South Carolina Fall Weather Outlook

Chris Justus, WYFF News 4 Meteorologist

From the Upstate to the Low Country, South Carolina has been dry and warmer than average this summer.

In September the rain departure from normal was at: 4.70” behind normal for the Upstate, 5.58” behind normal for the Midlands and 3.41” below normal for the Low Country. Those numbers reflect the major reporting sites, there are likely drier areas around each region.

When forecasting months in advance for my seasonal outlooks, I rely a lot on the El-Nino and La Nina weather patterns to give me a rough idea of what to expect. Each of those patterns control how the jet stream moves about the United States and therefore dictates temperature and moisture trends. Moving into the fall season many of our reliable models were pointing toward a La-Nina weather pattern taking shape. That would enhance the current dry and warm weather pattern. However, I have looked at the trends and I think the models are a bit too aggressive in bringing in La-Nina. Sea surface temperatures in the Pacific which drive the patterns have not cooled as quickly as the models thought. Therefore, I see the pattern staying more neutral at least through December, remaining in between an El-Nino and La-Nina pattern.

Looking back at similar neutral pattern years I think this fall’s weather will be very similar to the 2013 season. October-December that year featured near normal rainfall across the state with near normal temperatures in October and December and a colder than average November.

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With the expected pattern, I would expect October through December to feature near normal temperatures with periods of cool and cold weather. You can expect near, to slightly below average rainfall across South Carolina during that time.

Here is a look at the averages for each part of the state moving into fall:

Upstate:
October Average Rain: 3.44”
Average High/Low Temp: 73°/50°
November Average Rain: 3.70”
Average High/Low Temp: 63°/41°

Midlands:
October Average Rain: 3.17”
Average High/Low Temp: 78°/51°
November Average Rain: 2.74”
Average High/Low Temp: 69°/41°

Low Country:
October Average Rain: 3.75”
Average High/Low Temp: 77°/56°
November Average Rain: 2.43”
Average High/Low Temp: 70°/47°

The first freeze in South Carolina will approach in the months to come. Here is a look the climate data dating back to 1981.


Latest: Dec. 3, 1985

Low Country: Average first freeze: Nov. 28 Earliest: Nov. 11, 1996

Latest: Jan. 5, 1995

I would expect for the first freeze to occur near climatological normal dates for each area of the state.

What could change? If sea surface temperatures in the pacific begin to cool faster than expected, that will allow a moderate La-Nina pattern to set up which would allow for much drier and warmer air for the fall season. Right now that change likely wouldn’t occur until November. My forecast confidence is HIGH for October and November and MODERATE for December.

About the Author:
Chris Justus is a meteorologist at WYFF News 4 in Greenville, SC. He was born and raised on an apple farm in Hendersonville, NC and still helps his family grow apples on his days off. Chris knows firsthand the impact weather can have on a farmer’s crop. That is what got Chris into the field of meteorology and it’s what drives his passion for the science on air at WYFF 4. Chris takes the responsibility of an accurate forecast serious and spends many hours each week pouring over current data and weather models. You can follow Chris on Facebook and watch his weather reports on WYFF News 4 and wyff4.com

Climate Source: NOAA

The Clemson Extension Livestock and Forages newsletter, *CU in the Pasture*, earned top honors among over 30 other team extension newsletters across the U.S. Team leader and State Beef Specialist, Dr. Matthew Burns, and editor and Livestock Agent, Cassie Wycoff, accepted the award at the National Association of County Agricultural Agents annual conference in Little Rock, Arkansas this summer. The newsletter archives are housed on the team’s webpage for clients to locate and reference. Articles from the first two editions were re-printed and appeared in the Southern Livestock Standard’s Special Edition magazine and the Angus Beef Bulletin, extending the impact beyond the initial reach.

Thanks to all the agents that submitted great content and to all our readers for your support!
HOT TOPIC
Fire Prevention in the Hay Field

Christopher LeMaster & Brian Beer, Livestock and Forage Agents

This summer’s droughty conditions have probably decreased your hay crop but may have increased your chance of fire in the hay field. Even in the absence of a drought, dried hay and dormant vegetation along field borders make excellent fire starter. A few basic preparations can go a long way in preventing the loss of a hay crop, machinery, or even a life.

Clean and keep machinery in good condition. Compressed air is the likely choice for removing trash, dust, or old hay from your equipment. Remember to clean the moving parts as well as air filters and radiators. Follow the manufacturer’s lubrication schedule. Check moving parts for wear, friction marks (heat discoloration), or metal shavings. Remove excess flammable liquids (i.e., fuel, hydraulic fluid, grease) that also attract dust. Don’t forget the wheel bearings on your hay trailer. A bad bearing can produce as much heat as an exhaust pipe. Be careful where you park hot machinery as tall vegetation can easily combust on a hot muffler.

Carry the proper fire extinguisher. Many balers come with 2.5 gallon pressurized water extinguishers mounted on the baler. Water extinguishers are a good choice for baler fires. Pressurized water extinguishers are rated for Class A fires (normal combustibles such as wood, paper, cloth, plastic, etc.). Class B fires involve flammable liquids (gasoline, diesel fuel, oil) and Class C fires are energized electrical fires. Water extinguishers are not recommended for Class B and C fires. Dry chemical extinguishers are rated for Class A, B & C fires, indicated by symbols on the extinguisher. If the fluids of the tractor become involved in the fire, a dry chemical extinguisher will be needed. Be sure you select an extinguisher that is rated for the type of fire you are most likely to encounter.

As mentioned, you often see extinguishers mounted on balers. This is a good storage option to ensure that there is always an extinguisher with the baler. However, if the fire progresses too much prior to the operator noticing the issue, accessing the baler mounted extinguisher may be a problem. Keeping extinguishers in or near the cab of the tractor is a better option.

Pressurized water extinguishers are most often 2.5 gallons in size. For tractors, a 10 pound dry chemical (ABC) extinguisher is recommended, since a tractor fire will likely involve flammable liquids. Both of these extinguishers must be inspected on an annual basis. Monthly checks are also recommended to assure that the extinguisher is properly pressurized. This is done by checking the gauge located at the top of the extinguisher. The gauge indicator should be in the proper range, usually marked with a green background. If the gauge is not in the proper pressure range, the extinguisher must be removed from service and repaired. Once an extinguisher is discharged, it will also need to be serviced and recharged. Dry chemical extinguisher must be serviced and recharged by a professional fire extinguisher service company.

Pressurized water extinguishers can be recharged by the user. Simply remove the handle/nozzle from the can by turning it counterclockwise. Refill the can with 2.5 gallons of plain water. Replace the handle/nozzle and tighten by hand. There is a valve stem on the top of the extinguisher similar to those on an automobile tire. Using your air compressor, add air until the indicator on the gauge is in the middle of the green area, which will be 100 psi. If the gauge fails to move while adding air, the extinguisher must be removed from service and repaired. Check the Yellow Pages or contact your local fire department to locate your closest fire extinguisher service company.

Contain and disconnect. If you do find a flame in your field, ideally you would be able to safely douse it with your extinguisher or suffocate it with your shovel. There are several other options to assist the extinguisher however they all depend on the involvement of the fire. The simplest option is to move out of the field to gravel, blacktop, or bare ground. Remember fire travels uphill. If it’s a round baler fire, try to release the bale. Be sure it’s not going to roll down the hill and spread fire. Also, if possible, try to disconnect from the burning machinery.

Only attempt to extinguish a fire that is small and in the beginning stages of development.

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When putting out a fire, it is best to begin discharging the extinguisher 8-10 feet away from the source or base of the flame. If the fire has progressed to the point where you do not feel comfortable operating an extinguisher within that distance, back away, call 911 and let the fire department extinguish the fire.

**Check moisture.** There is no better catalyst for a drought-ending rain than hay on the ground. We can’t talk about hay without mentioning proper moisture content. Remember the upper limit on small square bales is 20% moisture and 18% on round bales.

Excessive moisture can spoil hay, damage nutritive content from heat buildup, and increase risk of fire. Heat buildup usually peaks about a week after baling. Internal temperatures over 120°F begin to degrade hay quality. As temperatures approach 180°F to 200°F you will likely notice smoldering and spontaneous combustion, respectively. Bales with a temperature of 150°F should be moved to a “safe place” to allow better air circulation. A moisture meter or even a hay thermometer may be a cheap investment in comparison to an easily preventable hay crop loss. A crow bar can provide a far less accurate method for assessing hay temperature (A bar driven into 150°F hay for a couple of hours will be too hot to hold.) Don’t get into this guessing game if you can help it.

Hopefully, this article is a checklist of habits you already have. These habits are basics in decreasing fire risk and increasing machinery longevity and hay quality.

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**Why Pesticide Applications Fail**

Morris Warner, County Extension Agent, Oconee County

It’s ironic I was writing an article on this subject. Last evening, I decided to spray my garden. Sun was shining, everything looked good for a pesticide application. I mixed my chemicals and headed for the garden. Before I could get the sprayer put away, it began to rain. It was just a little localized shower of rain, about a tenth of an inch, just enough to dampen the soil and wash off my spray. It happens to all of us that make pesticide applications. One seemingly insignificant mistake and our application is a failure. So let’s look at the common mistakes we make before during and after an application that can lead to a failure.

**Improper Identification of the Pest/ Incorrect Pesticide Selected** - Before you make any pesticide application make sure you have the pest correctly identified. If you are having trouble or are unsure of the pest, collect a sample and consult your County Extension Agent. They should be able to assist in identification. Failure to properly identify the pest can lead to using the wrong dose and even selecting the wrong pesticide for the job.

**Incorrect Pesticide Dosage** – Read the label completely to determine the correct dose of the pesticide. Some pests will require a higher dose than other pests that are controlled with the same product. Knowing the proper dose will be critical for a successful application. Calibration is also important for delivering the proper dose. I prefer the 1/128 method of calibration. PIP-38128 is a Pesticide Information Program leaflet that details this method through Clemson Pesticide Information Program. Dow also publishes a pocket card that details this method. It’s easy and can be accomplished in just a few minutes while you are loading water for your application.

**Improper application timing** – Again, read the label carefully. Timing the application can be as important as any other detail. Some pests are best sprayed at a certain size or certain stage of growth. For example, armyworms will be easier to control in the small larval stage less than half of an inch in length. Application to larger worms will result in less control and possibly failure of the application. Another good example is horseweed which is best sprayed in bloom stage. Spraying at other times during its development will likely lead to less than desirable results or failure.

**Unfavorable Environmental Conditions** - This is where I went wrong. I should have checked the local radar. Rainfall too soon after an application will wash the pesticide off the crop and lead to failure of the application. There are other environmental factors to consider as well. High temperatures, dry weather and acid or alkaline soil pH affect the thickness of the cuticle layer on plant leaves reducing the amount of pesticide that will be absorbed. Winds can blow the pesticide off target as well.

**State of Poor Pesticide Condition** – Proper storage of pesticides is crucial. Storage requirements are listed on the label. Improper storage can lead to degradation of the active ingredients. Most notable of these is the temperature requirements. Don’t allow your stored pesticides to get above the maximum temperature requirements or be subjected to freezing temperatures. What is the pH of your mixing water? Many pesticides require the pH to be neutral or near neutral. Acid or alkaline mixing water can affect the efficacy of your pesticide. You can get pH strips at your local swimming pool store to check the pH of your water source. Also, if you load from a pond or creek, suspended solids can bind to pesticides rendering them ineffective. You may need to invest in good filters or select another water source.

Pesticides and pesticide applications are important to you as a producer. Taking the few extra minutes to assure your applications don’t fail can be well worth your efforts and time.
Planning is the Key to Reproductive Success
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Extension Animal Scientist – Beef Specialist, Clemson University

Although the spring breeding season seems a long way down the tracks and folks that are fall breeders are underway with planning the breeding season for this production year, I think it is imperative to revisit how to improve reproduction on your operation, especially with the upcoming bull sales. Now is the time to make plans and breeding decisions so bulls and semen can be purchased prior to the breeding season. Reproduction is a critical aspect of any species’ life cycle and plays a major role in food animal production. Since the implementation of artificial insemination (AI) in the beef cattle industry, researchers have strived to improve the efficiency of this process. Through research, estrous synchronization protocols were developed to facilitate application of AI. However, practical problems involving increased time and labor are associated with improved conception rates with many estrous synchronization protocols. Over the years, research has focused on finding a balance between conception rates and time/labor costs to carry out an ‘ideal’ estrous synchronization protocol.

**Steps to Successful Reproductive Management**

**Step 1:** Institute basic management programs (herd health and nutrition), a record keeping, and planning system that works best for your operation.
Planning is the key to any successfully implemented reproductive management system. Between 25 and 70% of cattle are usually anestrous (not cycling) at the start of the breeding season. Age, stage of lactation, and body condition score are among the many factors that may affect cycling status in cattle. However, a sound nutrition program and monitoring of body condition scores can ensure more cows cycling at the onset of the breeding season. In order to plan, you must keep good records and, more importantly, use them.

**Step 2:** Establish a calving season that works best with your operation. Most producers in South Carolina are part-time farmers with full-time jobs; and, for that reason, different calving seasons may work best for different operations. Calving season should also depend on marketing strategies for the calves and grain or supplement availability. Calving seasons are usually classified into three categories: Winter (January - February), Spring (March - April), and Fall (September - October) calving. Calving in the winter season means calving in the coldest time of the year, but sets your calves up to wean on summer pasture, leading to higher weaning weights. The cow herd must be watched closely for calving and calf health problems. Having a spring calving cow herd means increased nutritional needs of cows during the winter leading up to calving. Good winter grazing or access to economical feed-supplement is needed for a spring calving herd. Fall calving allows the use of summer pasture to keep the cow herd in good condition prior to calving. Calf health, however, will have to be watched closely as winter progresses.

**Step 3:** Logically, if you have a defined calving season, you want a controlled breeding season as well. Having a controlled breeding and calving season is an important tool to use for time management, marketing decisions, and herd efficiency. By controlling the breeding season, you can decrease cost, increase production, and increase profit. A controlled breeding season requires a set of strategies that will establish a specific window in which cows will get bred. After that time has passed, bulls will be removed and artificial insemination will stop. Open cattle will be sold or held over until next year’s breeding season, depending on culling restrictions and decisions. Having a breeding season allows the nutritional requirements of the herd to be met more efficiently as the entire herd is at the same physiological stage (decreasing cost). Since the calf crop will be born in a certain time period, it offers a producer group- marketing options (increasing price/increasing production). Reproductively unsound cows can be identified, allowing producers to make culling decisions based on reproductive performance (increase production).

**Step 4:** Implement reproductive technologies into breeding season to get more cattle pregnant in a shorter period of time. Artificial insemination (AI) is a procedure in which a small rod is passed through the cervix and semen is deposited in the uterus.

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AI takes advantage of superior genetics by using semen from sires that are not available for natural service.

Estrous synchronization is a tool that is commonly used in tandem with AI and may be used to synchronize estrus and ovulation. This facilitates the breeding of multiple cows in a short time period. For estrous synchronization to be successful, the protocol must regress the corpus luteum, promote the growth of new follicles, and induce estrus or ovulation.

Many of us have full-time jobs by day and raise cattle by night; therefore, it is more feasible to implement management strategies to reduce time input. Timed insemination (TAI) protocols allow producers to have a pre-determined time of AI, allowing for scheduling on your terms and decreasing labor costs associated with heat detection. Cost associated with handling and synchronizing, however, would be increased. For some operations, the ability to control the timing of AI is very important and would take precedence over the slight increase in labor and time on the front side of the synchronization protocol. A timed AI protocol also gets a large percentage of your cows pregnant on the first day of the breeding season. More cows pregnant early, translates into more calves born at the beginning of the calving season, therefore, increasing average weaning weight and uniformity of calf crop relative to no synchronization. For other operations, a standard heat detection protocol is better suited.

Estrous synchronization can also be used with natural service to shorten a breeding and calving season. For a herd that has typically had year round breeding seasons, synchronization and natural service may be the first step before AI is used. The benefits listed above for estrous synchronization still hold true, but the time and labor associated with heat detection and AI are not a factor. Select a protocol in which heat detection is required and turn your bull out before you start the protocol. We have to remember that when we use estrous synchronization with natural service the concentration of cows showing estrus within a given period of days will be increased. Therefore, we should lower the cow to bull ratio to between 15:1 and 25:1 and make sure the bull has a full breeding soundness exam (BSE) before the breeding season. Use mature bulls that are known breeders and decrease pasture size to cut down on the amount of energy spent on traveling.

Developing an AI program is a process and takes extensive planning and forethought. Your local extension agent can help you with developing an AI program while keeping in mind your operations labor/time needs. Numerous synchronization protocols and technologies exist to assist producers; however, it is left to each individual to determine which synchronization protocols and technologies will better their operation. It is important to remember, even if AI is not for your operation, steps 1, 2, and 3 will help improve the reproductive performance of your cattle operation using natural service, AI, or a combination of the two.
A Tale of Two Regions
Managing Grazing and Pastures in Drought
John Andrae, Forage Specialist- Clemson University

“It was the best of times, it was the worst of times, it was the age of wisdom, it was the age of foolishness... it was the spring of hope, it was the winter of despair, we had everything before us, we had nothing before us...” -Charles Dickens, 1859

In the introductory paragraph of A Tale of Two Cities, Charles Dickens begins to outline the duality between two locations (France and England) in the late 1700s. I’m using it to introduce the huge differences in two locations, the South Carolina Coastal Plain versus the Piedmont) in precipitation received the past few months. Both areas of South Carolina received abundant moisture through the fall and winter (in fact, far too much in many areas of the Lowcountry) and we all were enjoying a phenomenal annual ryegrass and tall fescue growing year. However in late April and early May, moisture stopped falling on the Piedmont and forage growth stalled. Meanwhile in most areas of the Lowcountry, precipitation has been abundant. On well managed farms, bermudagrass, bahiagrass and summer annuals have performed well. This article will present 8 tips for managing cattle and pastures in drought conditions. Next month we will focus on problems and opportunities associated with the more upbeat Lowcountry situation. Following are a few tips for managing grazing and pastures during drought conditions.

1. Reduce forage demands.
Managing pastures in drought situations is difficult. Plant growth has stopped while, in many cases, animal demands for dry matter increase with cow lactation and calf growth. Two options exist which are relatively easy to implement: culling and early weaning. Culling is a simple process on the surface, but more complex when implemented properly. Pregnancy status, cow age, production history, feet, udders, eyes, disposition, cow family all factor into culling decisions (and the list could likely go on for another page). When nothing is available for feed, the list of culling criteria should be a liberal one. Cull old animals, open cows, animals with disposition problems- any issue that makes you look twice at a cow should paint a target on her. This is also an excellent time to evaluate current stocking rates and think back to how much forage is present in a “good year”. If forage is always tight in the summer and hay is fed for a long period of time in the winter (i.e. 90+ days), consider decreasing stocking rates long term and improving forage and grazing management. Another forage saving opportunity is to early wean calves. This concept is simple. Cows won’t milk with nothing to eat and calves won’t grow with nothing to eat. Removing these animals from the forage system decreased forage demand and supplemental feed needs. Consult with Extension agents and veterinarians to determine how to treat smaller calves at weaning and price out health programs, backgrounding and marketing. Weaning has already taken place in fall calving herds, but spring calvers can still decrease forage demands by weaning and shipping calves a month or two earlier than normal. Since the drought (to this point) has been regional in nature, cow and calf prices have not dropped precipitously which make culling and early weaning a better option than in more widespread droughts.

2. Use caution if grazing heavily fertilized summer annuals or bermudagrass. High rates of nitrogen fertilizer from commercial sources or animal manure like poultry litter can cause a buildup of toxic nitrates in some forage species. Test forages to make sure that nitrates have not accumulated and be careful with hay harvested from these fields as nitrates remain high in cured forages.

3. Line up winter feed immediately.
At the writing of this article, most drought conditions were localized to NE Georgia and the Upstate of SC. Good quality, reasonably priced hay is available in parts of the Midlands, the Lowcountry of SC and across most of NC. Be sure to account for shipping costs, bale weights (to calculate a price per ton) and quality prior to purchase. Good quality hay is often a bargain, but shipping light bales of poor quality hay seldom pays. In those situations, commodity byproducts can sometimes fill the void.

4. Maintain a minimum forage residual height. It is important to protect pasture integrity and maintain adequate leaf material and energy reserves to respond to rainfall.

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At least 3” and preferably 5” of residual height should be left on tall fescue pastures to allow for recovery following grazing. Bermudagrass and bahiagrass can be grazed slightly lower (1-2”) but still need a rest period for recovery and good regrowth, particularly in drought conditions. Residual leaf area (green leaf material remaining after grazing) is the primary determinant of regrowth rates in most forage species. Leaving some leaf behind and providing a rest period will maximize plant growth rates when moisture arrives. Poor grazing management allows cattle to remove all energy producing parts of the plant (green leaves) and directly remove areas of the plant that contain energy stores. Cattle also graze into the lowest portions of the plant where nitrate concentrations are concentrated. In the best cases this abuse just slows regrowth and decreases overall yields. But eventually plants are weakened, killed, and replaced with unpalatable weeds. Short term “gains” typically result in long term pain. Poorly grazed and abused pastures will not respond to moisture this summer, will not stockpile or grow well in fall, and may fail completely requiring an expensive and time consuming replacement.

5. Assess pastures and choose a sacrifice area. Opening all the gates and letting cows search for their next bite during a drought is likely the worst management option possible. Likewise, continuing to use set stocking and uncontrolled (continuous) grazing is a strategy that will fail. Choose a pasture to sacrifice and feed the herd on through the drought. Ideally, this will be a pasture that was already in poor condition, does not contain potentially toxic plants like Johnsongrass, is convenient for feeding hay, has a clean reliable water source, and contains adequate shade.

6. Use controlled access to hay to stretch supplies in the sacrifice area. A wide range of hay waste has been reported in many research trials over the past few years. In some trials up to 50% of hay offered to animals without hay rings or unrolling is wasted. It is beyond the scope of this article to compare specific hay feeders, but it is certainly clear that a ring of any kind is better than uncontrolled access to bales. Hay can also be unrolled daily in different areas. When done properly with daily allocations, there is minimal waste from unrolling and nutrients can be spread across the sacrifice pasture thereby decreasing input needs when the pasture is renovated following the drought.

7. Plant winter forages. Begin to plan for an early fall planting of winter annual forages. If possible, a clean tilled area will yield more fall forage than no-till overseedings. Rye and oats are also dependable grasses that have good yield potential in fall. Pastures are likely weakened from grazing with little competition from residue. This is an ideal situation for annual clovers and ryegrass to be overseeded in warm season pastures and for white or red clover to be added to thin fescue stands. Although not commonly recommended, small grains can be interseeded into weak tall fescue stands for emergency forage; however, these pastures may be harmed further by this and need complete renovation next year. Again, consult with your local Extension agent for the recommended cool season grass and legume varieties for your area and for the best planting times and methods. Frequent scouting for fall armyworms is also highly recommended.

8. Manage grazing immediately following the drought. When it rains, ease into grazing the winter annuals and tall fescue. Allow those plants to establish well or, in the case of existing tall fescue, recover from summer stresses before grazing. Overseeded small grains should not be grazed prior to 4” height, clean tilled areas should be taller to allow rooting and prevent plants from being pulled up. Light, but judicious grazing will pay off over the long term as the plants will have increased leaf area for photosynthesis and increased energy stores for plant growth. Also pay close attention to sorghum, sorghum x sudan, or sudangrass pastures as well as pastures containing areas of Johnsongrass. These species can contain toxic levels of prussic acid immediately following a drought breaking rain and immediately following a killing frost. Delay grazing pastures for 4+ days in these situations.

"Opening all the gates and letting cows search for their next bite during a drought is likely the worst management option possible."