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Livestock Update

Beef - Horse - Poultry - Sheep - Swine

September 2015

This LIVESTOCK UPDATE contains timely subject matter on beef cattle, horses, poultry, sheep, swine, and related junior work. Use this material as you see fit for local newspapers, radio programs, newsletters, and for the formulation of recommendations.

IN THIS ISSUE:

Scott P. Greiner, Extension Project Leader
Department of Animal & Poultry Sciences

Dates to Remember

HORSE

SEPTEMBER

10 -13 State 4-H Horse Show. Virginia Horse Center. Lexington, VA.

Contact: Celeste Crisman, (540) 231-9162 or email: ccrisman@vt.edu

SHEEP

NOVEMBER

6 -7 Sheep Management Basics Workshop. Virginia Tech Copenhaver Sheep Center Blacksburg, VA

Contact: Dr. Scott P. Greiner, phone: (540) 231-9159 or email:sgreiner@vt.edu

September Herd Management Advisor

Scott P. Greiner & Mark A. McCann
Extension Beef Specialists, Virginia Tech

September signals the official change of season from summer to fall and as such offers an opportunity to assess management items which will impact cow herd nutrition and performance later into fall and winter. The following are some key areas of consideration for early this fall which can have very positive affects as we move into winter:

1) It is not too late to forage test your hay supply. Nutrition programs are based on forage quality. Without a forage analysis, winter supplement strategies are based on guesses. Both underfeeding and overfeeding have costly impacts on your cow herd's performance and profitability. Don't guess-test!

2) Stockpiled fescue will hold most of its nutrient content until next January – February. Strip grazing stockpiled forages has been demonstrated to increase efficiency of forage utilization. Restricting access to stockpiled forage will reduce selective grazing while still meeting cow nutrient needs. Allowing cows access to larger areas will allow them to consume better quality forage than they need and trample residual forage.

3) Assess the nutritional status of your herd. The best snapshot barometer of nutritional status is to body condition score your cow herd. Fall calving cows should be at a condition score of 5-6 at calving. Spring calving cows will be thinner as calves are weaned this fall. Post-weaning is the most efficient time to add weight and condition to thin cows. First and second calf heifers are typically the ones requiring the most attention. Utilizing a limited amount of stockpiled forage or 2-3lbs/hd/d of corn gluten feed are both effective and economical increasing body condition.

Spring Calving Herds (January-March)

General

- Finalize plans for marketing of calf crop. Coordinate and time weaning, vaccination program, and weaning-time management in concert with marketing plans. Calculate break-evens on various marketing options and consider risk management strategies.
- Schedule and conduct pregnancy diagnosis with veterinarian 45-60 days following breeding season. Plan a marketing strategy for open cows.
- Plan for winter by evaluating feed and forage supplies and options, including conducting forage tests to determine nutritional content of hay on hand.

Nutrition and Forages

- Body Condition Score cows at weaning and separate thin cows
- Use palatable feeds and high quality hay to background calves.
- Continue stockpiling
- Continue to manage first-calf heifers separately; give them the best forage. Thin mature cows could be added to this group.
- Continue to feed high Se trace mineral salt. A forage analysis can reveal what other minerals should be supplemented.
- Continue to manage growth of warm season grass pastures by rotational grazing. As warm season pastures approach dormancy continue to use rotational grazing to manage residue.
- Store your high quality hay in the dry.
- Collect and submit forage samples for nutrient analysis..

Herd Health

- In consultation with your veterinarian, finalize vaccination and preconditioning protocol for calf crop. Administer pre-weaning vaccinations.

Reproduction

- Make plans to pregnancy check heifers as soon as possible after bull removal. This will allow options in marketing open heifers.
- Remove bulls after 60 days for controlled calving season
- Schedule pregnancy check of cow herd with veterinarian

Genetics

- Collect 205-day weights on calf crop at appropriate time (AHIR age range 120-280 days), along with cow weights, hip heights and body condition scores (cow mature size data taken within 45 days of calf weaning measure).
- Identify replacement heifers. Utilize available tools including genetics, dam performance, individual performance, and phenotype. Restrict replacement heifer pool to those born in defined calving season.

Fall Calving Herds (September-November)

General

- Secure necessary supplies for calving season (ob equipment, tube feeder, colostrum supplement, ear tags, animal health products, calving book, etc.)
- Move pregnant heifers and early calving cows to calving area about 2 weeks before due date
- Check cows frequently during calving season. Optimal interval is to check calving females is every 4 hours. Address calving problems early.
- Utilize calving area that is clean and well drained. Reduce exposure to scours by moving 2-3 day old pairs out of calving area to separate pasture (reduce commingling of newborn calves with older calves).
- Identify calves promptly at birth. Record birth weight, calving ease score, teat/udder score, and mothering ability of cow.
- Plan for winter by evaluating feed and forage supplies and options, including conducting forage tests to determine nutritional content of hay on hand.

Nutrition and Forages

- Evaluate growth of yearling heifers with goal of reaching 60-65% of mature weight by breeding. Depending on forage quality, supplementation maybe needed to meet weight gain target.
- Continue to feed high Se trace mineral salt.
- Reserve high quality hay and pasture area for cows post-calving.
- Use grazing management to control the residue of warm season pastures as they approach dormancy. Use strip grazing as a tool to increase the efficiency of utilization of cool season pastures by cows post-calving.
- Store your high quality hay in the dry.
- Collect and submit forage samples for nutrient analysis.

Herd Health

- Ensure colostrum intake first few hours of life in newborn calves. Supplement if necessary. Newborn calves need 10% of body weight in colostrum first 24 hours of life.
- Provide selenium and vitamin A & D injections to newborn calves
- Castrate commercial calves at birth
- Monitor calves closely for scours and pneumonia, have treatment supplies on hand.

Genetics

- Collect yearling performance data (weight, height, scrotal, ultrasound) in seedstock herds.
- Evaluate bull battery and begin planning for the breeding season by evaluating herd goals and objectives.

2015 VIRGINIA TECH
SHEEP MANAGEMENT BASICS WORKSHOP

Virginia Tech Copenhaver Sheep Center
Blacksburg, VA

Friday, November 6 and Saturday, November 7
(10 AM Friday through 3 PM Saturday)

This workshop is designed for individuals with a limited amount of experience in the care and management of sheep. Special emphasis will be placed on the management practices required during and around the time of lambing. Participants will get hands-on experience with a group of ewes that will be lambing during the two-day workshop.

Topics areas to be covered include:
Facilities and Handling, Newborn Lamb Management, Flock Health, Nutrition & Feeding Management
Reproductive Management, Basic Record Keeping & Selection

This workshop is limited to a maximum of 25 participants. The cost is $40 per person. The first 25 preregistrants will be enrolled. First-time participants will be given preference. To preregister for the workshop, utilize the form below. Detailed information will follow receipt of registration (including lodging block details).

This workshop is sponsored by:

Virginia Cooperative Extension
Virginia Tech • Virginia State University

Virginia Cooperative Extension programs and employment are open to all, regardless of race, color, national origin, sex, religion, age, disability, political beliefs, sexual orientation, genetic information, marital, family, or veteran status, or any other basis protected by law. An equal opportunity/affirmative action employer.
Extension is a joint program of Virginia Tech, Virginia State University, the U.S. Department of Agriculture, and state and local governments.
If you are a person with a disability and desire any assistive devices, services or other accommodations to participate in this activity, please contact Scott Greiner at 540-231-9159/800-828-1120 during business hours of 8 a.m. and 5 p.m. to discuss accommodations 5 days prior to the event.

Cut Along Dotted Line and Return by October 10, 2015 (enrollment limited)
Make check payable to Virginia Sheep Producers Association
Mail form to Dr. Scott Greiner, Department of Animal & Poultry Sciences, Virginia Tech, 366 Litton Reaves Hall, Blacksburg, VA 24061
phone 540-231-9159, fax 540-231-3010, email sgreiner@vt.edu

Name(s)_____

Address_____

City_____ **State**_____ **Zip**_____

Phone_____ **Email**_____

The Use of Antibiotics in Food Animals

W. Dee Whittier, DVM – Extension Veterinarian, Cattle
VA-MD Regional College of Veterinary Medicine
Virginia Tech, Blacksburg, VA

Antibiotics have been and are being used in livestock production to help promote animal health and well-being. Regulatory and societal demands have increased dramatically to insist that these products are not only used responsibly in animals but that their use does not taint food nor enhance resistance to these compounds so that human health suffers.

Antibiotics such as penicillin and the sulfa drugs became widely available for animals in the 1950's. As in human medicine, they are invaluable in dealing with bacterial infections in livestock. Just like in humans, as livestock are kept in higher densities, there is more disease challenge and therefore the benefits of antibiotics are more significant.

Originally all antibiotic treatments in livestock were individually administered. However, the stress of catching and treating animals multiple times led to the use of antibiotics in feed and water. Whole herds of flocks can be easily treated with feed and water medication.

Eventually it was discovered that animals given low levels of some of the antibiotics in their feed gained weight faster and more efficiently. This is sometimes due to a change in rumen flora that makes digestion more efficient. In other instances the low-level antibiotics control bacterial infections that go unnoticed but decrease performance.

Concerns over residues of the antibiotics in the meat, milk and eggs of treated animals developed along with their use. These residues can have effects like altering the fermentation process in cheese making. Much more important is the concern that humans eating tainted products would have unwanted outcomes. It was not long after antibiotics began to be widely used on both people and animals until it was discovered that some bacteria developed the ability to somehow disable the antibiotic so that treatment outcomes were disappointing (resistance). Exposing bacteria to low levels of antibiotics is believed to enhance the development of antibiotic resistance.

Antibiotics now contain very specific labeling for how long after treatment milk, meat or eggs must be withheld from human consumption. In addition, sampling of meat, milk and eggs at harvest points is mandated to be sure that errors do not result in contamination.

As concern over the responsible use of antibiotics evolved, the US Food and Drug Administration (FDA) was given regulatory authority over animal drug use. FDA now enforces three classifications of how drugs are dispensed and their use supervised. These three classifications are:

- Over the Counter. This group of drugs can be purchased and used freely purchased and used by any animal owner. For example, Penicillin, Oxytetracycline (such as LA-200) and sulfa drugs (such as Sustain III boluses) are over-the-counter drugs. Animal owners can buy these products at many retail outlets and use them as they desire in their animals. Very few drugs have been approved in this category over the last many years. Of course, owners are responsible to use these products according to label directions, paying careful attention to withdrawal times.
- Prescription. These products will always carry a label that says: "Caution: Federal law restricts this drug to use by or on the order of a licensed veterinarian." Such drugs have been judged to have more potential for harm to human health and so are only dispensed by

licensed veterinarians. The is meant to insure that they will be used in a more carefully supervised manner

- Extra-label. Because it is costly for drug manufacturers to provide label claims for every potential use of drugs, there began to be significant use of drugs other than how their labels described. For example, there are very few antibiotics or dewormers approved for minor species such as sheep, goats or alpacas. There are no tranquilizers or pain medications approved for any food animal species. Sometimes research evidence that becomes available after a product is approved indicates that it is more effective if given at a different dosage or by a different route.

  In 1994 the Animal Medical Drug Use Act (AMDUCA) was passed by Congress and signed into law. It allowed that, under veterinary supervision, some "Extra-Label" uses of drugs would be legal. Extra-label drug use is defined as use in any species, for any condition, by any route or at any dose other than according to the label.

  AMDUCA provided that use would only be when labeled drugs were not available. It also mandated labeling conditions, a provision to avoid residues in animal products and provisions for safety to animals. Any Extra-Label use of a drug must involve veterinary supervision, even if the drug is an over-the-counter product.

Still another provision is what is known as the Veterinary-Patient-Client Relationship (VCPR). Extra-label drug use my only be legally carried out when there exists a proper VCPR. The provisions of a proper VCPR include:

1) The veterinarian takes responsibility for medical and treatment judgments for the animal(s)
2) The client agrees to follow the veterinarian's instructions
3) The veterinarian has close knowledge of the animal(s) and their medical condition obtained by examination and a premise visit
4) The veterinarian will be available for follow up visits or has emergency coverage in the event of adverse reactions or failure of the treatment regimen.

Current changes will affect the way antibiotics may be used in feed. The antibiotics will affect the use of drugs that are deemed to be important in the treatment of human disease. The FDA has now completed regulations that eliminate the use of these antibiotics in feed to enhance growth or improve feed efficiency. It also puts the medical use of these products in a category that will require what is called a Veterinary Feed Directive (VFD), essentially a prescription for feed additives.
Once the new regulation is in place in 2016, a cattle producer wanting to treat a pen of calves for respiratory disease with a product that contains chlortetracycline and sulfamethazine will now require a VFD from a veterinarian to obtain the product and get it mixed in the feed. Likewise, a producer wanting to feed a mineral with chlortetracycline for the treatment of anaplasmosis will need a veterinarian to prepare a VFD to purchase the product.

In addition, the new regulation requires that a valid VCPR exist before the veterinarian can issue the Veterinary Food Directive. It is interesting to know that I have not spoken to a single practicing veterinarian in Virginia that has encouraged or would have encouraged this new ruling. Most are somewhat nervous about the change. Just the same, the federal law will require that this new regulation be implemented in 2016.

All livestock producers should be aware that there is mounting pressure to limit the use of antibiotic treatment of their animals. If producers and veterinarians document that they can cooperate to responsibly manage the use of antibiotics, it will enhance the chances of continued use of these valuable tools in the livestock industry.

Breeding Season Management: Ewes and Rams

SCOTT P. GREINER, PH.D.
EXTENSION ANIMAL SCIENTIST, SHEEP
VIRGINIA TECH

Breeding season is a critical time of year, as management decisions and practices greatly influence productivity and profitability of the flock. In addition to key genetic decisions, such as ram selection and replacement ewe lamb selection, several management practices influence success during the breeding season. It is during the breeding season that the number of lambs which potentially can be born during the subsequent lambing season is established. Lambs born per ewe lambing has a very large influence on break-even costs and profitability of the flock. Both the ram and ewe contribute to the potential success or failure during the breeding season, and warrant optimum management and care preceding and during the breeding season.

RAM MANAGEMENT

Breeding Soundness Exam (BSE)- The BSE examines the ram for fertility and includes physical inspection, examination of the reproductive tract, and semen evaluation. The BSE should be conducted on all ram on an annual basis, and performed in advance of the breeding such that it allows time for procurement of replacements should the need be identified. A BSE can be performed by most veterinarians. While the BSE provides evidence the ram should be capable of settling ewes, in most cases it does not include assessment of libido. Therefore, rams need to be observed closely to make sure they are active breeders. A marking harness is an excellent management tool for this purpose.

Nutrition- Often, newly purchased ram lambs are coming off a high plane of nutrition heading into their first breeding season. To prepare ram lambs for the breeding season, rams should be "hardened up" prior to introduction with ewes. This can be accomplished through limit feeding grain while on pasture. The amount of supplementation will vary according to the ram's body condition and pasture quality, but as a guideline 1-2% of body weight will suffice to achieve a moderate body condition at the start of the breeding season (BCS 3, not excessively fat or thin). Be certain that housing and facilities provides adequate shade and ventilation so that rams can stay cool. These principles also apply to mature rams, which may be new to the flock or been in use for several years. Excessively fat or thin rams are likely to have compromised fertility, so nutrition is critical (and needs to be addressed well in advance of the pending breeding season). When practical, supplementing ram lambs with grain during the breeding season will reduce excessive weight loss (feeding rate of 2% bodyweight daily). It may be advisable to supplement mature rams as well, when practical, particularly if they are expected to service a large number of ewes or the breeding season is long.

Ram: Ewe Ratio- Many factors influence the breeding capacity of rams, including age, breed, nutrition, management, and environment. As a general guideline, ram lambs are capable of breeding 15 to 25 ewes during their first breeding season, and most mature rams can service 50 or more ewes. Ram lambs should not be commingled with older, mature rams either prior to or during the breeding season. Particular care should be taken if rams from different sources (of similar age) need to be commingled, and all commingling should take place prior to the breeding season. Rams used in multi-sire breeding groups should be of similar size and age due to dominance which generally is associated with mature vs. ram lambs.

EWE MANAGEMENT

Health- Vaccination of the ewe flock for Campylobacter (vibrio) and Chlamydia are important for abortion disease control. For ewe lambs and ewes not previously vaccinated, these products typically require an initial injection prior to the breeding season followed by a second vaccination during gestation. In subsequent years, a single booster vaccination is required. Follow product label directions when administering any vaccine. A month prior to the breeding season is also an opportune time to trim and inspect feet on the ewe flock, and perform preventative foot care. An effective parasite control program is a must.

Nutrition and Body Condition- Body Condition Scores (BCS) are a practical management tool to be used in conjunction with nutritional and other management strategies to optimize production of the flock. Condition scores are subjective in nature and utilize a five point scoring system (1=very thin, 5=obese) to visually classify sheep according to body fatness. Optimum BCS at breeding is 3. As with rams, adjustments to the nutritional program should take place well in advance of breeding to accomplish needed changes in BCS. Flushing is the practice of increasing energy intake, and therefore body condition, during the 10-14 days prior to breeding. This practice has been shown to be effective in increasing ovulation rates, and thereby increasing lambing percentage by 10-20%. The response to flushing is affected by several factors, including existing BCS of the ewe and time of the breeding season. Ewes that are in poor body condition (3- and lower) will respond most favorably to the increase in energy, whereas fleshier ewes (BCS 4-5) will show little if any response. Flushing can be accomplished by moving ewes to high quality pastures, or through providing .75 to 1.25 lb. corn or barley per head per day from 2 weeks pre-breeding through 4 weeks into the breeding season. A key is that thin ewes are increasing in their BCS during the breeding season and fat ewes are at least maintaining their energy status (not declining). Provide a high-selenium, sheep mineral free choice.

Ewe Lambs- Ewe lambs should be managed to achieve 70% of their mature weight by their first breeding season. As result, they require special attention prior to and during the breeding season which is most effectively accomplished by separate breeding groups from mature ewes. Keeping ewe lambs in a positive energy balance is important. Research has clearly established that ewe lambs which give birth as yearlings are more productive and profitable during their lifetime.

Environment- Like rams, ewes are also prone to heat stress during the breeding seasons. Prolonged exposure to high temperatures can have an effect on ewe fertility and embryo survival. To help reduce these embryo losses and resulting decrease in lamb crop, minimize handling during the heat of the day and allow the flock access to a cool, shaded area.

GENERAL

Seasonality- Both ewes and rams are seasonal in their reproduction. For most breeds utilized in Virginia, fertility is maximized during October and November.

Length of Breeding Season- A concise breeding season (35 days) results in a concise lambing season, which better optimizes labor and management and results in a more uniform lamb crop. Culling open mature ewes and ewe lambs places selection pressure on reproduction in your environment.

Stockpiling Reduces Winter Feed Costs

Peter Callan (peter.callan@vt.edu), Extension Agent
Farm Business Management, Northern District

Virginia Tech 2011 livestock budgets show that winter feed costs comprise 60 percent of expenses for fall calving cow/calf producers who feed hay during the winter months. (1) One way to lower feed costs is stockpiling forages for winter grazing.

Stockpiling is the practice of saving hay fields and pastures for late fall and winter grazing after the growing season has stopped. In Virginia, many cow/calf producers schedule the last hay cutting or remove cattle from pastures in early to mid-August in order to allow these fields sufficient time for regrowth. Fescue is a grass that is found on many farms throughout the state and is stockpiled for winter grazing. Stockpiled tall fescue maintains forage quality better than other commonly used cool-season grasses. It also produces higher yields of stockpiled forage of superior quality compared to most other cool season grasses.

A 3-year Virginia study showed that stockpiled tall fescue contained 23% more energy and 36% more crude protein compared to average grass hay in Virginia. For example, stockpiled fescue fields that received 40 pounds of nitrogen per acre averaged 13.9% crude protein and 68.1% total digestible nutrients. Although there was a slight increase of .7% crude protein when the nitrogen rate was increased from 0 - 120 pounds per acre, the range was small and likely biologically insignificant.(2) The nutritive value range observed for stockpiled tall fescue in this study is similar to observations made on a commercial farm in south-central Virginia over a 5-year period. (3) Furthermore, the stockpiled fescue in the 3-year study would meet the nutritional requirements of all classes of beef cattle. (4) The yield of stockpiled fields is dependent upon rain fall and nitrogen application rates.

The 3-year Virginia study compared nitrogen rates and source effect on the yield of stockpiled fescue. Stockpiled fields that did not receive nitrogen produced ~2,500 pounds of dry matter per acre. Yields increased linearly for each source of nitrogen, however, rates of yield increase varied between nitrogen sources.

Ammonium sulfate, broiler litter and urea are the most common nitrogen (N) sources used to fertilize pastures in Virginia. The 3-year Virginia study determined the increase in yield of pounds of dry matter (DM) for each pound of nitrogen applied from the following products: ammonium sulfate (11.08), broiler litter (9.29), and urea (7.10). Many producers apply 40 -50 pounds of nitrogen per acre to stockpile fescue for winter grazing. Table 1 shows the response rate in pounds of dry matter and grass per acre using an application rate of 50 pounds nitrogen per acre and assuming that a pound of grass is 80% water and 20% dry matter:

Table 1

Nitrogen Source	lb. N/lb. DM	lb. N/acre	lb. DM/acre	lb. grass/acre
Ammonium Sulfate	11.08	50	554	2,770
Broiler Litter	9.29	50	465	2,325
Urea	7.10	50	355	1,775

Clearly rainfall is one of the most important factors influencing pasture yields. It is recommended that nitrogen be applied when there is a high probability of rainfall in the weather forecast to maximize yields.

July 2015 nitrogen prices are listed in Table 2. The broiler litter prices are based on a minimum of 45 pounds of nitrogen per ton.

Table 2

Nitrogen Source	$ /lb. N	lb. N/acre	$ /acre
Ammonium Sulfate	.95	50	$47.50
Broiler Litter	.77	50	$38.50
Urea	.58	50	$29.00

Due to the volatility of fertilizer prices in recent years, producers should check fertilizer prices in order to determine the most inexpensive source of nitrogen. However, there are several factors besides nitrogen price that producers should consider when selecting the “best” type of nitrogen fertilizer for stockpiling. Additional nutrients may be included in the nitrogen sources which will increase yields. For example, broiler litter contains phosphorus and potash and ammonium sulfate contains sulfur. Urea is most susceptible to volatilization and produced the lowest yields. It is recommended that producers use soil tests to determine the nitrogen source that will maximize yield.
The following example illustrates carrying capacity for one acre of stockpiled forage that received 50 units of nitrogen from ammonium sulfate:
DM yield = 2,500 lb. (0 lb. N applied) + (50 lb. N X 11.08 lb. DM)
3,054 lb. DM = 2500 lb. + 554 lb.
Assuming that a 1,000 lb. cow consumes 2.5 lb. DM / 100 lb., this cow would consume 25 lb. DM per day.
3,054 lb. DM / 25 lb. DM per day = 122 days
Thus one acre of stockpiled fescue fertilized will provide ~ 120 days of winter grazing for one cow. As previously mentioned, rainfall has a major impact on the amount of forage stockpiled for winter grazing. Therefore many producers will stock pile 1.5 – 2.0 acres / animal in order to have sufficient forage to graze throughout all the winter months. In contrast, producers may elect to feed hay during the winter months.
The following example shows the cost of feeding hay to a 1,000 pound cow that eats 25 lb. DM each day for 120 days. A ton of tall fescue removes the following nutrients from the soil: 39 lb. nitrogen, 19 lb. phosphorous, and 53 lb. potash.[5] Using July 2015 fertilizer prices, a budget shows that a ton of tall fescue removes ~ $59 of nutrients from the soil.
2,000 lb. hay (15% moisture) = 1,700 lb. DM or .85 ton DM
Dry matter requirements for one cow for 120 days: 25 lb. DM /day X 120 days = 3,000 lb. DM or 1.5 tons DM

1.5 tons DM / .85 ton DM from one ton hay = 1.76 tons of hay. Assuming that ~15% of the hay is wasted during feeding, each cow requires ~2 tons of hay for a 120 feeding period.

In July 2015 Virginia Tech crop budgets showed that it costs ~$133 to produce a ton of fescue hay which includes ~$59 in fertilizer costs. Since every bale of hay that leaves a field is exporting nutrients from that field, the nutrients must be replaced to maintain fertility. Otherwise, nutrient levels will be depleted.

For a 120 day feeding period, the cost of stockpiling two acres of fescue using broiler litter is $93 ($38.50 fertilizer cost/acre X 2 acres + $8/acre application cost X 2 acres) compared to feeding two tons hay which has total production costs of $266. Thus there are savings in feed costs of $173/cow by feeding stockpiled forages.

Stockpiling eliminates the labor, machinery, repair and other input costs associated with baling and feeding hay during the winter months. Furthermore, the costs of manure hauling and spreading are eliminated by having the cattle harvest the forage and distribute the manure on the stockpiled fields. Stockpiling is a simple and cost effective way to reduce winter feed costs.

(1) Eberly, E. and G. Groover. 2011. 2011 Virginia Farm Business Management Livestock Budgets, Publication 446-048.

(2) Teutsch, C. D., Fike, J.H., Groover, G.E., and S. Aref. 2005**.** Nitrogen rate and source effects on the yield and nutritive value of tall fescue stockpiled for winter grazing. Forage and Grazinglands, December 20, 2005.

(3) Poore, M. H., Benson, G. A., Scott, M. E., and J.T. Green. 2000. Production and use of stockpiled fescue to reduce beef cattle production costs. Online. Proc. Amer. Soc. Anim. Sci.

(4) National Research Council. 1996. Nutrient requirements of beef cattle, 7th rev. ed. (updated 2000). Nat. Acad. Press, Washington, D.C.

(5) Southern Forages, Fourth edition 2007. Hoveland, C. S., Lacefield, G. D. and D.M Ball.

2015 ACROSS-BREED EPD TABLE

A table of adjustment factors used to estimate across-breed expected progeny differences (AB-EPDs) for eighteen breeds was released at the Beef Improvement Federation Annual Meeting in Biloxi, MS on June 11 (see Table 1). Across-breed adjustment factors have been calculated for growth traits and maternal milk since 1993. Adjustment factors for carcass traits have been calculated since 2009 and this year carcass weight was added for the first time; to be included, breeds must have carcass data in the U.S. Meat Animal Research Center (USMARC) database and report their carcass EPDs on an actual carcass basis using an age- adjusted endpoint. Bulls of different breeds can be compared on the same EPD scale by adding the appropriate adjustment factor to the EPDs produced in the most recent genetic evaluations for each of the eighteen breeds. The AB-EPDs are most useful to commercial producers purchasing bulls of more than one breed to use in cross-breeding programs. For example, in terminal cross-breeding systems, AB-EPDs can be used to identify bulls in different breeds with high growth potential or favorable carcass characteristics.

As an example, suppose a Red Angus bull has a weaning weight EPD of + 68.0 lb and a Hereford bull has a weaning weight EPD of + 45.0 lb. The across-breed adjustment factors for weaning weight (see Table 1) are –25.7 lb for Red Angus and -4.4 lb for Hereford. The AB-EPD is 68.0 lb – 25.7 lb = 42.3 lb for the Red Angus bull and 45.0 - 4.4 = 40.6 lb for the Hereford bull. The expected weaning weight difference when both are mated to cows of another breed (e.g., Angus) would be 42.3 lb – 40.6 lb = 1.7 lb.

Most breed associations publish EPDs at least on an annual basis. These EPDs predict differences expected in performance of future progeny of two or more bulls within the same breed for traits including birth weight, weaning weight, yearling weight, and maternal milking ability (as reflected in progeny weaning weights). Normally, the EPDs of bulls from different breeds cannot be compared because most breed associations compute their EPDs in separate analyses and each breed has a different base point. The across-breed adjustment factors allow producers to compare the EPDs for animals from different breeds for these traits; these factors reflect both the current breed difference (for animals born in 2013) and differences in the breed base point. They should only be used with EPDs current as of June 2015 because of potential changes in EPD calculations from year-to-year.

It is important to note that the table factors (Table 1) do not represent a direct comparison among the different breeds because of base differences between the breeds. They should only be used to compare the EPDs (AB-EPDs) of animals in different breeds. To reduce confusion, breed of sire means (i.e., when sires from two different breeds are mated to cows of a third, unrelated breed) for animals born in 2013 under conditions similar to USMARC are presented in Table 2.

The adjustment factors in Table 1 were updated using EPDs from the most recent national cattle evaluations conducted by each of the eighteen breed associations (current as of March 2015). The breed differences used to calculate the factors are based on comparisons of progeny of sires from each of these breeds in the Germplasm Evaluation Program at USMARC in Clay Center, Nebraska. These analyses were conducted by USMARC geneticists Larry Kuehn (email: Larry.Kuehn@ars.usda.gov; ph: 402-762-4352) and Mark Thallman (email: Mark.Thallman@ars.usda.gov; ph: 402-762-4261).

TABLE 1: ADJUSTMENT FACTORS TO ADD TO EPDs OF EIGHTEEN DIFFERENT BREEDS TO ESTIMATE ACROSS BREED EPDs

Breed	Birth Wt. (lb)	Weaning Wt. (lb)	Yearling Wt. (lb)	Maternal Milk (lb)	Marbling Score[a]	Ribeye Area (in^2)	Fat Thickness (in)	Carcass Wt.(lb)
Angus	0.0	0.0	0.0	0.0	0.00	0.00	0.000	0.0
Hereford	2.7	-4.4	-26.6	-17.8	-0.32	-0.10	-0.053	
Red Angus	3.4	-25.7	-30.9	2.4	-0.32	0.03	-0.023	-6.2
Shorthorn	5.1	-30.7	-12.3	4.6	-0.24	0.31	-0.107	-11.6
South Devon	3.6	-8.0	-25.9	2.4	-0.09	0.21	-0.129	-22.3
Beefmaster	5.7	36.1	32.3	11.9				
Brahman	10.9	47.5	9.2	23.6	-0.83	-0.11	-0.146	-28.5
Brangus	3.9	13.9	5.1	4.6				-12.5
Santa Gertrudis	6.9	41.4	42.2	14.2	-0.62	-0.06	-0.097	-5.4
Braunvieh	2.5	-22.1	-49.3	-0.4				-44.9
Charolais	8.6	39.6	40.8	7.3	-0.39	0.98	-0.207	5.4
Chiangus	3.5	-26.9	-38.8	0.2	-0.40	0.34	-0.114	-20.9
Gelbvieh	2.7	-21.5	-30.4	1.6	-0.33	0.65	-0.117	-22.6
Limousin	3.0	-17.0	-42.0	-8.8	-0.60	0.98		-13.4
Maine-Anjou	5.0	-24.5	-35.0	-3.6	-0.60	0.78	-0.192	-23.6
Salers	2.2	-4.1	-26.3	4.9	-0.14	0.85	-0.203	-29.7
Simmental	3.6	-4.8	-9.5	3.6	-0.38	0.43	-0.137	3.8
Tarentaise	3.1	28.3	9.6	23.4				

[a]Marbling score units: 4.00 = Sl^{00}; 5.00 = Sm^{00}

TABLE 2: BREED OF SIRE MEANS FOR 2013 BORN ANIMALS UNDER CONDITIONS SIMILAR TO USMARC

Breed	Birth Wt. (lb)	Weaning Wt. (lb)	Yearling Wt. (lb)	Maternal Milk (lb)	Marbling Score[a]	Ribeye Area (in^2)	Fat Thickness (in)	Carcass Wt.(lb)
Angus	86.6	570.2	1041.9	558.2	6.14	13.24	0.668	904.9
Hereford	90.9	562.8	1004.2	536.4	5.36	12.93	0.606	
Red Angus	87.2	550.5	1009.9	557.6	5.72	12.86	0.632	886.6
Shorthorn	92.3	537.5	994.3	559.5	5.41	12.98	0.519	861.4
South Devon	91.0	555.4	1008.7	562.1	5.92	13.16	0.537	877.9
Beefmaster	90.9	566.3	1000.2	549.1				
Brahman	97.7	583.7	988.5	564.4	4.79	12.63	0.509	845.5
Brangus	89.9	558.7	1005.1	549.3				883.9
Santa Gertrudis	92.1	565.2	1001.2	549.7	4.97	12.66	0.561	870.8
Braunvieh	90.4	542.5	973.8	569.1				848.3
Charolais	94.0	585.9	1042.2	551.0	5.25	13.99	0.452	894.2
Chiangus	90.9	536.6	977.2	552.2	5.36	13.26	0.502	862.4
Gelbvieh	88.6	566.2	1020.9	565.1	5.34	13.83	0.490	879.1
Limousin	89.9	567.5	1002.5	551.8	4.94	14.21		885.4
Maine-Anjou	91.2	541.0	978.6	548.7	5.04	13.70	0.414	856.3
Salers	88.7	558.1	1007.6	559.1	5.46	13.62	0.453	865.2
Simmental	90.6	578.3	1035.3	560.7	5.35	13.93	0.469	903.4
Tarentaise	89.3	565.9	994.3	559.3				

[a]Marbling score units: 4.00 = Sl^{00}; 5.00 = Sm^{00}