off the ewe, the easier it is to train to the bottle. It frequently takes several feedings to train to the bottle. Starting with a hungry kid/lamb (five to six hours since last feeding) will assist in training. It may be necessary to force-feed the bottle. Kids/lambs will consume around 20 percent of their body weight in milk per day. This would equate to about 38 ounces per day for a 12-pound lamb (12 pounds x 16 ounces per pound x .20 = 38 ounces). This amount should be divided according to how many times the kid/lamb will be fed per day. One- to two-day-old kids/lambs should be fed a minimum of four times a day, while older kids/lambs can be fed only twice. Initially, the milk should be fed warm to stimulate intake. Once kids/lambs are acclimated to the bottle, time and labor are saved if the kids/lambs are fed cold milk in a bucket feeder. It is important to thoroughly clean the nipple bucket at least twice daily and to keep the milk fresh to avoid spoiling. When putting kids/lambs on the self-feeding bucket, group them by age and size to avoid competition. A warm, dry pen is important for the health of artificially reared kids/lambs. Another important aspect of bottle feeding is to get the kids/lambs started on dry feed and water as soon as possible. Have fresh creep feed (20 percent protein) available to these kids/lambs at one week of age. Artificially reared kids/lambs can be weaned as early as three weeks of age (minimum weight of 20 pounds). Research at Virginia Tech has indicated kids/lambs can be artificially reared for around \$25 per head. For more information on this subject, refer to *Profitable Artificial Rearing of Lambs*, Virginia Cooperative Extension publication 410-023.

Docking and Castration

There are several tools available for docking and castration, including:

- Knife
- Emasculator
- Elastrator
- All-in-one Castrator
- Burdizzo Emasculatome

Your choice of instrument depends on your management practices and the lamb's age at docking and castration. All of these tools, when used correctly with proper sanitation, are effective.

Lambs that are docked stay cleaner and are less likely to have fly strike. Mature sheep with intact tails may have problems at breeding and lambing time. Intact males are frequently discounted at marketing. Feeding ram lambs and ewe lambs together may result in decreased weight gains and unwanted pregnancies. Conversely many recently popular breeds, such as St. Croix, Kathadin and other hair breeds often are not docked, and many ethnic buyers look for animals with tails on. Also the market for intact young males is ever increasing, so consider your marketing strategy before you dock your lambs, or castrate any males.

Docking and castration are best when performed at the same time, usually two to five days after birth. At a young age, there will be less stress on the kids/lambs. Additionally, these practices are faster and simpler to perform for the producer when they are young. Lambs should be docked before they reach two weeks of age, and castrated by six weeks of age. Before castration, it is important to confirm both testicles are descended.

Vaccination of does/ewes with *Clostridium perfringens* type C and D with tetanus approximately three weeks before birthing will provide protection for kids/lambs against tetanus (via colostrum), provided docking and castration are done a few days after birth. If females have not been vaccinated with tetanus prior, kids/lambs should receive 300 IU of tetanus antitoxin as well as tetanus toxoid. Do not mix the antitoxin and toxoid in the same syringe or give in the same location (use opposite sides of neck). The toxoid produces an immune response in the lamb, while the antitoxin provides antibodies. For kids/lambs that are three to four weeks old at docking and/or castration, vaccinate with tetanus toxoid. The antitoxin may be used in high-risk situations.

As a guideline, the tail should be docked at the point in which the caudal skin folds join into the tail. These skin folds are found on the underneath side of the tail, just above the anus, and terminate about 1 inch down the tail. Exercise care to avoid docking tails extremely short. Excessively short tail docks, in combination with other factors, contribute to an increased incidence of rectal prolapse.

An emasculator is frequently used for docking. The emasculator has both a crushing and cutting mechanism. The crushing mechanism seals the blood vessels on the tail remaining on the lamb, while the cutting edge effectively removes the tail. The burdizzo works in a similar fashion to crush the tissue on the end of the tail. A knife is used to cut off the long end of the tail (inside the burdizzo). With the emasculator and burdizzo, each device should be left on the tail for approximately 30 seconds to help prevent bleeding. Application of elastrator bands is also quite common, especially for producers with sheep that will be exhibited at shows. Since tail removal with the elastrator bands is a two- to three-week process, fly strike can be a problem. The tail can be cut off below the band after two or three days to speed the removal process.

An elastrator band may also be used for castration. The band is placed around the neck of the scrotum, just below the teats. Be sure to have both testicles in the scrotum when the band is released. In two to three weeks the scrotum will fall off. As with the tail, the scrotum may be removed below the elastrator band after a few days, which will leave a small cut that will heal quickly.

After docking and castration, wounds should be treated with iodine or wound dressing. Docking and castration should be delayed for kids/lambs that are small, weak, thin, or unhealthy. These kids/lambs should be allowed to regain strength before processing.

Preparing for backyard poultry

Written by Sarah Weaver Sharpe, Extension Agent, Greene County

Just like any new animal that you bring to your home, a little preparation can help that transition go much more smoothly. If you are considering bringing chickens to your home, there are a few key things that you should consider.



When you are selecting your chickens, be sure to pick chickens that are bright, alert, and active. They should have smooth, sleek, and soft feathers that are free of debris or droppings. If you already have chickens and you are bringing in new ones, you want to keep them separated, and the new birds quarantined, for at least 30 days before you combine them to keep the new birds from passing any diseases. You do not want to house baby poultry in areas where food or drink is prepared, served, or stored. If you are raising chicks, it is recommended that you begin your flock in late spring to reduce the cost of heating. Chicks must stay warm in order to grow. It is recommended that if you start with chicks you begin them at a temperature of 95 degrees Fahrenheit and then decrease the temperature by 5 degrees each week until the temperature reaches 70 degrees. You will need a heat lamp or brooder light to help keep your chicks warm. Chickens will begin to lay eggs around 20 weeks of age.

Consider housing for your birds. How are you going to keep them contained and protected from predators? The birds will need a sturdy environment that will protect them and offer shelter from the weather. If you are going to have chickens that lay eggs, you will need some sort of area that they can nest and lay their eggs. They also like to have some sort of roosting area where they can settle and spend some time if they aren't sitting on their eggs. Laying chickens will need at least 1.5 square feet of space per bird. You will want to keep three to six inches of litter such as pine shavings on the floor of the coop. The coop will also need to be well ventilated to allow fresh air into the housing area.

Think about how much time you have for these new animals. Ideally, eggs should be picked up every day to keep hens from spending too much time on any eggs or having them become dirty or broken. They will also need to have their feed and water checked and restocked daily. Chickens will need a completely balanced feed ration. Feeding table scraps or whole grains can decrease egg production. Baby chicks will need an 18-20% protein starter for the first 6-8 weeks, then 14-15% grower until 20 weeks of age, and then a 16-18% protein layer ration once they begin laying eggs. They will also need grit and oyster shells on a free choice basis to help with egg shell production.

You will also need to commit to spending some time cleaning out their housing on at least a monthly basis, if not more. Plan to use a household dish detergent on any enclosures and cages to clean off loose debris and then sanitize with a commercial disinfectant to clean any bacteria or diseases that may be there. You will also need to clean and disinfect their feeders and waterers on a weekly basis to keep bacteria from growing. Be aware that birds can shed Salmonella, Campylobacter, E.coli, and other germs and diseases in their droppings. Plan to wear gloves when cleaning bird cages and poultry houses and wash your hands thoroughly with soap and water after you have any contact with the birds or their environment.

Backyard chickens can provide hours of entertainment and fun, but just like any new pet a little preparation can go a long way to providing a smooth and happy transition.

For more information, feel free to contact your local Extension Office or Greene County Agriculture Agent Sarah Weaver Sharpe at (434)985-5236 or seweaver@vt.edu You can also visit <http://www.cdc.gov/healthypets/pets/farm-animals/backyard-poultry.html> or <http://www.pubs.ext.vt.edu/2902/2902-1085/2902-1085.html>



Backyard Chicken Safety

Written by Sarah Weaver Sharpe, Extension Agent,
Greene County

As more and more individuals are creating backyard flocks of chickens and raising chickens as pets, there are some safety tips that all chicken and poultry handlers need to remember to help keep themselves safe. Just like any animals, there are risks that come with having chickens and interacting with them frequently.

While having backyard chickens can be very fun and entertaining, as well as a great source for fresh eggs, it

is important to remember that there are many diseases that chickens can carry. Some common diseases that are known to be carried by chickens are *Campylobacter*, *E.coli*, and *Salmonella*. It is very common for chickens, ducks, and other poultry to carry *Salmonella*. *Salmonella* is a type of germ that naturally lives in the intestines of poultry and many other animals. Even organically fed poultry can have *Salmonella*. While it usually does not make the birds sick, *Salmonella* can cause serious illness when it is passed to other people.

Contact with live poultry can be a source of *Salmonella* infections. Many of these people who have reported being infected with *Salmonella* reported bringing the live poultry into their homes and others reported kissing or cuddling with the live poultry. These behaviors increase a person's risk of a *Salmonella* infection from contact with live poultry. People can get sick even if they do not have direct contact with the live poultry, but touch items and places that have been contaminated in the poultry's environment.

Does this mean that you should not have chickens in your backyard? No! Good practices to help keep you safe include always washing hands thoroughly with soap and water right after touching live poultry or anything in the area where they live and roam; after collecting eggs from the hens, thoroughly cook them as *Salmonella* can pass from healthy looking hens into eggs; clean any equipment or materials associated with raising or caring for live poultry outside the house, such as cages or feed or water containers; if you have free-roaming chickens or poultry, assume where they live and roam is contaminated with *Salmonella*. Another good practice to consider is to keep an alcohol-based hand sanitizer that contains at least 60% alcohol near the bird's enclosure to encourage guests and children to clean their hands after handling birds.

Do not let children younger than 5 years of age, older adults, or people with weak immune systems handle or touch chicks, ducklings, or other live poultry; don't eat or drink in the area where birds live or roam; don't let live poultry inside the house, in bathrooms, or especially in areas where food or drink is prepared, served, or stored, such as kitchens or outdoor patios.

There are many benefits that come from having your own backyard chickens and other poultry. They provide fresh eggs for your family, provide entertainment, eat bugs, and help you become more in touch with where your food comes from. Just remember to practice safe food handling techniques and always wash your hands after doing anything around your birds!

More information can be found at:

<http://www.cdc.gov/features/SalmonellaPoultry/> and <http://www.cdc.gov/healthypets/pets/farm-animals/backyard-poultry.html>

Why rotate vegetable crops?

Written by Sarah Weaver Sharpe, Extension Agent, Greene County

It is easy to get in a habit of planting the same crops in the same areas, year after year. We get into a rhythm and know where things “belong,” or where they grow the best in the garden or field. There is always that one wet spot where that one certain vegetable seems to grow the best, or a spot where the soil is just a little sandier than other spots. However, planting in the same spot year after year can create major problems for your vegetable production and yields.

Rotating your crops is a great way to cut down on both disease and insect pressure in your production area. Planting the same crop in the same spot every year can actually increase and create disease problems. For example, the incidence of anthracnose in cucurbits increases every year as you continue to plant anything in the cucurbit family in the same place. So, planting pumpkins, followed by squash or zucchini, followed by watermelons would not be a good idea as they are all members of the cucurbit family. Cucurbits can all be host plants of anthracnose and continuing to plant them gives anthracnose a good place to live and continue to thrive. To cut down on that disease, you have to plant something that anthracnose does not consider a good host plant. Insects are the same way- if they have a certain plant that they prefer to feed on, as they emerge from the soil if that preferred plant is in a different spot they have a much harder time finding it to feed on it.

When considering crop rotation, you must think about the families that vegetables belong in before you switch them around. For example, you never want to follow tomatoes, peppers, eggplant, or potatoes with each other. Another important tip is that you always want to give your soil three years of rest before going back with the original crop. So, if you plant tomatoes in one spot, you do not want to plant tomatoes (or anything in that family) in that spot for three years if possible.

Also, many of these crops either utilize nutrients that others won't, or put nutrients back into the soil. For example, legumes are a nitrogen fixing crop, which means that they take nitrogen from the atmosphere and through nitrogen fixation put nitrogen back into the ground. That means that whatever crop follows your beans or peas needs less nitrogen. Or, you could put in a crop that does require more nitrogen and would utilize that nitrogen in the soil.

Something else that you can consider adding into your crop rotation is a cover crop. A good option, should you want to incorporate a cover crop for this year, would be to plant some of your cooler weather, spring crops and then after harvesting, plant a summer cover crop. Buckwheat makes a great cover crop for the summer and does a fabulous job of attracting pollinators to your production area (you must take caution if you are using pesticides in your garden and using buckwheat.) You could then till the buckwheat into the soil and plant your cooler fall crops. Another option that is too late to use for this year would be to plant a cereal rye into your garden in the fall. Next spring when you are ready to plant, you can incorporate that into your soil as well. Cover crops do a great job of adding nutrients into the soil, decreasing the amount of insect and disease pressure you may encounter, increasing organic matter, and increasing water retention in your soil.

Here is a sample four-year crop production rotation guide that you could follow:

YEAR 1	TOMATO/POTATO	GREENS	LEGUMES	SQUASH/CORN
	<ul style="list-style-type: none"> • Peppers • Tomato • Eggplant • Potato 	<ul style="list-style-type: none"> • Cauliflower • Cabbage • Broccoli • Lettuces 	<ul style="list-style-type: none"> • Peas Beans • Pole Beans 	<ul style="list-style-type: none"> • Cucumbers • Squash • Corn • Pumpkins
YEAR 2	SQUASH/CORN	TOMATO/POTATO	GREENS	LEGUMES
	<ul style="list-style-type: none"> • Cucumbers • Squash • Corn • Pumpkins 	<ul style="list-style-type: none"> • Peppers • Tomato • Eggplant • Potato 	<ul style="list-style-type: none"> • Cauliflower • Cabbage • Broccoli • Lettuces 	<ul style="list-style-type: none"> • Peas Beans • Pole Beans
YEAR 3	LEGUMES	SQUASH/CORN	TOMATO/POTATO	GREENS
	<ul style="list-style-type: none"> • Peas Beans • Pole Beans 	<ul style="list-style-type: none"> • Cucumbers • Squash • Corn • Pumpkins 	<ul style="list-style-type: none"> • Peppers • Tomato • Eggplant • Potato 	<ul style="list-style-type: none"> • Cauliflower • Cabbage • Broccoli • Lettuces
YEAR 4	GREENS	LEGUMES	SQUASH/CORN	TOMATO/POTATO
	<ul style="list-style-type: none"> • Cauliflower • Cabbage • Broccoli • Lettuces 	<ul style="list-style-type: none"> • Peas Beans • Pole Beans 	<ul style="list-style-type: none"> • Cucumbers • Squash • Corn • Pumpkins 	<ul style="list-style-type: none"> • Peppers • Tomato • Eggplant • Potato

For more information, visit <http://extension.psu.edu/pests/ipm/pestproblemsolver/house/home-garden/soil-plant-health/crop-rotation> or contact your local extension office for more help.

Upcoming Events

March 30, 6 pm - 8 pm

Beef Meeting- Drought Preparedness in your Beef Herd

Blue Ridge Cafe, Stanardsville. Cost \$5.00 per person.

Contact Sarah Sharpe to register at 434-985-5236 or seweaver@vt.edu. Limit of 30 participants.

Successful Farming Workshop Series

All workshops are \$10 per person. You must register at least one week in advance.

For more information or to register, please contact Sarah Sharpe at [434-985-5236](tel:434-985-5236) or seweaver@vt.edu

April 25, 5 pm—7pm

High Tunnel Production and Farm Walk

Hill Farm, Louisa County (address will be given to those who register)

May (Date and Time TBA)

Goat Production

June 15, 6 pm—8 pm

Value Added Products– What are they, how do I make them, and what can I do with them?

Louisa Extension Office, *special guests include Virginia Food Works, plus more*

July 12, 6 pm—8pm

What can I do with my forested lands?

Louisa Extension Office *featuring Adam Downing, Northern District Forestry Extension Agent*



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