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Managing External Parasites on Beef Cattle

Jason Holmes, LSU AgCenter Extension Agent

The blood-sucking fly pests of Louisiana beef cattle include the horn fly, stable fly and many species of tabanids. Feeding by these flies not only results in blood loss, but it causes annoyance which alters the normal grazing behavior of cattle. The economic impact of these flies is usually attributed to weight loss or reduced weight gain in growing cattle and expenditures for fly control. The biology of these blood-sucking fly pests varies considerably, and this affects the success of various control methods. By understanding the biology and life cycle of each pest, producers will be better able to devise more effective fly control programs. In most cases, an integrated approach, whereby more than one control method is used, will prove more effective for long-term fly control.

When utilizing chemical control measures, always read and follow the pesticide label.

Horn Fly — Horn flies bite cattle and feed on their blood; they weaken the animal and make it lose weight. The horn fly is about 3/8 inch in length. It is gray and the head of this fly points downward, and the wings are held flat over the back. The females can lay several hundred eggs in their 3-week lifespan. They lay their eggs under the edges of fresh dung pats where they develop in 10–20 days, depending on the temperature.

- ◆ Adult horn flies have piercing mouthparts and each fly feeds 30–40 times per day. The bites are painful and will form a wound that mars animal hides.
- ◆ Horn fly populations increase from late spring to early fall; they peak in midsummer. They rest on the withers, back and sides of the cattle, moving to the

belly when temperatures exceed 90 degrees F.

- ◆ When flies exceed 250 per side, calves and yearlings will lose significant body weight (4% - 18%).
- ◆ To control and prevent horn fly infestations (Non-Chemical):
 - Drag pastures and spread manure in a thin layer to limit breeding grounds.
 - Rotate pastures to prevent manure build-up.
- ◆ The point at which chemical control measures are economically justified is called the threshold. For horn flies, the threshold is 200-250 flies per side. Use chemical control once the threshold is reached. Control options include:
 - **Ear tags** — Insecticide-impregnated ear tags are applied to the ears of cattle and release a small amount of insecticide over a long period of time. If used properly, they can be an effective tool for controlling horn flies and may reduce face fly populations.
 - ⇒ Ear tags can provide about 12-15 weeks of continuous horn fly control.
 - ⇒ The active ingredients of ear tags now fall into five broad chemical categories: *synthetic pyrethroid, organophosphate, organochlorine (cyclodiene), macrocyclic lactone and mixtures of the synthetic pyrethroid and organophosphate insecticides.*
 - ⇒ In addition to the active ingredient, several ear tags contain a synergist, such as piperonyl butoxide, that increases insecticide toxicity to

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the horn fly.

- ⇒ Rotate insecticide classes. Pyrethroid tags should be used no more than once every three years.
- ⇒ Remove insecticide ear tags when they are no longer effective, when the label recommends removal or in the fall.
- **Periodic application methods** — sprays, pour-on, self-treatment devices, remote delivery capsule, etc.
 - ⇒ Use sprays, pour-on, self-treating devices, etc. with a different mode of action than insecticide-impregnated ear tag, and treat only when horn fly populations exceed 200-250 flies per side.
- **Insect Growth Regulators (IGR) and Larvicides** — Insect growth regulators (IGR) and larvicides prevent horn fly larvae from developing into adults. These are administered to cattle as feed or mineral additives; immature horn flies (maggots) are exposed to these chemicals in the manure of cattle which consumed the product.
 - ⇒ Some formulations are available ready-to-feed in the form of protein or mineral blocks or tubs, while others will require topdressing or custom blending.
 - ⇒ The mode of action of IGRs and larvicides differs. IGRs disrupt normal molting and development of immature horn flies (maggots) whereas larvicides are traditional toxins that kill the maggots.
 - ⇒ Use of IGRs or larvicides is normally initiated just prior to the first appearance of horn flies in the spring and throughout the summer and fall until cold weather restricts fly activity.
 - ⇒ To be effective, cattle must consume a specified amount, preferably on a daily basis. If consumption is below the specified rate, either increase the number of feeding stations or relocate stations to areas more frequented by cattle. Likewise, if consumption rate is above the specified rate, either decrease the

number of feeding stations or relocate stations to areas less frequented by cattle.

- ⇒ Diflubenzuron and methoprene are examples of IGRs; tetrachlorvinphos is an example of a larvicide.

Stable Flies — Stable flies are serious pests of pasture cattle. They look like house flies but are smaller (3/16 in.). The stable fly is gray with four black stripes on the back, and the abdomen is checkered in black. The stable fly is a blood feeder, mainly feeding on the front legs of cattle but will attack the sides and belly. Their bites are very painful; cattle will often react by stomping their legs, bunch in a group, or stand in water to avoid being bitten. Unlike horn flies that remain on the animal, stable flies rest on nearby surfaces after feeding. Good sanitation practices are key to effective control.

- ◆ Stable flies congregate near confined animals and breed in mixtures of urine, manure and decaying litter.
- ◆ Larvae (maggots) develop in straw bedding, wet hay, and manure accumulations. Eggs develop into adult flies in 3 to 4 weeks; adults can live for 3 weeks.
- ◆ Economic threshold for treatment is reached when concentrations reach 5 flies per leg; however this threshold is often exceeded in Louisiana pastures.
- ◆ Larvacides, pour-on and insecticide-impregnated ear tags provide good control.
- ◆ IGR developed specifically for horn flies do not affect stable fly larvae due to the fact that stable fly larvae do not grow in manure.
- ◆ Sprays have limited effectiveness due to the short amount of time spent on the animal (2-5 minutes) and the location (legs and belly). No spray products have a long enough residual to be effective when sprayed directly onto the animal. Without direct contact mortality is low. Multiple applications may be required.

Horse Flies and Deer Flies — The term horse fly is actually a collective common name that includes a multitude of species that belong to an even broader of flies referred to as tabanids. Deer flies are also tabanids. All tabanids have certain characteristics in common, but these flies vary in

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appearance and size, ranging from about 1/4 inch to 1 3/8 inches in length. Tabanids are blood-sucking flies that have broad, flat, blade-like mouthparts which inflict a large, deep and painful wound.

- ◆ Adult female flies require a blood meal to support egg development, but the remainder of the life cycle is independent of livestock.
- ◆ After feeding, female flies lay from 100 to 1,000 eggs in layered masses on vegetation which usually overhangs some source of water. The eggs hatch in five to seven days. The larvae develop rapidly in warm weather and then leave the water to pupate in drier soil. Adult flies will usually emerge one to three weeks later.
- ◆ Tabanids and deer flies are perhaps the most challenging livestock pests to control, primarily because of their life cycle. First, most of the life cycle is independent of livestock. The adult female fly is the only link in the life cycle which requires livestock or some other host. But even so, female flies spend only about four minutes feeding on cattle. Therefore, population reduction is very difficult.
- ◆ Some degree of repellency may be obtained from frequent treatment of a spray mixture of pyrethins & piperonyl butoxide. Use of this mixture may benefit small herd owners in areas of heavy local infestation.

Mosquitoes — Mosquitoes are blood-sucking insects that irritate and stress cattle, thus reducing feed intake. In extreme cases, heavy infestations can result in death through suffocation or heavy blood loss. All mosquitoes require some source of water for the immature stages to develop. Females lay their eggs in water or in places that will eventually be flooded. Once eggs are in contact with water, the life cycle from egg to adult requires about one to two weeks. Only the adult females of most species suck blood.

Massive numbers of mosquitoes can build quickly in south Louisiana under certain environmental conditions. Several species of floodwater mosquitoes can develop huge populations when heavy rainfall follows an extended drought. Large numbers of eggs are laid in dry areas, but they re-

main dormant until activated by rain and rising water. Solitary cattle such as bulls are always the most susceptible to massive mosquito attack. Cattle herds can partially defend themselves by bunching together and lying in mud.

If mosquitoes are a serious problem to livestock in your area, control measures should be implemented. The most effective control method available is source reduction by removing or draining mosquito breeding sites. Daily fogging for adult mosquitoes may provide relief, but only as a temporary control measure.

Black Flies or Buffalo Gnats — Black flies or buffalo gnats are tiny (1/25 to 1/5 inch in length), dark, stout-bodied flies with a humpbacked appearance. The females are biting flies that require a blood meal to produce and lay eggs. Black flies and buffalo gnats are sporadic, localized pests in Louisiana, but they can be quite damaging when massive outbreaks occur.

Eggs are laid in or on the edge of flowing water and the larvae feed on small aquatic life. Adult flies emerge from the water and mate shortly afterward. These flies are vicious biters and can transmit certain diseases. They are most dangerous when explosive outbreaks occur along river basins and streams. Heavy, relentless infestations can kill livestock in a matter of hours. Death is the result of acute toxemia, shock, heavy blood loss or suffocation from inhaling large number of flies.

Management practices include the use of smoky fires to repel flies and moving cattle away from the aquatic sources (clear moving water) of infestations.

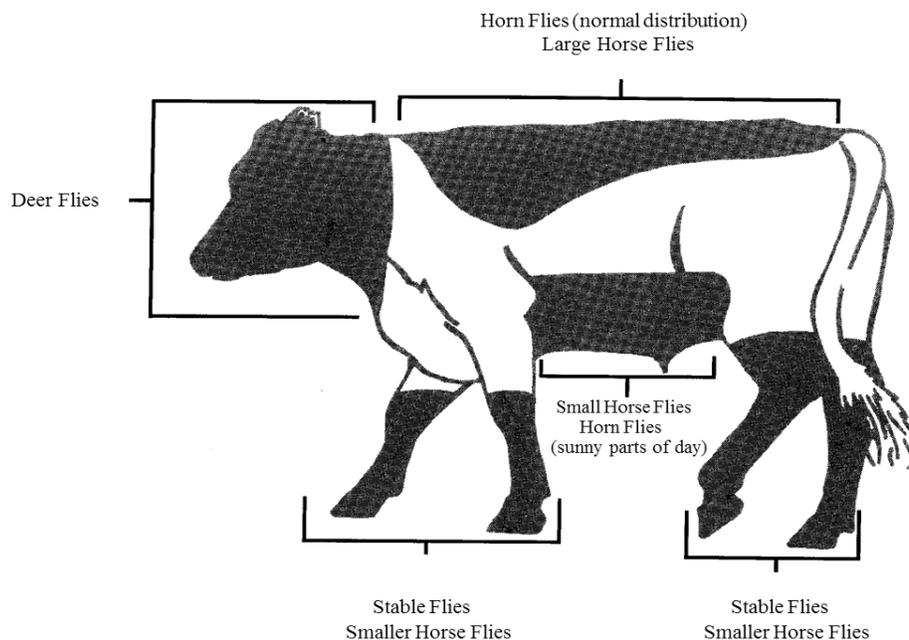
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A few take home points:

- LSU AgCenter research shows that calves treated for internal parasites and whose dams were treated for horn flies were approximately 23 pounds heavier than untreated calves and dams at weaning. If a 550 weight steer is valued at \$1.53/lb. Twenty-three pounds of added weight equals \$35.19. If you spend an extra \$5 per head for insecticide tags (cows) and \$2.30 per head for internal parasite control and black leg vaccine (calves) you're still making an added profit of \$27.89/head.
- For backrubbers, use diesel to dilute concentrates. Don't use waste oil or motor oil. One gallon of diesel solution per 15 to 20 feet of backrubber is sufficient for 30-40 head. Backrubbers are most effective when placed into force-use areas such as feeding, mineral, watering areas.
- Ready to use (RTU) formulations of pour-on insecticide products are applied along the back line of cattle for short term control of biting flies. Re-treatment will be needed in 3-4 week intervals when fly pressure is high.
- Cattle lice can be kept to a minimum by the following procedure: Treat all animals in the herd with approved pour-on, spot-on, or spray-type chemicals. This treatment will kill all active forms but will not kill the eggs. Retreat the entire herd 10 to 14 days later, to kill any newly hatched lice.
- It is important to understand that combating external parasites during the summer months takes a multimodal approach. There is a vast array of products on the market to help control these pests. Each product is designed to work in a specific way, against certain targets, for a specified amount of time. Expectations of a product to last from green-up until the first frost, or to eliminate 100% of the pests is unrealistic and close to impossible. Producers should develop an integrated management plan to combat these pests.
- Stable flies tend to be more of a confinement or barnyard issue, but have increased occurrence in pasture settings. Typically, this is due to winter feeding sites and build-up of hay residue and manure. This mixture provides an ideal location for stable flies to flourish. Rolling out hay during the winter feeding months greatly reduces the number of stable fly larvae that survive the winter. Hay feeders tend to leave a large amount of residue on the ground into the spring. Cleaning feeding areas prior to late spring will reduce the habitat for stable fly larvae to develop.



Reduce Heat Stress in Show Pigs

Dr. Tim Page, LSU AgCenter, Extension Specialist

With the extreme hot conditions that Louisiana and the Gulf South experience in the summer and fall, heat stress in show pigs can result in death loss and/or reduced performance unless strict attention is given to providing supplemental cooling to animals. Heat stress can affect all animals, but can be a more severe problem with show pigs during the summer. There are some simple practices that exhibitors can implement that really reduce heat stress in show pigs.

Heat stress occurs when an animal cannot remove enough heat from its body. Pigs do not perspire like humans and therefore cannot sweat or utilize evaporative cooling off their skin to cool off. There are two primary ways that pigs use to minimize heat stress.

1) Increased heat dissipation: Pigs will attempt to increase heat dissipation by increasing contact of their body with a cooler surface such as a concrete floor. Increased respiration, or panting, increases air flow and evaporation of water from the lungs, releasing additional heat.

2) Reducing feed intake: Pigs reduce the amount of body heat they generate when they reduce feed intake. Reduced feed intake will reduce average daily gains. Digestion of feed creates body heat (heat increment), which must then be dissipated. You can reduce heat increment from feed intake and therefore maintain average daily gains by increasing the fat content in the diet. During potential times I recommend feeding 5 percent fat in the diet.

One of the most important management practices in reducing heat stress and to ensure pigs do not dehydrate is to always provide free access to fresh clean water. Clean water is essential to the health and welfare of the pig. Put yourself in the pig's place. You would not

want to have to drink muddy or foul water. Cool clean drinking water provides the most heat relief. A large amount of water intake during hot weather will dissipate heat through evaporative heat loss from respiration. Check waterers daily to make sure they are functioning properly. Nipple waterers can become clogged with sand particles and other impurities in the water. One day without water in high temperatures will cause dehydration and death.

Another management practice that exhibitors can use is to spray the pigs regularly with water. Spraying or misting show pigs down a few times a day and putting a fan on them will do a lot toward relieving heat stress. Some exhibitors set up a mist or drip system by poking small holes in a garden hose and letting it run off and on throughout the day. Commercial drip and mist systems are also available at most feed stores and/or plant nurseries. One key to making a mist or drip system really work is to provide plenty of air movement with fans. Be careful if your show pig gets too hot and you need to cool it down. Do not run cool water on top of the hot pig because this can cause seizure and/or stroke. Run the water on the pigs snout and slowly cool it down.

Shade is critical to reduce heat stress. Most people know that pigs will sunburn easily. Quality shade prevents sunburn but also aids in cooling and reducing heat stress. If pigs get sunburned, be careful about which lotion you select since many lotions contain compounds that can show up in drug tests. If you ever have any questions, please contact your veterinarian for advice. A few simple management practices can reduce heat stress in show pigs and will keep the pigs more comfortable and healthier.

Cool-Season & Legume Forage Variety Considerations

Dr. Ed Twidwell, LSU AgCenter Extension Specialist

Livestock producers should plan ahead for a winter pasture program that can provide the needed nutrition for their livestock while summer pastures are dormant. If grazing is short, consideration should be given to early

planting at least one or more pastures into a prepared seedbed. Early planting of a small grain, or a small grain-ryegrass mixture in a lightly cultivated field, can provide

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a lot of valuable fall and winter grazing if fall weather is suitable for quick stand establishment and good growth. Even if hay harvesting is good in late summer, winter pastures should be a part of most livestock programs. Following are some comments concerning cool-season pasture crops and varieties that should be considered for planting in the fall of 2017. Producers need to make their variety selections early this year for annual ryegrass, due to a short supply of ryegrass seed. Seed of some of the suggested varieties may be difficult to purchase this fall because of this short seed supply.

To be included on the list of varieties that are considered to have performed satisfactorily from a crop for which several varieties are available, a commercial variety must be tested for three consecutive years and have an average yield not less than 90% of the three-year mean of the top three yielding varieties. A variety will be listed as "Promising" if, following two consecutive years of testing, it has shown acceptable agronomic performance and has yielded at least 90% of the average of the top three varieties. A variety will be dropped from the list if it fails to perform satisfactorily or if it is no longer available to the producers or if not submitted for evaluation.

Ryegrass: Ryegrass is adapted on most soils throughout the state and is the most widely planted cool-season forage crop in Louisiana. It is highly productive in late winter and spring if given good management and weather is suitable. Forage quality is excellent when it is grown either alone or in mixtures with small grains and clovers. Varieties considered to have performed satisfactorily over the past 3 growing seasons and suggested for consideration in 2017 are Attain, Big Boss, Diamond T, Earlyplod, Flying A, Fria, Jackson, Jumbo, Lone Star, Marshall, Nelson Tetraploid, Passerel Plus, Prine, RM4L, TAMTBO, Tetrastar and Winterhawk.

Oats: Oats are excellent producers of fall growth and have good forage quality. They are the least winter-hardy of the small grains and stand losses are sometimes observed in rough winters. The varieties suggested for consideration are RAM LA 99016, TAMO 411 and TAMO 606.

Rye: Rye is an excellent producer of early fall and winter growth. Its most rapid growth period is in early spring, earlier than ryegrass and other small grains. Varieties suggested for consideration include Oklon, Wintergrazer 70, Maton and Maton II and Elbon.

Wheat: Wheat is a good producer of quality forage in both fall and winter. No commercial wheat varieties have been tested by the LSU AgCenter in recent years.

No variety considerations can therefore be made. Producers should consider selecting varieties that are adapted to their local geographical area.

Arrowleaf Clover: Arrowleaf clover is an annual that produces most of its growth in late spring and lasts longer under grazing than small grains and ryegrass. It is best adapted on upland soils and can reseed if allowed to mature a seed crop. Varieties suggested for consideration are Amclo, Meechi, Yuchi and Apache.

Crimson Clover: Crimson clover is highly productive in early spring but goes out early. Like arrowleaf clover, it is best adapted to upland soils. Varieties suggested for consideration are Dixie, Chief, Tibbee and AU Robin.

Red Clover: Red clover is a high yielder in good stands and persists into the summer if conditions are favorable. In some years it survives through the summer on better soils. It can be used for grazing or hay. Varieties suggested for consideration are Kenland, Kenstar, Cherokee, Southern Belle and AU Red Ace.

Subterranean Clover: Subterranean clover is a low-growing annual clover that has prostrate creeping stems with erect leaves. Seeds are produced in a bur that develops at or below the soil surface. It has excellent re-seeding ability under close grazing, but some re-seeding failures have been reported after the initial stand had thrived for several years. It produces most of its growth in the spring slightly later than crimson clover. All of the suggested varieties originated in Australia. In Australia, the maturity is considered to be early for Woogenellup, midseason for Mt. Barker, and late for Nangeela and Tallarook. Woogenellup contains a low to moderate level of hard seed. The others have a low level of hard seed.

White Clover: White clover is adapted to a wide range of soil conditions and has some tolerance to wet soils once it is established. If growing conditions are favorable, it can persist well into the summer. Varieties suggested for consideration are LA S-1, Osceola, Regalgraze, Pinnacle, Durana and Neches.

Berseem Clover: Berseem clover is an annual, upright-growing clover. The varieties suggested for consideration in Louisiana are Bigbee and Frosty. Both varieties are noted for excellent fall and winter growth and a long period of good growth in the spring.

Alfalfa: Alfalfa is an important hay and haylage crop in many states, but the amount produced in Louisiana is very limited. It requires excellent drainage, highly fertile soils, a near neutral pH and a high level of management. Many varieties are marketed, but only a few are adapted in Louisiana. The only variety suggested for considera-

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tion is AmeriGraze 702.

Ball clover: Ball clover is a low-growing winter annual clover. It resembles intermediate white clover. It has excellent reseeding ability. The varieties Grazer's Select and Don are suggested for planting.

Balansa clover: Balansa clover is a clover species that has a growth pattern very similar to that of crimson clo-

ver. It is slightly more winterhardy than crimson clover, and also produces slightly more forage. It is considered to be a very good re-seeding clover species. The only variety suggested for planting is FIXatioN.

If you have any questions concerning your winter forage program, contact your local Extension agent.

Receiving High-Risk Stocker Calves

Tyler Braud, Instructor, LSU School of Animal Sciences

As we look forward to football season and cooler fall temperatures, it's also time to begin making preparations for receiving stocker calves to place on winter pasture. This can be a daunting task if producers do not have a well thought out plan in place before cattle are delivered. Many producers purchase high-risk, sale barn calves and place them into a stocker system before entering the feedlot. Stocker calves are typically lightweight, freshly weaned calves that are commingled and sometimes hauled a considerable distance. As a result of these factors, calves transitioning from a pasture based system into a stocker system can experience a multitude of stressors that increase the likelihood of bovine respiratory disease (BRD) and other factors that negatively affect animal performance.

A receiving plan should include a comprehensive health program that is designed with the guidance of a veterinarian. Cattle should be vaccinated for infectious bovine rhinotracheitis (IBR), bovine viral diarrhea (BVD), parainfluenza virus type 3 (PI3), and bovine respiratory syncytial virus (BRSV). In addition, calves should be individually identified, dewormed, castrated, dehorned, and implanted. Tissue samples should be collected and tested to identify cattle that are persistently infected (PI) with BVD, as they constantly shed the virus with no clinical signs. BVD-PI testing is an important management decision that can aid in reducing the incidence of BRD in cattle populations. In some cases, metaphylactic antibiotic administration may be a beneficial option to reduce the incidence of BRD. In a study conducted by researchers at Mississippi State University, cattle that received metaphylaxis were 51% less likely to be diagnosed with BRD during a 60-day receiving study. All health related management options should be discussed with your veterinarian.

Nutritional management is another important factor to consider with high-risk calves. There are unique nutritional challenges associated with receiving high-risk cattle and proper nutrition is critical for success. Feed intake of newly

-received cattle is often low during the first two weeks after receiving. Since dry matter intake (DMI) is low, increased crude protein (CP) concentrations could be required to offset the effects of low DMI. Protein requirements based on the NRC (2000) system are largely a function of body weight and DMI. The amount of protein required during the first couple of days after arrival is heavily influenced by the amount of feed that is consumed. Louisiana producers have the ability to grow winter annuals such as rye grass for stocker cattle to graze. Baleage, hay, or stockpiled summer forages may be required if cattle are received before winter pastures are ready for grazing. Vitamins and minerals must be factored into the nutrition program as they can influence immune function. Depending on forage quality, a supplementation program may be required to meet the needs of growing cattle. The capabilities of each operation will dictate the type of nutrition program that can be implemented. Some producers may be able to house commodities, while others may only be able to utilize grazing and stored forages. Nutrient requirements can be met in a number of different ways utilizing a variety of feedstuffs.

Low-stress handling and Beef Quality Assurance (BQA) guidelines should be followed when processing or working cattle. It's important to remember the little things such as proper vaccine handling and injection site management, proper use of prods and paddles, and always read and follow label directions. Processing cattle upon arrival may be a viable option if they are transported a short distance. In some cases, cattle are transported several hundred miles from the farm of origin to the stocker facility. If that is the case, it may be beneficial to allow a rest period before processing begins. The main goal of the receiving plan should be to minimize stress associated with the transition from the cow-calf system to the stocker system.

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Stocker cattle production can be a profitable and rewarding enterprise for Louisiana beef producers. Several factors must be considered and management practices must be tailored to meet the needs of each operation. Producers should have a plan for marketing the cattle at the conclusion of the stocker phase. Stocker operators must realize that decisions made on their farm will have an impact further down the production cycle. As members of the beef community, producers should make decisions that positively impact animal performance as they travel through each segment of the industry. All cattle producers, regardless of segment, should strive to produce a safe,

wholesome, and nutritious product for consumers to enjoy.

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Developing Showmen

Crystal Ahrens, 4-H Livestock Specialist, LSU AgCenter

As we start back to school and wrap up August, our local, district, state and national stock shows are just around the corner. Our 4-H and FFA members have raised or purchased their animals and have planned their nutrition programs so animals will peak at just the right time. They have worked with their animals for countless hours to get them show ring ready. Now, it is just down to the judge's decision.

What is the exhibitor that you have the chance to influence going to learn about the decision made that day? Are they going to have the chance to celebrate a successful show earned with integrity or bought with enhancers, or otherwise altered from its natural genetic potential? We know this stock show life we all love is competitive. It pushes our livestock industries to be of the highest quality, and raising the next generation of agriculturist with the same high standards. As we open the gates to the fall show season, it is important for us to remember the Six Pillars of Character (trustworthiness, respect, responsibility, fairness, caring, and citizenship) these young people develop through their livestock show projects. Remember the type of character they develop will be heavily influenced by those around them.

Ethics in the show ring is a time honored tradition. Show ring ethics is the reason our livestock showmen are respected for their professionalism and representation of our industry. Ethics are put in place for two reasons: to keep our animals safe and our exhibitors, parents, and advisors honest. It feels good to get that Grand Champion slap. Many people go to extremes to receive it. The show ring is our first step in instilling a love of production agriculture into young people. You can find every which way

in the book to cheat your way to the top and get that purple banner in the show ring, but how are you going to teach success in the industry as a whole? The benefits a young person will have by truly understanding: the importance of natural docility in an animal over calming them with drugs, benefits of responsible use of implants, ionophores, supplements, and drug use, and how selection of foundational traits will pay off in the long term verses altering them by other means, defines the future of our industry.

The show ring offers many opportunities to the youth who step foot inside. Every exhibitor and their family made a choice to dedicate themselves 24/7. Monetary investments put into show ring projects are often not returned; however, we have the opportunity to make investments in the character of our future generations with a single show ring experience - make it a positive, defining moment for them.

Good luck to all our Louisiana exhibitors this fall in the show ring. Encourage exhibitors to give all they've got, learn from mistakes, have fun, and make memories!



Preparing your Goats for Breeding Season

Rodney Johnson, Associate Agent, LSU AgCenter

Breeding season for goats is just around the corner. Here are a few tips to have a successful breeding season.

One to two months prior to the breeding season.

Provide additional feed to does. Supplement the females with 0.5 pound of concentrate or grain per head, per day to improve body condition and ovulation rates. If planning for artificial insemination (AI), plan estrous cycle synchronization.

Two to three weeks prior to the breeding season:

- Use FAMACHA to determine if does need to be dewormed.
- Vaccinate the females with C&D tetanus toxoid.
- Check and trim the goat's hooves if needed.
- Give the does an injection of vitamin E/Se to aid in ovulation if you want (optional).

How nutrition and Body Condition Score affect reproduction

Body condition score, or BCS, refers to the amount of fat covering the body. BCS is also a good indicator of the nutritional status and the general health of the animal. BCS is the best indicator of available fat reserves which can be used by animals in periods of high energy demand and stress. External fat can be measured by palpating the spine, ribs and hip bone area. Meat goats are then assigned a numeric value between 1 (thin) and 9 (obese) to determine fat density over the animal.

Scoring or assigning the animal a numeric value is based on feeling the level of muscling and fat deposition over

and around the vertebrae in the loin region.

The body condition scores for breeding does should 3.0-3.5 for meat goats and 2.0-.25 in dairy goats. Females that are in good condition should have good milk production, good colostrum quality and high pregnancy and twinning rates. Animals that are bred in poor condition may have increased incidents of morbidity, the kids may be born weak and unthrifty, the does may abort their fetuses, the doe may have low milk production or the doe may produce kids with low birth rates. Therefore, it is of the utmost importance that animals are in optimum condition prior to starting the breeding season.

Thin (BCS= 1-2)

- Low Milk Production
- Poor Colostrum Quality
- Small, thin, weak kids
- High mortality rates
- Slow growth rates of nursing kids
- Small weaning weight of kids and litter
- High frequency of single births and single weaned kids
- Long rebreeding intervals
- Difficult kidding

Moderate (BCS=2.5-3.5)

- Good milk production
- Good quality colostrum
- Heavy to average weight kids
- Good growth rates and weaning weights of kids-litter.
- High twinning rates
- Quick rebreeding intervals

Fat (BCS = 4-5)

- High milk production
- Good quality colostrum
- Heavy birth weight
- Low morbidity and mortality rates
- Excellent multiple birth (twins or triplets)
- Quick rebreeding interval
- Increase dystocia, or difficult births
- Increase metabolic disorders, such as pregnancy toxemia and milk fever

Table 1. Body Condition Scoring Systems

BCS 1-5	
1	Thin
1.5	
2.0	
2.5	Moderately fleshed
3.0	
3.5	
4.0	Obese
4.5	
5.0	

Summer Hauling

Dr. Neely Walker, Equine Specialist, LSU AgCenter

Its summer and the opportunities for horsing around are endless! Horse shows, competitions, sales, and trail rides are just a haul away. However, the hot humid conditions of a Louisiana summer can pose serious health problems for your horse. Dehydration, heatstroke, and exhaustion are just some of the ailments that need to be prevented while traveling with your horse. Follow the hot-weather hauling safety tips to prevent any detour from your summer fun.

- Avoid hauling during the warmest time of the day.
- Open trailer vents to create airflow throughout the trailer. DO NOT allow your horse to ride with his head out of the trailer window, flying debris and bugs can cause serious eye injuries.
- Stop and check your horse's vitals and offer water every 4-5 hours. Each stop should last a minimum of 20 minutes to allow your horse to relax and rest. Park in shaded areas with air movement. Carry ample drinking water for your horse while en route. It is not recommended to leave hanging water buckets in the trailer while hauling. Sudden stops can lead to split water, slippery floors, and are a potential hazard to your horse.

- If you are stuck on the interstate, ensure as much ventilation as possible inside the trailer, without unloading the horses.
- Make sure your vehicle is in top towing condition BEFORE leaving. Make sure all of your tires (truck/trailer) are fully inflated, while they are cool before traveling. In hot weather, fully inflated tires flex less, therefore ride cooler, decreasing your chances of a blowout.
- Use two rubber mats on the trailer floor. This will reduce the heat on your horse's legs.
- If your destination is more than 12 hours away, it is recommended to unload your horse and give them an 8 hour break from trailering.
- Make sure to have copies of all important identification paperwork (Coggins, Health Certificate, etc)

As always with horses, expect the unexpected. While you cannot plan for every situation taking a few precautions and practicing some common sense, you can help ensure that you and your horse will arrive safely.



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