



## EXTENSION

### **2020 Soybean Budget** **Trent T. Milacek, Area Ag Econ Specialist**

Soybeans will be an important crop for Oklahoma producers in 2020. Grain prices are very different than they were last year and demand outlook is bleaker. However, these are things that producers cannot control. They must look past this and focus on what their skillsets can manage.

The cost to produce soybeans will include the burndown herbicide, seed, rent, crop insurance, phosphorus fertilizer, planting and harvest costs. Excluding planting and harvesting, those costs could total \$170. One unit of seed, or 140,000 seeds, can cost from \$55-\$65 depending on what technology traits are included. Inoculant, fungicide and insecticide treatments can cost another \$10/unit. Herbicide programs and fertility requirements will change this number significantly on a producer basis. With that in mind, it is not uncommon to have a burndown herbicide application and another herbicide treatment with the preemerge herbicide. To cover \$170, producers will need to raise 21.5 bu./acre. Of course, this is dependent on a \$7.90/bu. selling price at harvest.

Some producers may consider custom planting and harvesting if they do not own the required equipment to produce soybeans. Those costs could climb above \$50 per acre depending on the custom applicator. All costs included, a yield above 28 bu./acre will be required to breakeven.

Without price protection, a producer is open to market risk. New crop beans are currently bid at \$8.65/bushel. Basis bids vary based on location, but assuming \$0.75 for basis gives a cash price of \$7.90/bu. A November put option with a strike price of \$8.60 costs \$0.36 and would guarantee a producer a futures price of \$8.24/bu. Using current basis values, this results in a cash price of \$7.49/bushel. With this price risk strategy, breakeven yield is increased by 1 bushel to 29 bu./acre if prices fall below the protected price. If prices increase, a producer is able to capture that price movement.

If there is average to above average rainfall, it should be possible to breakeven. The 5-year average yield from 2014-2018 in the north-central district of Oklahoma is 29 bu./acre. However, in a dry year it will be difficult. This breakeven yield commands fertile soil to be successful. Be careful planting on low pH soils or ground that lacks fertility. Everything must be in good order for a chance to succeed.

If you would like more information on budgeting or growing soybeans, please contact your local county extension educator. Enterprise budgeting software is available to

producers so that individual costs and production goals can be used. This will assist producers in adopting new enterprises on their operations.

Oklahoma State University, U.S. Department of Agriculture, State and local governments cooperating. Oklahoma Cooperative Extension Services offers its programs to all eligible persons regardless of race, color, national origin, gender, age, religion, disability, or status as a veteran and is an equal opportunity employer.

## **Soybean Weed Management** **Josh Bushong, Area Agronomy Specialist**

Weed control in soybean production has been a persistent issue year after year for many in northwest Oklahoma. Inadequate control is one of the most yield-limiting factors, as some research has shown losses as high as 79%. Certain herbicide programs may seem expensive, but can still be economical if yields are protected. From soybean emergence to the V3 growth stage (third trifoliolate) is the most critical period to limit weed competition to protect yield potential.

In addition to lost yield potential, weed control is usually going to be more effective when weeds are small. Many herbicide options will provide weed size limits on the product label. If an herbicide is applied later than the labeled timing and is not controlled, the weed is not considered herbicide resistant. Increases in herbicide-resistant weeds is becoming a major concern with many producers in the area. Utilizing multiple modes (or sites) of action either in the soybean crop or with other crop rotations is paramount to managing these weeds.

Only relying on postemergence (“over-the-top” or “in-season”) herbicide products limits options and will tend to lead to herbicide resistance sooner. Options are limited especially if applications are delayed due to weather events or breakdowns as weeds become rank and less controllable. A more robust management plan includes preemergence products with residual activity. This may not be as cheap as some of the postemergence products but will provide more modes of actions, act as a safety net in case of delayed post applications, and ultimately should provide much less weed competition early on in the season.

Preemergence products can be applied preplant, prior to crop emergence, and some can be tank mixed with early postemergence products. Preemergence products need to be applied to the soil before germination of the weeds. In no-till production, some products can remain in the previous crop residue and control can be reduced. Some products need to be incorporated into the soil with rain or irrigation to become active. Preemergence and some postemergence products can provide residual soil activity.

To complement an herbicide program, soybean producers can also strategize agronomic practices that can help suppress weeds. Utilizing seeding rate, row spacing, plant populations, and planting date can aid in weed management. Achieving canopy closure as early as possible is the goal. Preventing sunlight from reaching the soil surface will significantly reduce germination of some weed species, especially broadleaf weeds. A

thicker stand will cause the soybean plants to grow more erect at a faster pace. Planting around a major weed flush can also allow a final tillage pass or burndown treatment.

Recent field trials by OSU have shown that pairing preemergent herbicides with postemergent herbicides resulted in higher yields (about 10-15 more bushels) and fewer weeds. These trials looked at planting date and postemerge application timings with and without a premerge. Later planted soybeans generally benefited more from the pairing of a premerge and postemerge.

To save yield potential, it is best to start clean and stay weed-free for the first few weeks of crop growth. Soybean producers must first decide which herbicide traits is best for their operation, develop a herbicide plan, and also make a backup plan if herbicide applications are delayed or fail satisfactory control. Weed control strategies need to consider future crop rotations and should also be a long term investment in managing herbicide resistant weeds. Going cheap now may become much more expensive later.

To find out more information, contact your local OSU County Extension Office to visit with your Ag Extension Educator and review the Oklahoma Cooperative Extension Service factsheet PSS-2794, Meshing Soybean Weed Management with Agronomic Practices in Oklahoma.

## **Cattle Management during the Breeding Season**

**Britt Hicks, Ph.D., Area Extension Livestock Specialist**

The spring breeding season is drawing near and producers need to properly manage both their cows and bulls considering ways to optimize beef production. Herd reproduction and fertility are important for profitability to occur. Research has shown that the economic value of reproduction is **5 times greater** than growth or maternal output traits in beef cattle (Mulliniks et al., 2019). Hence, getting cows bred in a timely manner is critical. Open cows negatively impact profitability, so producers need to use breeding programs that increase the percentage of their cows that get bred. A successful breeding season hinges on nutrition, vaccination, sire selection, breeding soundness exams, and management protocols to control the length of the breeding season.

The first step in preparing the herd for the breeding season is to assess the nutritional status of both cows and bulls. Body condition scoring (BCS) is a practical management tool to allow beef producers to distinguish differences in nutritional needs of animals in the herd. A cow should calve at a BCS of 5 to 6 and be bred at a BCS of 5 to 6. If a cow calves at a BCS less than 5 it will take her longer to return to estrus and thus, take longer to get her rebred.

A BCS of 5 to 6 for bulls is also recommended before the breeding season starts since bulls being too fat or too thin can impact fertility. If changes need to be made to the diet to achieve this BCS they should occur gradually. Ration changes prior to the breeding season can have effects on reproductive performance because mature sperm is produced over a 60-day period before ejaculation. During the breeding season producers should assess the BCS of the bull. It is not unusual for a bull to lose 100 to 200 lb during the breeding season. If the bull becomes too thin the producer should consider replacing

him because his ability to breed cows will be reduced. After the breeding season adequate nutrition is needed to help the bull regain the weight lost.

It is recommended that breeding soundness exams be conducted on all bulls a few weeks before the breeding season even if they were recently purchased as "satisfactory breeders" as a good insurance policy. In addition to breeding soundness exams, pre-breeding vaccinations is an important practice. A visit with your veterinarian about appropriate vaccinations, deworming, and other health considerations is recommended.

Even if bulls have a proper BCS, have had adequate exercise, and have been with the other herd bulls to determine social dominance, ranchers need to continually observe and manage bulls. Young bulls have great potential to bring genetic improvement to your herd, however they will experience an acclimation period prior to breeding any females. In order to start calving on your selected date, it may be important to turn young bulls out a few days early, so they can get adjusted to their environment and be ready to breed cows when you would like them to start. Managing young bulls will be more challenging because they are still growing. Since they have higher nutrient requirements, they will likely lose condition faster than mature bulls.

Social dominance in pastures can also be a concern. Yearling bulls and older, mature bulls should be in separate pastures. If they are together, the yearlings cannot compete with the older bulls thus, resulting in limited genetic improvement, as well as possible injury to the younger bulls. If older bulls have been used more than two breeding seasons, they have a tendency to become territorial and may spend more time fighting and defending their territory than servicing cows. This is a situation where observation is key because bulls may not be getting the cows bred or could be injured or causing injuries. If you are observing animals closely, bulls that are either injured or lack desire can be removed.

Another important issue to address is how many bulls to put in each pasture. A rule of thumb is one cow per month of age of the bull up to 3 years old. Therefore, the true "yearling" would only be exposed to 12 or 13 females. If he is a year and a half old (18 months), then he should be able to breed 15 – 18 cows. By the time the bull is two years of age, he should be able to breed 24 or 25 cows. However, research indicates this number could be increased to as many as 50 cows per bull without a negative impact on conception rate. In determining the proper bull power, several factors should be considered including the topography and size of the pasture, feed condition, age and condition of the bulls.

Producers need to continually observe and manage both bulls and cows during the breeding season. Overlooking critical warning signs could result in reduced pregnancy rates. Assess the BCS of the bulls. It is not unusual for a bull to lose 10 to 15% of their body weight during the breeding season. If the bull becomes too thin the producer should consider replacing him because his ability to breed cows will be reduced. Observe bulls to ensure they are actively checking cows and breeding normally. Watch for injuries. Multiple cows coming back into heat after being bred or a high number of cows showing heat late in the breeding season are also important warning signs.

In conclusion, a successful breeding season is not only dependent on the BCS of the cows but also on the success of the bulls. Bulls have more influence on the success of the breeding season and the herd's future genetics because a cow produces one calf a year, while a bull can potentially sire 25 to 50 calves annually. Breeding success is vitally important to the profitability of the beef operation. Through good management practices breeding efficiency can be obtained. It is important to remember that both the cow and the bull are vital parts to the breeding equation.

## **How Ethanol Plant Closures affect the Oklahoma Cattle Industry** **Dana Zook, Extension Livestock Specialist, Enid OK**

A perfect storm of low gas prices and an unstable economy have led to severe reduction of ethanol production. For cattle producers, this means a reduction or even loss of ethanol byproducts as a feed or supplement for the time being. The main byproducts affected include wet and dried distiller's grains (DDGS). The lesser known distillers steep and solubles byproducts are used in protein and mineral tubs which could lead to an increase in price of these products as well.

Nutritionally, DDGS provided the cattle industry with a perfect nutritional package of both high protein and energy. In a recent article about ethanol byproducts, I explained that the process of ethanol production starts with the extraction of starch from corn. Removing the starch concentrates protein, fat, and fiber threefold leading to the byproduct called distillers grains. Corn is approximately 9% protein in its true form and the threefold concentration will make distillers grains 25 to 30% protein. The energy value is where DDGS shines; providing high energy through a digestible fiber source that is not laden with starch like corn.

In Oklahoma, DDGS had only just become widely available within the last year. In the last feed season, some Cow-calf producers had switched over to the new DDGS cubes supplements and now the protein source in that cube will be adjusted to fill the void of DDGS. Unfortunately, this adjustment will not come without cost, at least for the time being. Local suppliers report a recent \$30-50/ton hike in all cubed products.

Producers using blended or mixed rations will see the most change. A reduction or loss of DDGS is unfortunate but substitutions can be made to recover the nutritional void. Corn gluten, a wet milling byproduct, can be widely utilized to fill a portion or the entire nutritional deficiency. Wheat midds and soybean hulls are relatively similar in energy but midds will provide more protein. For this reason, wheat midds can be substituted for all or a portion of the soybean hulls to help boost the total ration protein slightly. In dairy rations or high protein supplements (25-38% CP), soybean meal can be added. In general, protein is the most costly part of the ration, so the greater the need for this nutrient, the higher the cost. Hopefully most adjustments can be made with little effect on price. However, in the short term producers should expect some increase in price as the supply of products are readjusted to fill the void of DDGS.

So where do we go from here? For Oklahoma, this shortfall came at time when producers should be tapering off supplements as grass greens up and graze out options remain, making the transition a little easier. For grow yards and feedlots, ethanol

byproduct availability has been narrowing in the past months and so they had already been making the switch to alternative feedstuffs before the rapid decrease in production. It is my hope that by the time producers want to book supplements for next fall and winter, we will have the DDGS products back to at least some suppliers in the state. Time will tell.

For questions about byproduct feeds or assistance with livestock nutrition, contact your local Oklahoma Cooperative Extension Educator.

**Emerging Rabbit Disease**  
**Barry Whitworth, DVM**  
**Area Food/Animal Quality and Health Specialist for Eastern Oklahoma**

Rabbit Hemorrhagic Disease (RHD) is a highly fatal disease in domestic rabbits and some types of the virus are deadly for wild rabbits. RHD is considered a Foreign Animal Disease (FAD) in the United States (US). The disease poses no threat to humans. The disease is caused by a calicivirus which has 3 different pathogenic groups. One of the serotypes is Rabbit Hemorrhagic Disease Virus, Serotype 2 (RHDV2). This serotype was discovered in France in 2010. In 2018, RHDV2 was diagnosed in a pet rabbit in the state of Washington. In the spring of 2020, the disease was found in wild and domestic rabbits in the states of Arizona, New Mexico, Colorado, Texas, and Nevada. Oklahoma rabbit owners need to be aware of this emerging threat.

The virus is highly contagious. It spreads through direct contact between infected rabbits. A dead carcass of a positive rabbit contains large amounts of the virus and the virus survives for long periods of time in the decaying tissues. Other means of spread are through meat, fur, contaminated food and water, or other materials that come in contact with the virus. Biting insects can transfer the virus from animal to animal. Humans can spread the virus on shoes or clothing. The virus is thought to be found in all rabbit secretions such as urine, feces, blood, and respiratory secretions of infected rabbits.

The first clinical signs that most people observe with RHD are dead rabbits with dried blood in the nasal passages. Other signs seen are anorexia, dullness, vocalization, respiratory signs (increased respiration rate, frothy and bloody nasal discharge), neurological signs (ataxia, paddling, convulsion, paralysis), and cyanosis of the mucous membranes. If the disease continues to progress, the animal will show signs of jaundice, lethargy, and weight loss. These animals will usually die of liver failure, but some will survive. Diagnosis is based on clinical signs and laboratory testing.

There is no specific treatment for RHD. Sick rabbits should be isolated from all other rabbits and owners should consult with their veterinarian. Veterinarians will provide supportive care, but the best option of controlling the disease is to focus on preventing the disease.

Other countries have a RHDV2 vaccine, but the vaccine is not approved for use in the US. The only means of preventing RHDV2 is biosecurity. The USDA recommends the following biosecurity protocols:

- Do not allow pet, feral, or wild rabbits to have contact with your rabbits or gain entry to the facility or home.
- Do not allow visitors in rabbitries or let them handle pet rabbits without protective clothing (including coveralls, shoe covers, hair covering, and gloves).
- Always wash hands with warm soapy water before entering your rabbit area, after removing protective clothing and before leaving the rabbit area.
- Do not introduce new rabbits from unknown or untrusted sources. Do not add rabbits to your rabbitry from animal shelters or other types of rescue operations.
- If you bring outside rabbits into your facility or home, keep them separated from your existing rabbits. Use separate equipment for newly acquired or sick rabbits to avoid spreading disease.
- Sanitize all equipment and cages moved on or off premises before they are returned to the rabbitry. We recommend disinfecting with 10% bleach or 10% sodium hydroxide mixed with water.
- Establish a working relationship with a veterinarian to review biosecurity practices for identification and closure of possible gaps.

Rabbit owners should review their biosecurity plan. If they do not have a biosecurity protocol, they should consult with their veterinarian and develop one.

Additional steps recommended by the USDA to prevent the disease are:

- If you live near or visit an area where this disease was confirmed, do not touch any dead wild rabbits you may see. You may contact your local veterinarian, state and federal animal health officials to learn if RHDV2 has been detected in your area.
- If you see multiple dead wild rabbits, report it to state wildlife officials.
- If you own domestic rabbits, do not release them into the wild. If your rabbits appear ill or die suddenly, contact your veterinarian.
- If you volunteer at animal shelters or wildlife rescue facilities, be aware that this disease has been found in feral rabbits. If rabbits appear ill or die suddenly, contact the facility's veterinarian.
- Anyone working with rabbits should always practice good biosecurity. This includes basic steps like washing your hands before and after working with rabbits and not sharing equipment with other owners.

RHD is a reportable disease. If an individual finds several dead rabbits in the wild or a rabbit owner suspects the disease in their rabbits, they should contact their local veterinarian or Dr. Rod Hall at the Oklahoma Department of Agriculture, Food, and Forestry at 405-522-6141.

Rabbit owners with questions about RHDV2 should consult with their local veterinarian or their local County Oklahoma State University Agriculture Extension

Educator. For additional information, a fact sheet from the USDA can be found at [https://www.aphis.usda.gov/publications/animal\\_health/fs-rhdv2.pdf](https://www.aphis.usda.gov/publications/animal_health/fs-rhdv2.pdf).