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Beef: A Producers Guide to Drought Preparation, Management, and Recovery in the Southeastern United States

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ABOUT

"Beef: A Producers Guide to Drought Preparation, Management, and Recovery in the Southeastern United States" is one in a set of guides to help Southeastern United States producers of economically important agricultural commodities build resilience to prepare for, manage, and recover from drought impacts. All guides are found on the USDA Forest Service Treesearch website.

DISCLAIMER

This guide contains a compilation of information from multiple coastal States in the Southeastern United States. Therefore, some links and resources may not be relevant or even appropriate for your location. Information in this document was provided by USDA and various university Extension staff and based on shared experiences preparing for and recovering from drought impacts; however, individual producer situations will vary. This guidance should not be interpreted as required actions by regulatory or insurance agencies. STATE OR LOCAL GUIDANCE/REGULATIONS AND INSURANCE POLICIES SUPERSEDE THE RECOMMENDATIONS IN THIS GUIDE. Check with your local Extension agent; county, State, or Federal contact; consultant; or insurance agent regarding the appropriateness of these recommendations for your specific situation.

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Cover photo: Beef cattle interrupted while foraging and staring at the photographer. (USDA Photo by Lance Cheung, Flickr 20191022-OSEC-LSC-1245)

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Beef: A Producers Guide to Drought Preparation, Management, and Recovery in the Southeastern United States

THIS GUIDE WILL FOCUS ON:

- Building pre-drought resilience in beef production
- Implementing adaptive livestock management practices during a drought to minimize beef production losses
- Coordinating cattle assessment and recovery post-drought

Contents

Introduction

Preparing for, managing, and recovering from drought events

Beef calves getting supplemental feed from a trough. (Courtesy photo by Shane Grant, University of Arkansas System Division of Agriculture)

Drought is a natural part of the Southeastern United States climate and a threat to agricultural productivity and profitability. Whether slow developing or rapid onset, droughts can have negative effects on crops and livestock, depending on timing, severity, and length. Droughts are expected to become increasingly common in the Southeastern United States due to increasing temperatures, longer dry periods between rain events, and growing water demand across the region.

To help producers remain resilient and productive in the face of this threat, the U.S. Department of Agriculture (USDA) Southeast Climate Hub and subject matter experts from University Extension and the USDA Natural Resources Conservation Service (NRCS), in collaboration with the U.S. National Oceanic and Atmospheric Administration (NOAA) National Integrated Drought Information System (NIDIS), developed this guide to help cattle producers prepare for and recover from droughts. This guide is separated into three primary sections:

- The **Building a Resilient Operation (Pre-Drought)** section provides adaptation initiatives and tools producers can use to prepare for and increase their resilience to drought.
- The **Adaptive Actions During a Drought** section highlights important decisions to consider in response to drought conditions. Well-prepared producers can rely on tools and adaptive protocols presented in this guide to help inform the decision-making process.

- The **Drought Recovery (Post-Drought)** section outlines actions producers can take to minimize losses and seek out available assistance following a drought.

The guide also includes an appendix with:

- Two customizable templates for a **Drought Plan** and a **Contacts List**. The **Building a Resilient Operation** section outlines what to include in these two documents, as well as their use.
- **Decision Tables** for guidance on key decisions that will help you plan for and mitigate drought impacts.
- **Initial Site Planning** guidance that can be referenced if purchasing or leasing new land.
- Federal, State, and Extension **Resource Links** to help inform short- and long-term decision making. Many of these resources appear throughout the guide and are also included in appendix 5.

This guide's layout and how it is intended to be used can be found in figure 1. After recovering from a drought, producers should refer to the **Building a Resilient Operation** section and incorporate guidance and lessons learned into their management and farm emergency plans.

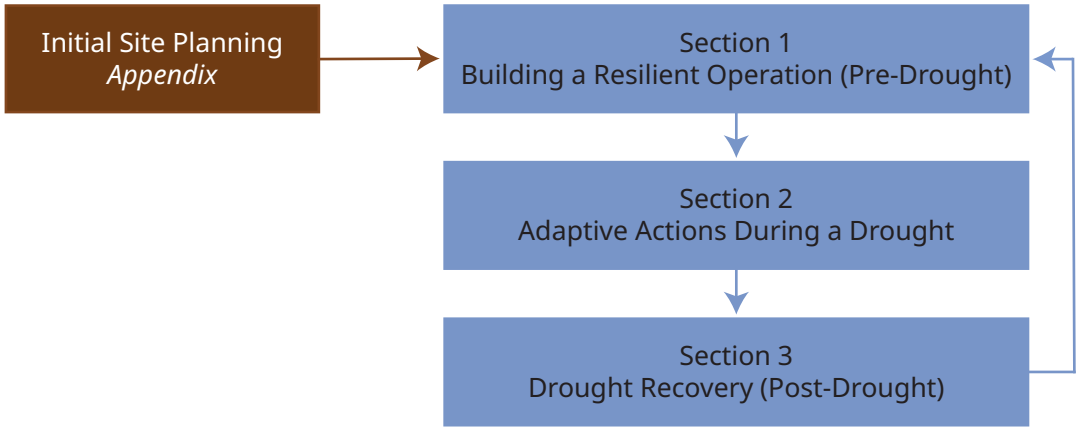

Figure 1—Layout and use of the drought preparation, management, and recovery guide.

SECTION 1

Building a Resilient Operation (Pre-Drought)

Practices that can be adopted well before a drought occurs to maintain productivity, reduce the risk of cattle loss, and reduce recovery time

Beef cattle using a watering trough on a cement pad installed in a pasture. (USDA photo by Lance Cheung, Flickr_50720563691_0aea2c49a1_o)

What is a resilient operation?

- A resilient operation adopts practices that help mitigate potential drought and its effects. These practices include:
  - Working with technical service providers (e.g., Extension agents, NRCS field staff) to develop and implement a drought plan for monitoring drought conditions and responding accordingly
  - Working with a licensed veterinarian to implement a proper health and nutrient management plan for your herd
  - Maintaining an adequate body condition score for all cattle

  - Ensuring your herd has sufficient water and shade sources available
  - Keeping pre- and post-drought records of herd conditions to aid with disaster assistance and insurance claims.
- The recommendations in this guide have been shown to increase drought resilience when properly used with cattle operations in the Southeastern United States. To learn more about building resilience to drought on your farm, see the **Resource Links** in appendix 5 to find local Extension offices and other State and Federal resources to consult for further guidance.

Personal and worker safety

- Drought often occurs during periods of increased sun exposure and heat. Whenever possible, outdoor manual labor should be limited to early morning and late evening hours to avoid heat-related illnesses.
- Clean, cool water should always be available for workers, as should a source of shade or air conditioning to allow for temporary relief from the sun and heat.
- To learn more about assessing levels of sun exposure and heat stress, see:
  - National Institute for Occupational Safety and Health, OSHA-NIOSH Heat Safety Tool Application (USCDCP 2025)
  - NOAA National Weather Service (NWS), HeatRisk website (USDC 2025a)
  - North Carolina State Climate Office, Extreme Heat Dashboard (NCSCO 2026a)
  - Southeastern Coastal Center for Agricultural Health and Safety, Heat Stress website (SCCAHS 2025).

Drought planning

- Episodic drought in the Southeastern United States is inevitable. The impact on livestock can vary depending on the time of year that drought occurs (table 1). Developing and maintaining a drought plan for your operation is an important step in being prepared.
- Work with your local Extension agent or NRCS office (or both) to develop a drought plan. Refer to the **Drought Plan** guidance in appendix 1 for a more detailed description of what should be included in the plan.
- Consult the **Decision Tables** in appendix 2 for guidance on key decisions that will help you plan for and mitigate drought impacts.

Table 1—Anticipated drought impacts by life stage with corresponding livestock management decisions

	Pregnancy/Calving	Calves/Weaning	Pasture Grazing/Forages	Grain Finished/Slaughter
Drought impacts	• Heat stress • Compromised pregnancy • Lower calving rates • Decreased body condition • Reduced calf vigor • Increased rate of calf morbidity/mortality	• Heat stress • Compromised milk production • Decreased weaning and yearling weights • Increased rates of morbidity/mortality	• Heat stress • Increased chance of illness • Lower body condition scores • Nitrate accumulation in some grasses • Forage toxicity • Water quality concerns	• Heat stress • Lower rates of average daily gain • Forage/feed toxicity
Livestock management decisions	• Regular veterinary checks • Dietary/nutritional care • Monitor body condition • Shade availability • Antibiotic treatment	• Early weaning • Creep feeding or grazing • Dietary/nutritional care • Shade availability • Vaccination schedule	• Water and shade availability • Managing body condition • Transportation of water or feed • Reduction in stocking rate • Pasture management • Forage quality management • Cull unproductive/sick cattle • Animal mortality management	• Water and shade availability • Feed bunk accessibility • Managing facilities and equipment • Marketing/profit considerations
Decision-making resources	• Long-term drought outlook • El Niño Southern Oscillation (ENSO) forecast	• Short- and long-term drought outlook • ENSO forecast • Local forecast • Soil moisture maps • Extension decision support tools	• Short-term drought outlook • Local forecast • Soil moisture maps • Smart irrigation app • Tropical weather outlook	• Short-term drought outlook • Local forecast • Tropical weather outlook

Drought monitoring

- Building resiliency on your land requires knowledge of current and forecasted weather conditions. Knowing the weather and climate data available to you and how to access the data are vital steps in preparing for, mitigating, and recovering from drought. Additionally, personal experience is an important factor because specific knowledge of how your animals and pastures respond to heat stress and dry conditions will affect management decisions. This combination of data and experience will be most beneficial when drought arises.
- On-farm measurements of precipitation, temperature, and soil moisture, combined with experience, are the best ways to monitor drought for short-term, site-specific decisions.
- In addition to on-farm monitoring, the U.S. Drought Monitor (NDMC, USDC, USDA 2025) and the Drought.gov U.S. Drought Portal (USDC 2025b) are good places to find current drought information, outlooks, related data, and maps at the State, county, and other geographic scales. These sites include current and historical data and drought impacts by sector (i.e., agriculture, manufacturing, energy).
- To learn more about the U.S. Drought Monitor, USDA programs triggered by the Drought Monitor data, and how the data can inform decision making, see the Farmers.gov Ask the Expert: Understanding the U.S. Drought Monitor; a Q&A with Brian Fuchs (USDA FG 2025a).

- The USDA and partners publish a weekly Weather and Crop Bulletin and U.S. Agriculture in Drought updates that summarize current weather, climate, and agricultural developments across the United States. To view these and other weather- and crop-related updates, see the USDA Publications website (USDA 2025).
- NWS Drought Information Statements provide updated regional reports on active droughts. To view these reports, see the NOAA NIDIS National Weather Service Drought Information Statements website (USDC 2025c).
- Receive drought news, forecasts, invitations to timely webinars covering climate outlooks and impacts, and alerts through email by visiting the Drought.gov DEWS Regions Drought information website (USDC 2025d) and subscribing to one or more of the mailing lists.
- When drought is forecasted or under way on your farm, refer to your drought plan for actions that you can take to reduce risk and maintain productivity.

Long-term drought outlook

- Look ahead at forecasts and long-term outlooks to better inform management planning. These data will help in making long-term decisions, such as grazing management and assessing water needs.
- Use the following resources to help monitor long-term climate-related outlooks:
  - The Climate Prediction Center (CPC) (USDC 2025e) creates 6–10 day, 8–14 day, 3–4 week, 1-month, and 3-month temperature and precipitation outlooks to assist with long-term planning efforts. While day-to-day conditions may differ, these forecasts predict the conditions for the period of interest.
  - The CPC Drought Information website (USDC 2025f) includes monthly and seasonal drought outlooks. These maps can show where the CPC thinks drought will develop, persist, remain but improve, or be removed.

Short-term drought outlook

- Drought can stress animals differently depending on their age and health. Monitoring weather information and having reliable short-term forecasts can help you stay prepared for adverse weather conditions and make quick decisions when needed. Weather and climate data and water and streamflow monitoring tools can help producers understand the severity of drought impact and when to take action to mitigate damage.
- National Weather Service Forecasts—National Weather Service (USDC 2025g) offices produce 7-day forecasts for their coverage area. Each local forecast includes weather conditions, high and low temperatures, wind speed, and relative humidity. It is updated throughout the day. To access your local forecast, enter your ZIP code into the search box or click on the national map. For a more convenient option, use your mobile phone to access the weather.gov website (USDC 2025g).

- Weather Prediction Center Rainfall Forecasts—Outlooks and forecasts produced by the Weather Prediction Center are conveniently located on the Drought.gov Outlooks and Forecasts website (USDC 2025h). Quantitative precipitation forecasts (QPF) are a daily measure of how much precipitation is predicted to fall over the next week. You will also find cumulative precipitation maps that show the total precipitation expected to fall over a certain number of days. This information is useful for planning various tasks around rainfall events, including sowing, fertilizer or pesticide application, and harvest.
- Tropical Weather Outlook—The National Hurricane Center (NHC) produces an Atlantic 7-day Graphical Tropical Weather Outlook (USDC 2025i). This map describes the percent chance of tropical cyclone formation in the Atlantic Basin during the next 7 days. In the Southeastern United States, hurricanes and tropical storms occur regularly in the summer and fall. These weather systems are often destructive but can also provide much needed rainfall during dry conditions.

Flash drought

- Flash drought refers to the rapid onset or intensification of drought brought on by below-normal rainfall and increased evaporative demand that lead to reduced soil moisture causing decreased forage yield or crop failure.
- Flash droughts develop quicker (days to weeks) compared to conventional droughts (months to years) and are harder to plan for and monitor using traditional approaches. They can also cause major yield losses if they coincide with sensitive stages like flowering or grain fill.
- Unlike conventional droughts, flash droughts can develop during seasons with near-normal total precipitation.
- Producers should closely monitor conditions during drought, especially during critical growth stages, and plan for greater water and irrigation needs.

Cattle considerations

- When drought conditions occur, you will need to prepare for a variety of potential impacts to help you and your livestock adapt.
- Providing access to a good water source is key, but you will also want to consider things like nutrition, heat stress, shade, grazing and forage, and health protocols.
- For State-specific guidance to help manage your beef cattle during drought, see:
  - Alabama Cooperative Extension System, Alabama Beef Handbook (Mullenix et al. 2025)
  - Louisiana State University AgCenter, Louisiana Beef Cattle Producer Guide to Coping with Drought Conditions (Rowntree et al., n.d.), and Preparing Beef Cattle Operations for Drought (Edwards and Ferreira 2024)
  - Mississippi State University Extension Service, Mississippi Beef Cattle Producer Guide to Coping with Drought Conditions (Parish et al., n.d.)

  - University of Arkansas Cooperative Extension Service, Managing Cattle During Drought website (UACES 2025a)
  - University of Georgia Cooperative Extension, Drought Management Strategies for Beef Cattle (Stewart et al. 2017)
  - University of Kentucky Cooperative Extension Service, The Kentucky Beef Book (Anderson et al. 2021).
- Contact your local USDA Service Center (USDA FG 2025b) and connect with NRCS field staff and Farm Service Agency (FSA) specialists to learn about programs that can help you establish conservation plans, mitigate drought, recover from disasters, manage your beef operation more efficiently, and much more.

Animal health and nutrition

- Work with a licensed veterinarian to ensure a proper health program is in place for your herd. Consider developing a "low heat increment diet" for your livestock during the warm summer months. Decreasing dietary fiber content, while still meeting nutrient requirements, may lower the amount of heat produced from digestion.
- Remain current on vaccinations for all livestock. Proper vaccinations help protect cattle from conditions that may worsen during times of stress, such as nutritional and heat stress during a drought.
- Analyze forage samples to develop an animal nutritional program in each production stage. Work with a nutritionist or Extension specialist to create a ration or dietary plan based on forage quality and availability. This plan may need to be altered depending on drought duration and severity.
- Investigate additional feedstock options now so that information will be available to you later if needed.
- Maintain an adequate body condition score on all cattle. The goal is to keep cattle at a score of 5 to 6 throughout the year. Maintaining body condition is easier from a management and cost-effectiveness standpoint than trying to increase weight, particularly during a drought.
- To learn more about body condition scores in beef cattle, see:
  - USDA NRCS, Body Conditioning Scoring (BCS) Resources website (USDA NRCS 2025a)
  - Alabama Cooperative Extension System, Beef Cattle Performance Record Keeping website (Elmore 2019)
  - Clemson University Cooperative Extension Service, Body Condition Scoring in Beef Cattle, is it Important? (Burns 2019)
  - Louisiana State University AgCenter, Body Condition Scoring System (BCS) for Beef Cattle (Holmes and Walker 2015)

- Mississippi State University Extension Service, Body Condition Scoring Beef Cattle (Parish 2024)
- North Carolina Cooperative Extension, Keeping it Simple: Body Condition Scoring website (Phipps 2021)
- University of Arkansas Cooperative Extension Service, Feeding Beef Cows Based on Body Condition Scores (Gadberry, n.d.)
- University of Florida Institute of Food and Agricultural Sciences (IFAS) Extension, Beef Cattle Body Condition Score website (UF 2022)
- University of Georgia Cooperative Extension, Body Condition Scoring Beef Cows (Rossi and Wilson 2014)
- Virginia Cooperative Extension, Body Condition Scoring Beef Cows (Eversole et al. 2009).

Heat stress

- Beef cattle are most comfortable between 41 and 77 °F and heat stress occurs when their heat load surpasses their ability to reduce it. Heat stress is influenced by temperature and other environmental conditions such as solar radiation, wind, and especially relative humidity.
- Heat index and temperature-relative humidity index charts, weather hazard guides, and other resources are available that divide heat stress into hazard potentials (alert, danger, emergency). These resources can be used to predict heat stress and make short- and long-term management decisions during drought.
- To learn more about mitigating heat stress in your beef cattle, including using weather hazard guides and temperature humidity charts, see:
  - Clemson University, Handling the heat–how to keep your animals cool in the heat of the summer (CU 2025)
  - Louisiana State University AgCenter, Impacts of Heat Stress in Cattle (Navarre 2020) and Preparing Beef Cattle Operations for Drought (Edwards and Ferreira 2025).
  - North Carolina Cooperative Extension, Heat Stress in Beef Cattle (Gonzalez and Draughon 2023) and North Carolina State Climate Office, Cattle Comfort Index website (NCSCO 2026b)
  - University of Florida IFAS Extension, Understanding Cattle Heat Stress (Kirby 2024) and Herds on Hotter Ground: Climate-Smart Cattle Tactics (Bosques 2025)
  - University of Kentucky College of Agriculture, Food and Environment, Preparing for Summer–Fighting Heat Stress with Shade! (UK 2025a)
  - University of Tennessee, UT Beef and Forage Center, Cattle Nutrition: Beat the Heat (Martin 2022).

Nutrient requirements

- Beef cattle in the Southeastern United States often rely primarily on grazed forage to meet nutritional demands. However, prolonged drought often results in decreased quantity and quality of forage, so producers may need to provide supplemental feedstuffs to meet nutritional demands.
- A variety of feedstuffs may be found throughout the region. A nutritionist or Extension specialist can serve as a valuable resource for determining what cattle need to be fed based on the quality and availability of forage and other feedstuffs.
- For additional resources on the nutrient requirements of beef cattle see:
  - Alabama Cooperative Extension System, Nutrient Requirements of Beef Cattle (Mullenix and Rankins Jr. 2023)
  - Louisiana State University AgCenter, Nutrition and Feeding Management website (LSUAC 2025a)
  - Mississippi State University Extension Service, Beef Cattle Nutrient Requirements (Parish 2023)
  - Oklahoma State University Extension, Cowculator (OSU 2026)
  - University of Arkansas Cooperative Extension Service, Beef Cattle Nutrition and Feeding website (UACES 2025b)
  - University of Florida IFAS Extension, Basic Nutrient Requirements of Beef Cows (Hersom 2024)
  - University of Tennessee Institute of Agriculture, Beef Cattle Nutrition (UTIA 2025a).
- Crops and forages can become stressed during drought, potentially increasing the likelihood of toxicity issues in cattle. Likewise, cattle grazing in pastures with low forage quantity or quality are more likely to consume poisonous plants. Work with your local Extension agent to test stored forages and feeds, discuss potential toxicity concerns, and scout pastures for poisonous plants.
- To learn more about potential issues when feeding cattle during drought, see the University of Georgia Extension Drought-Related Cattle Feeding Problems (Knight 2016).

Water requirements

- Determine the water requirements of your beef cattle operation throughout the year. Cattle's daily water requirements depend on age, size, body condition, stage of production, and the average daily air temperature. For example:
  - 400-pound growing cattle require 6 gallons of water per day at 70 °F and 10 gallons per day at 90 °F.
  - Mature bulls require at least 13 gallons of water per day at 70 °F and 22 gallons per day at 90 °F.

- Although some water can be obtained through feed, this is less likely and unreliable during drought conditions.
- Cattle are less likely to consume water that is warmer than 80 °F. Therefore, water troughs should be placed in shaded areas whenever possible.
- To view additional resources for determining water requirements, quality, and accessibility, see:
  - Alabama Cooperative Extension System, Water Requirements of Beef Cattle website (Brantley and Mullenix 2024)
  - Mississippi State University Extension Service, Beef Cattle Water Requirements and Source Management website (Parish 2025)
  - University of Arkansas Cooperative Extension Service, Water for Beef Cattle website (Gadberry 2016)
  - University of Georgia Extension, Water Requirements and Quality Issues for Cattle website (Rossi and Pence 2017)
  - University of Tennessee Extension, Water Quality for Beef Cattle website (Mason and Martin 2022).

Shade requirements

- Adequate shade is crucial during the summer months, particularly during a drought. Shade may be provided in various forms: natural, permanent, and portable.
  - Natural shade is primarily provided by trees. Consider the age and health of trees. Prolonged congregation of livestock in shaded areas may damage or kill trees.
  - Permanent shade structures, such as sheds, barns, or structures with a shade cloth cover, may be constructed. The direction of the sunlight should be considered when constructing structures so that they provide shade during the hottest parts of the day. Structures should be 10 to 14 feet tall for beef cattle.
  - Portable shade structures may be moved as needed to provide adequate shade for cattle. Moving these structures frequently can prevent manure buildup and loss of forage. Most portable shade structures are constructed from pipe frames and shade cloth. Structures should be 10 to 14 feet tall for beef cattle.
- The amount of shade needed per animal varies with animal size.
  - A 400-pound calf requires 15 to 20 square feet.
  - An 800-pound feeder calf requires 20 to 25 square feet.
  - Mature beef cattle require 30 to 40 square feet each.

- For more resources regarding shade requirements, see:
  - Beef Quality Assurance, Mitigating Weather Related Stress in Beef Cattle website (Herman 2021)
  - Louisiana State University Agricultural Center, Impacts of Heat Stress in Cattle website (Navarre 2020)
  - University of Kentucky Cooperative Extension Service, Shade Options for Grazing Cattle (Higgins et al. 2024).

Animal identification

- Unique and permanent individual identification is an essential best management practice for beef cattle. Identification is particularly important during natural disasters. Animal identification and documentation may also assist in protection against theft.
- Herds can be registered with State animal health officials through an animal identification number (AIN) or a premise identification number (PIN). These allow for more efficient identification and relocation of animals during natural disasters. To view State-specific guidelines for obtaining a PIN, see the USDA Animal and Plant Health Inspection Service (APHIS) How to Obtain a Premises Identification Number or Location Identifier–State Specific Information website (APHIS 2026a).
- For more information regarding cattle identification, see the APHIS NVAP Reference Guide: Cattle Identification website (APHIS 2026b).

Animal mortality disposal

- Death rates may increase due to heat stress during drought. Producers should familiarize themselves with regulations regarding animal disposal as they may vary based on State and local environmental laws.
- The most common disposal methods for dead farm animals are burial, incineration, composting, or rendering. For on-farm disposal of carcasses, consider the potential risks such as scavengers, increased insects and odors, disease spread, ground water contamination, and neighbor complaints.
- Producers should consider the option of having a dedicated disposal facility. A disposal facility provides a safe place to handle animal carcasses and reduces many potential risks.
- See the following description of common disposal options. Additional information can be found in the NRCS Animal Mortality Disposal factsheet (USDA NRCS 2022).
  - **Burial** is the most common method of disposal. When burying animals on your land, consider the depth of the water table and other nearby sources of water that could be contaminated.

  - **Composting** is a good option but requires more time. Contact your local Extension agent to learn about the proper mix of materials to start your compost pile. When disposing of animal carcasses in this way, your compost must reach a specific temperature to kill pathogens.
  - Installing an **incinerator** is more expensive, but it is clean, reduces the risk of odors, and eliminates the potential for ground water contamination.
  - **Rendering** can be a good option for dead animal disposal if a rendering facility is nearby. Consider how carcasses will be transported to the facility and stored prior to transportation.
- States may require livestock operations to have an approved emergency disposal plan in place before disposing of animal carcasses following catastrophic events.
- If your State does not require an emergency disposal plan, you should develop your own plan so that you will be better prepared if carcass disposal is required.
- Disposal plans should include a comprehensive list of contacts who can address your questions and concerns.
- More information for individual States may be found at:
  - USDA APHIS, Carcass Management website (USDA APHIS 2026c)
  - Alabama Department of Agriculture and Industries, Agriculture Emergency Programs website (ADAI 2025a)
  - Arkansas Department of Agriculture, Animal Health Division website (ADA 2025a)
  - Florida, State Agricultural Response Team website (FLSART 2025)
  - Georgia Department of Agriculture, Animals website (GDA 2025)
  - Kentucky Energy and Environment Cabinet, Dead Animal Disposal BMP (KEEC 2025a)
  - Louisiana, Department of Agriculture and Forestry website (LDAF 2025a)
  - Mississippi, Board of Animal Health website (MBAH 2025)
  - North Carolina Department of Agriculture and Consumer Services, Veterinary Division website (NCDACS 2025a)
  - South Carolina Department of Health and Environmental Control, Guidance for Addressing Burial of Dead Animals (SCDHEC 2020)
  - Tennessee Department of Agriculture, Mortalities Management website (TDA 2025a)
  - Virginia, Department of Environmental Quality website (VDEQ 2025) and Department of Agriculture and Consumer Services website (VDACS 2025).

Pasture and grazing management

- Drought is typically associated with summer and early fall months, although it can occur at any time throughout the year and vary in duration. Work with your local Extension agent or forage specialist to determine forage varieties best suited to your location.
- To learn more about managing pastures during drought, see the USDA Southeast Climate Hub Forage: A Producers Guide to Drought Preparation, Management, and Recovery in the Southeastern United States (Baxter 2026)
- Develop an inventory of forage and weed species in areas where your herd grazes and take periodic soil samples to monitor soil fertility levels in all grazing areas.
- Develop a comprehensive pasture management plan to help you maximize water resources, forage production, and soil health. The NRCS and your local Extension agent can assist with developing, adjusting, and implementing this plan.
- For more information about developing a pasture management plan, see:
  - NRCS, Livestock and Pasture Management website (USDA NRCS 2025b)
  - Sustainable Agriculture Research and Education Program, Concepts and Research-Based Guidelines for Forage-Livestock Systems in the Southeast Region (Silva et al. 2022)
  - Alabama Cooperative Extension System, Pasture and Grazing Management Guide (Griffin et al. 2021)
  - Clemson University Cooperative Extension Service, Forages website (CUCES 2025a)
  - Louisiana State University AgCenter, Forage Management Calendar for Louisiana (Twidwell et al. 2025)
  - Mississippi State University Extension Service, Pasture Management and Grazing Guide for Livestock Producers (Lemus 2020)
  - North Carolina Cooperative Extension, Forages website (NCCE 2025a) and Forages and Forage Utilization for Pasture-Based Livestock Systems (Castillo 2024a)
  - University of Arkansas Cooperative Extension Service, Arkansas Pasture and Forages website (UACES 2025c)
  - University of Florida IFAS Extension, Forage Management (Florida Forage Handbook) website (UF 2025a)
  - University of Georgia College of Agricultural and Environmental Sciences, Forages website (UGCAES 2025)
  - University of Kentucky Cooperative Extension Service, Forage Extension Program website (UK 2025b)

- University of Tennessee Institute of Agriculture, UT Beef and Forage Center website (UTIA 2025b) and Strategic Resource Management for Forage-Livestock Systems in Drought (Pedreira et al. 2024)
- Virginia Cooperative Extension, Resources for Pasture and Forage – Animal Agriculture website (VCE 2025a).

Forage considerations

- Depending on when drought occurs, there could be considerable impact on your forage and feed supply. Drought in cooler months may impact winter forages such as rye, wheat, triticale, and alfalfa used for hay or haylage. Drought during the warmer months is likely to impact corn or sorghum grown for silage, and soybeans.
- Some molds (*Fusarium* spp.) and fungi (*Aspergillus* spp.) and common smut (*Ustilago maydis*) are more prominent during drought conditions. Corn rust may also occur under these conditions. Routinely monitor for insect damage and disease to ensure no issues, such as mycotoxins or aflatoxins, are present.
- Warm season grasses and legumes used for pasture are likely to grow slower during drought conditions. Pay attention to plant height and regrowth and allow larger areas for grazing if available. Consider supplementing with grain or other commodities to meet any nutrient deficits.
- For corn grown for silage, consider potential drought conditions when choosing varieties and growing degree days required. Faster growing varieties may be a better option to avoid a single corn crop grown during the height of the drought.
- Sorghum, particularly brown-mid-rib varieties, can be an alternative to corn during times of drought. Sorghum is more heat tolerant and requires less water. However, the nutrients it yields are traditionally lower than corn silage, so consult with your nutritionist before including it in the ration.

Rotational grazing

- Develop a rotational grazing plan that maximizes livestock production and forage and soil health throughout the year.
- Develop a plan to decrease grazing pressure on forages during drought. Reduced grazing may necessitate decreasing stocking rates or increasing the amount of feed or stored forage provided to cattle.
- To learn how the NRCS can help you manage your grazing land, see the NRCS Grazing Management and Soil Health (USDA NRCS 2017).

Forage inspection and testing

- During droughts, some grass species such as pearl millet (*Pennisetum glaucum*) and sorghum-sudangrass (*Sorghum bicolor* ssp. *drummondii*) can accumulate high levels of nitrates. Some broadleaf weed species such as pigweed (*Amaranthus* spp.) and ragweed (*Ambrosia*

artemisiifolia) can also accumulate nitrates. If these species are present in grazing areas, they should be tested for nitrate content by a laboratory.

- Inspect pastures frequently for the presence of debris, overgrazing, and growth of toxic plants.
- To learn more about testing forage and grass species in your State, see:
  - Alabama Agricultural Experiment Station at Auburn University, Soil, Forage and Water Testing Laboratory website (AAES 2025)
  - Clemson University Regulatory Services, Agricultural Services Laboratory website (CURS 2025)
  - Kentucky Department of Agriculture, Forage Marketing Program website (KDA 2025)
  - Louisiana State University AgCenter, Forage Quality Lab website (LSUAC 2025b)
  - Mississippi State University Extension Service, Forages website (MSUES 2025a)
  - North Carolina Department of Agriculture and Consumer Services, Farmer Forage Testing website (NCDACS 2025b)
  - University of Arkansas Cooperative Extension Service, Arkansas Pasture and Forages website (UACES 2025c)
  - University of Florida IFAS Extension, Forage Extension Laboratory website (UF 2025b)
  - University of Georgia Extension, Forages website (UGCAES 2025)
  - University of Tennessee Institute of Agriculture, Forage Analysis website (UTIA 2025c)
  - Virginia Cooperative Extension, Diagnostic and Laboratory Services website (VCE 2025b).

Infrastructure

It is good management practice to routinely inspect farm and pasture premises to identify potential problems, such as compromised fences, downed trees, and other hazards. Give extra consideration to water gaps or other low-water crossings that may provide an exit for cattle searching for water or forage during dry conditions.

Buildings, facilities, and equipment

- For buildings with the potential to be used for shade, review shade requirements and recommendations prior to construction.
- For buildings used for storage of feed and hay, take into account the type of feedstuff(s) to be housed there and how feedstuff(s) will be unloaded and loaded for feeding.
- Inspect all facilities and buildings for structural soundness and needed repairs. Perform maintenance on facilities and equipment as needed. Consider any potential fire hazards and mitigate them.

- Examine all equipment and infrastructure needed for feeding livestock. Ensure feed bunks and water troughs are in the necessary pastures or pens. Review the bunk space and water requirements for the livestock housed in those areas.
- Make a plan for transporting water to livestock in case this need arises.

Feed and hay storage and handling

- In addition to proper storage facilities for feed and hay commodities, consider the equipment needed to transport and distribute feedstuffs around your pastures and barns and develop a plan for acquiring additional equipment. Droughts often force producers to feed cattle more than they normally would, occasionally resulting in the need for equipment not already owned.
- The need for feed troughs may increase during drought conditions. Producers should ensure adequate trough space is available for each animal. On average, a mature cow requires 24 inches of space, while growing calves require 16 to 18 inches, and feedlot cattle require 18 to 24 inches.

Trees and windbreaks

- In some areas, tree lines and windbreaks can reduce wind, which could help avoid sandblasting or rapid drying of surface moisture. However, windbreaks have little impact when severe and prolonged drought occurs.
- Windbreaks can be very effective in reducing crop water use and water evaporation from the soil surface. They may be the only method to protect soil from wind erosion when little crop residue is available due to drought. New and modern designs of windbreaks (e.g., twin row–high intensity) can be more effective and require less land.
- See the USDA National Agroforestry Center Windbreaks website (USDA NAC 2025a) for more information about how windbreaks can protect crops and provide economic, environmental, and community benefits.
- For more information on the design and planting of windbreaks, visit the NRCS Windbreaks website (USDA NRCS 2025c), and contact your local NRCS office or Extension agent.

Silvopasture

- Silvopasture (intentional combined management of forage, trees, and livestock in a beneficial way) has the potential to provide several environmental and ecological benefits, including buffering against long-term drought or excessive rain and providing shade. Silvopasture also offers an opportunity to enhance food production and improve food system durability, particularly in densely populated urban and peri-urban areas.
- Trees in silvopasture systems offer shade while reducing thermal stress on the cattle during hot weather, which is critical during drought periods.

- Plant a more diverse selection of forages and grasses in your silvopasture system to help reduce the cost of supplemental food and provide alternative food sources during drought conditions.
- Including a wide array of animals, especially ruminants, in a silvopasture system can help break up manure pads and integrate them into the soil faster, improving soil health and water infiltration.
- Increased interest in urban agriculture offers opportunities for small-scale silvopasture to address environmental stressors faced by urban farmers. As small livestock are integrated into an urban agriculture setting, a silvopasture system will support and improve sustainable agriculture management.
- For more information about integrating silvopasture into your beef operation, see:
  - USDA Forest Service, National Agroforestry Center website (USDA NAC 2025b), and Silvopasture: An Agroforestry Practice (MacFarland et al. 2025)
  - Alabama Cooperative Extension System, Silvopasture: An Opportunity for Additional Income from your forest land (Barlow 2019)
  - Mississippi State University Extension Service, Silvopasture: Grazing Systems Can Add Value to Trees (Lemus 2023)
  - North Carolina Cooperative Extension, Enhancing Animal Welfare and Productivity Through Silvopasture Management (Poudel and Castillo 2024) and Silvopastures in North Carolina, What Have We Learned? (Castillo 2024b)
  - University of Florida IFAS Extension, Establishment of Silvopasture in Existing Pastures (Nowak et al. 2019)
  - Virginia Cooperative Extension, Silvopasture website (VCE 2025c).

Water management

- Responsible and efficient water management on your farm will help reduce overall water use and costs associated with irrigation.
- Each State offers unique resources, such as State regulations and best management practices, to help you with your water management needs. For more information, see:
  - NRCS, Water website (USDA NRCS 2025d)
  - Alabama Cooperative Extension System, Water Resources website (ACES 2025)
  - Arkansas Department of Agriculture, Water Management website (ADA 2025b)
  - Clemson University Cooperative Extension Service, Water Resources website (CUCES 2025b) and Water Withdrawal Regulations Every Agricultural User in South Carolina Should Know (Barnette et al. 2020)

- Kentucky Energy and Environment Cabinet, Best Management Practices website (KEEC 2025b)
- Louisiana State University AgCenter, Best Management Practices website (LSUAC 2025c)
- Mississippi State University Extension Service, Water website (MSUES 2025b)
- North Carolina Cooperative Extension, Water Resources website (NCCE 2025b)
- Tennessee Department of Agriculture, Land and Water Stewardship Section website (TDA 2025b)
- University of Florida IFAS Extension, Water Resources website (UF 2025c)
- University of Georgia Cooperative Extension, Water and Drought website (UGCE 2025a)
- Virginia Cooperative Extension, Water, Irrigation, and Drainage website (VCE 2025d).

Water for cattle consumption

- Regularly visit surface water sources, such as ponds and streams, in each pasture or pen to inspect water levels and access points.
- It is common for ponds or streams to dry up or begin to accumulate large amounts of sedimentation during drought. If drought conditions persist, consider moving cattle to locations containing water troughs or install water troughs in pastures.
- Water quality is often a concern during drought due to increased sedimentation as water levels decline. Additionally, cattle stand in surface waters to cool off, further increasing the buildup of solids and lowering the water quality. Providing water troughs in shaded areas can reduce the use of surface water for drinking and cooling.

Water management for forages

Total water and soil management for grazing forages and hay production is essential, particularly during drought. Local Extension agents are a valuable resource for water and pasture management practices.

Water quality testing

- Increased sedimentation in surface water sources is common during drought.
- Increased total dissolved solids (TDS), dissolved inorganic salts and organic matter in water, can lower feed intake and subsequently lower cattle's average daily weight gains. Stagnant water may contain higher levels of both nitrates and minerals. Chronic toxicity and death can occur when nitrate levels are elevated or remain elevated over an extended period. Likewise, increased levels of other minerals like sulfates can interfere with normal mineral absorption and consequently lead to mineral deficiencies.

- For more information about water quality testing, see:
  - Alabama Cooperative Extension System, Water Testing in Alabama: Why, Where and When (Carter and Haley 2024)
  - Clemson University Cooperative Extension Service, Collecting Samples for Agricultural Irrigation Water Quality Testing (Park et al. 2020)
  - Florida Department of Agriculture and Consumer Services, Water website (FDACS 2025a)
  - Kentucky Horticulture Council, Kentucky Ag Water Quality Testing website (KHC 2026)
  - Louisiana State University AgCenter, Microbial Water Testing website (Burke and Adhikari 2019)
  - Mississippi State Department of Health, Private Well Water Testing website (MSDH 2025)
  - North Carolina Cooperative Extension, Water Safety and Testing website (NCCE 2024)
  - University of Arkansas Cooperative Extension Service, Arkansas Water Diagnostic Testing website (UACES 2025d)
  - University of Georgia Cooperative Extension, Soil and Water Testing Services website (UGCE 2025b)
  - University of Tennessee Extension, Office Locations, Departments, and Centers website (UTE 2025)
  - Virginia Cooperative Extension, Virginia Household Water Quality Program website (VCE 2025e).

Water metering

- Install or use a water flow meter to help improve irrigation efficiency, maximize yield, and reduce the demand for water supplies.
- To learn more about incorporating flow meters into your management plan, see:
  - Mississippi State University Extension Service, Flow Measurement Series: Flow Meter Calculator (Lo et al. 2023)
  - University of Florida IFAS Extension, Water Measurement for Agricultural Irrigation and Drainage Systems (Boman and Shukla 2019)
  - University of Georgia Cooperative Extension, Water Meters as a Water Management Tool on Georgia Farms (Hawkins and Harrison 2015).

Stormwater capture

- It may be necessary to install ponds or reservoirs to ensure an adequate water supply for large irrigation systems that cannot apply sufficient weekly rates, utilize a water source that depletes rapidly, or where water is too costly to access. Such ponds should be built according

to local permitting requirements and ideally built in nonproductive areas near the irrigation system.

- In some cases, installing a smaller well could be advantageous because these wells are noticeably cheaper, can access shallower aquifers, and, if left running, can refill ponds to full capacity when drought occurs.
- For more information about stormwater capture, see:
  - Clemson University Cooperative Extension Service, Ponds in South Carolina (White et al. 2021)
  - Kentucky Department of Fish and Wildlife Resources, Farm Pond Management-Planning and Construction website (KDFWR 2025)
  - Mississippi State University Extension Service, On-Farm Water Storage Systems and Surface Water for Irrigation (Tagert et al. 2024)
  - North Carolina State University, Stormwater Engineering Group Resources website (NCSU 2025)
  - University of Florida IFAS Extension, Farm Ponds in Florida Irrigation Systems (Clark et al. 2024)
  - Virginia Cooperative Extension, Supplying Water to Livestock using Ponds (Clark and Bennett 2025).

Recordkeeping, documentation, and insurance

- The importance of pre- and post-drought documentation cannot be overstated.
- Thorough records of temperature and rainfall (or lack thereof) and any damage or losses due to drought and extreme heat are essential for insurance compensation and recovery assistance. Maintaining records each year can help illustrate decreased levels of production during drought. For example, weights on all classes of cattle, pregnancy rates, calving percentage, weaning percentage, and average daily gain are strong indicators of performance.
- Review insurance policies for information on which type of weather hazards and animals are covered. General farm business policies may only protect against certain types of claims, while optional livestock coverage may include losses due to natural weather events. Additionally, some policies have limitations on how quickly insurance will take effect based on the date of purchase and will not cover damages if the policy was not in place before the drought occurred. Coverage can be based on a per head, herd basis, or on farm value (blanket policy). With any coverage, proper animal identification and ownership documentation will be necessary.
- Review your policies with your agent at the time of renewal to ensure you have adequate drought insurance for your forages and livestock. Reviewing your policies and options with your agent can help maximize productivity and minimize costs.

- Maintain and consistently update records on your cow herd, including individual animal identification, breed registrations, medical treatments, and vaccination protocols. Operations that do not keep adequate production records are unlikely to receive full compensation for lost production.
- Establish an inventory system so that you know exactly what is on your farm at all times for potential insurance claims and disaster recovery assistance.
- It is critical to have a documented inventory (photos, videos, and written lists and descriptions) of your farm buildings, vehicles, valuable equipment, and livestock on your farm before a disaster occurs.
- Maintain accurate records of harvest, equipment inventories, and supplies purchased. This inventory and documentation will be essential for filing insurance claims after disasters. Keep copies of this inventory in multiple places such as on your computer, offsite in a safe location, and on a cloud-based server using an established procedure to update and transmit the information weekly.
- For more information on livestock and farm insurance, see:
  - USDA Risk Management Agency (RMA), Risk Management Agency website (USDA RMA 2025a)
  - RMA, Agent Locator (USDA RMA 2025b) for approved insurance providers

Drones

- Drone technology provides farmers and landowners with the advantage of an overhead perspective to assess drought damage.
- Consider getting an unmanned aerial vehicle (UAV) (i.e., drone) pilot license and purchasing a UAV. Small UAV quadcopters or hexacopters equipped with visual or RGB cameras are relatively inexpensive ($500 to more than $2,000). In addition, the use of UAVs will help with damage assessment.
- Use overhead imagery to help map and document pasture conditions and other environmental concerns that could impact your cattle.
- For regulations and more information about operating a UAV, see:
  - U.S. Department of Transportation (DOT) Federal Aviation Administration, Unmanned Aircraft Systems website (DOT FAA 2025)
  - Mississippi State University Extension Service, Field Scale Crop Assessment with Drones (MSUES 2025c)
  - Tennessee State University Cooperative Extension, Agricultural Uses for Drones (de Koff and Saini 2020)
  - University of Florida IFAS Extension, Preflight and Flight Instructions on the Use of Unmanned Aerial Vehicles (UAVs) for Agricultural Applications (Kakarla et al. 2019)

- Note that each State has its own legal requirements and regulations in addition to Federal laws

Contributing to the Condition Monitoring Observer Reports system

- Contribute to the Condition Monitoring Observer Reports (CMOR) system (UNL 2025) by reporting drought-related conditions and impacts on your farm.
- CMOR is a free online tool provided by the National Drought Mitigation Center (NDMC) in partnership with NOAA NIDIS and the USDA. It allows producers to submit observation reports on how wet or dry their farm is.
- Many people use CMOR to report drought conditions and impacts, but you are also encouraged to report when conditions are normal or wetter than normal. These reports help inform monitoring entities and are published on a nationwide map where anyone can view the submitted information and attachments.
- CMOR contributors are encouraged to submit frequent (weekly to monthly) reports with photos, even during nondrought conditions. Regular reports help establish a clear baseline of what "normal" conditions look like at a specific location. The baseline makes it easier for drought monitoring entities to identify when conditions deviate from normal and to assess the severity of drought. Photos are especially valuable because they provide visual evidence of localized drought impacts and allow for side-by-side comparisons of wet, dry, and normal conditions over time.

Improving soil health and drought resilience with the NRCS

- The Southeastern United States has seen many droughts. The goal of the NRCS is to support the resilience of agriculture by addressing priority resource concerns with conservation practices. These voluntary practices help producers reduce soil erosion, enhance water supplies, improve water quality, increase wildlife habitat, and reduce damage caused by natural disasters, including drought.
- Options for protecting fields vulnerable to wind erosion include cover crops, surface roughening, residue management, converting to crops that use less water, mulching, or other practices.
- Tools such as efficient watering systems, piping, troughs, and fencing may help you take advantage of available grass and protect areas from overuse.
- Farmers are encouraged to develop an irrigation water management plan with the NRCS conservationists or consultants to optimize water use and reduce irrigation costs.
- Producers interested in applying management actions that help mitigate drought risk across their operations may be eligible for financial support through the following NRCS programs:
  - Environmental Quality Incentives Program (EQIP)—Year-round NRCS rehabilitation program that can provide financial assistance to conserve ground water and surface water, reduce soil erosion, mitigate drought impact (USDA NRCS 2025e)

- Conservation Stewardship Program (CSP)—Year-round NRCS program that provides guidance and financial support to efforts that enhance current conservation plans (USDA NRCS 2025f)
- Regional Conservation Partnership Program (RCP)—A partner-driven program that leverages partner resources to advance innovative projects which address issues such as drought (USDA NRCS 2025g).

- The NRCS continually evaluates and updates drought-resilient mitigation activities to reflect the latest science and any practice modifications that confer measurable benefits.

Steps to improve drought resilience with NRCS assistance

Step 1: Contact your local NRCS office

- NRCS staff and the landowner can develop management plans that best use resources on the land. For a list of NRCS office locations, see the Farmers.gov USDA Service Center Locator website (USDA FG 2025b).

Step 2: Develop a conservation plan

- A conservation plan is a written record of your management decisions, and the conservation practices you plan to use and maintain on your land. The NRCS encourages landowners to work with conservation planners to voluntarily develop a plan that meets the personal and business objectives and specific needs of the landscape, the producer, or the land manager.
- NRCS conservationists can help farmers and ranchers understand the options for their unique water situation, soil type, and production goals. They can also work with you to develop a plan to get through a drought. Through conservation planning, many drought impacts can be reduced with water conservation and soil health practices.
- Talk to your NRCS conservation planner about creating or updating your conservation plan and about any available conservation program cost-share opportunities. Plans are voluntary and can be modified as needed. All information provided to the NRCS for conservation planning purposes is strictly confidential.

Step 3: Financial and technical assistance

- NRCS professionals can help farmers, ranchers, and forest landowners develop options for their unique water situation, soil type, and production goals. Funding is available to help farmers and ranchers pay for many of these practices through the Environmental Quality Incentives Program (EQIP) (USDA NRCS 2025e). Reimbursement rates typically cover about half the cost of the adopted practice. Additionally, funds may be available for erosion control through the Emergency Watershed Protection (EWP) Program (USDA NRCS 2025h).

Improving drought resilience and recovery with the FSA

- The FSA offers programs and services that help farmers grow their operations and recover from disasters.
- Producers are encouraged to register their operation with the FSA and develop a professional relationship with their local FSA office prior to the onset of drought.
- To find local FSA offices and learn about the programs they offer, see the Farmers.gov USDA Service Center website (USDA FG 2025b).

SECTION 2

Adaptive Actions During a Drought

Implementing adaptive measures as drought conditions develop and persist. As prolonged periods of reduced precipitation continue, negative impacts on cattle will begin to occur. Adaptive actions can help mitigate these negative impacts.

Receding water level in a farm pond providing a source of water for livestock during drought. (Courtesy photo by AdobeStock_530108707_by ccestep8)

Personal health and well-being

As you observe and measure the impact of drought on your crops, livestock, and livelihood, you must also consider its impact on your mind and body. The unpredictable nature of weather can cause stress to your physical, mental, and emotional health. If you notice symptoms or have concerns, seeing a doctor or talking to a counselor is encouraged. Thankfully, Federal and State agencies offer confidential counseling services for farmers. For guidance to help you through this stressful time, see:

- USDA National Institute of Food and Agriculture, Farm and Ranch Stress Assistance Network (USDA NIFA 2025)
- Alabama Department of Agriculture and Industries, A Healthy You, A Healthy Farm website (ADAI 2025b)

- Arkansas Department of Agriculture, Farm Stress website (ADA 2025c), and the University of Arkansas Cooperative Extension Service, Farm Stress Management and Resilience Project (UACES 2025e)
- Clemson University Cooperative Extension Service, Farm Stress Management website (CUCES 2025c)
- Florida Department of Agriculture and Consumer Services, Farmer Stress Assistance website (FDACS 2025b)
- Louisiana Department of Agriculture and Forestry, Stay Rooted Louisiana website (LDAF 2025b)
- Mississippi Department of Agriculture and Commerce, Agriculture Safety and Mental Health Coalition website (MDAC 2025)
- North Carolina Agromedicine Institute, NC Farm and Ranch Stress Assistance Network website (NCAI 2025)
- University of Georgia Cooperative Extension, Rural Georgia: Growing Stronger Initiative website (UGCE 2025c)
- University of Kentucky Martin-Gratton College of Agriculture, Food and Environment, Family and Consumer Sciences Extension Areas of Focus website (UK 2025c)
- University of Tennessee Institute of Agriculture, Farm Family Health and Wellness website (UTIA 2025d)
- Virginia Tech, Farm Stress and Wellness Resources website (VT 2025).

Review your drought plan

- Review your drought plan and adjust as appropriate. For more information on developing your plan, see the **Drought Plan** guidance in appendix 1.
- Consult the **Seasonal Decision Tables** in appendix 2 for guidance on key decisions that will help you plan for and mitigate drought impacts.

Continue drought monitoring

- Continue monitoring weather conditions and forecasts.
- Be alert to official drought disaster declarations. See “Disaster assistance” near the end of this section and refer to the **Resource Links** in appendix 5 for resources to relevant Federal and State government offices.
- See “Drought monitoring” in the **Building a Resilient Operation** section for guidance and resources to help determine fertilization, herbicide, irrigation, and harvesting schedules and adapt to drought conditions.

Cattle considerations

When drought conditions occur, be prepared to help your livestock adapt. Providing access to a good water source is key but you will also want to consider things like health and nutrition, heat stress, shade, forage harvest and storage, and burial protocols.

Animal health and nutrition

- Monitor body condition and supplement or cull cattle that remain in lower body condition scores. Culling criteria may need to be more stringent during this time. Unproductive, chronically ill, and thin cattle should be culled to reduce grazing pressure and the amount of supplemental forage or feed needed.
- Consider alternative management strategies such as early weaning or creep feeding calves to reduce the energy demands on cows and help maintain their body condition.
- Watch cattle closely for delayed signs of illness. Drought conditions may lead to increased production of toxic weeds or stressed forages that can impair cattle health or result in sudden death. Maintain a veterinary-client patient relationship and contact your veterinarian if symptoms of illness arise.
- Remember to work cattle during early morning or late evening hours when it is coolest to minimize the effects of heat stress. Limit transportation to these hours as well. Always use low-stress cattle handling techniques when gathering, working, and transporting cattle.
- Consistently monitor forage and feed quality and quantity. Work with your local Extension agent to test stored forage and feed for potential toxicity concerns and scout pastures for poisonous plants.
- Work with your veterinarian to determine pregnancy status and the herd's overall health. Environmental (heat) and nutritional stress can compromise pregnancies and cause internal problems that may not be immediately evident.
- For more information about cattle health and nutrient requirements, see "Cattle considerations" in the **Building a Resilient Operation** section.

Assess water requirements

- Reassess your water needs to ensure you will have adequate water throughout the drought.
- Ensure water troughs are in the necessary pastures or pens. Review water requirements for the livestock housed in those areas.
- Consider the possibility that water will need to be transported to livestock. Surface water, such as ponds and streams, often serve as primary water sources in some pastures. However, these commonly dry up or begin to accumulate large amounts of sedimentation during droughts.
- When you are in a drought, cattle may need to be moved to locations containing water troughs, or water troughs may need to be installed in pastures.

- Remember that water quality is often a concern during drought due to increased sedimentation as water levels decline. Water quality should be tested when increased sedimentation or toxicity is a concern.
- For more information about water requirements, see "Cattle considerations" in the **Building a Resilient Operation** section.

Shade requirements

- Adequate shade is crucial during the summer months, particularly during a drought.
- Regularly observe the amount of shade provided in each pasture or pen. Be watchful of all shade sources, natural or artificial, for any needed maintenance or repairs. Ensure adequate shade will be provided for the animals housed in that location.
- For guidance on shade requirements, see "Water and shade sources" in the **Building a Resilient Operation** section.

Animal identification

- Ensure that all cattle have a unique and permanent individual identification.
- For more information about animal identification, see "Animal identification" in the **Building a Resilient Operation** section.

Market considerations

- Continue to research marketing avenues for cattle to increase potential prices at selling. Discuss marketing opportunities and options with your local Extension agent to determine your optimum market(s).
- Be proactive by selling market-ready cattle (e.g., weaned steers and open cows) during early drought stages. Evaluate marketing options outside of the drought-affected area if possible. In some cases, more favorable cattle prices can offset the extra freight costs.
- Options for maintaining body condition in mature cows and adding growth to calves during drought may include creep feeding, creep grazing, or early weaning.

Animal mortality disposal

- Review your emergency disposal plan and ensure all information is up to date before beginning animal disposal following catastrophic events.
- For more information about disposal protocols, see "Animal mortality disposal" in the **Building a Resilient Operation** section.

Pasture and grazing management

- Follow through with implementing your pasture management plan. During extended periods of drought, adjust the plan as needed to maximize water resources, forage production, and soil health.

- Consider the need to reduce stocking rate to preserve pasture health and sustainability.
- Review your contingency plan for decreasing grazing pressure on forages during drought. Implement the plan if necessary.
- For more information, see "Pasture and grazing management" in the **Building a Resilient Operation** section.

Saltwater intrusion considerations

- Farms near the Atlantic and Gulf Coasts or upstream from saline water bodies (such as the Lower Mississippi River Basin) are susceptible to saltwater intrusion during severe drought due to saltier water moving into aquifers and up waterways (e.g., rivers and drainage ditches).
- Saltwater intrusion can negatively impact forage growth and yield and usually requires flushing of soil with freshwater from rainfall or irrigation to restore field productivity.
- Contact your local Extension office if you suspect your forage has been damaged by saltwater.
- To learn more about saltwater intrusion and how it may impact your crop, see the USDA Southeast Climate Hub Saltwater Intrusion and Salinization on Coastal Forests and Farms website (USDA FS 2021).

Infrastructure

Buildings, facilities, and equipment

- Continue a regular schedule of inspections for all buildings and equipment. Ensure that repairs or necessary maintenance is completed as soon as possible. Be especially mindful of any potential fire hazards and mitigate them.
- To help manage heat stress, ensure that air flow is not restricted in barns and buildings. Hay bales and other stored supplies can create unintended windbreak.
- Regularly examine your livestock feeding equipment, water troughs, and floats. Double-check that feed bunks and water troughs are placed in shaded, accessible areas in each pasture or pen.
- As drought conditions develop and persist, you must decide when to begin transporting water to your livestock.
- See "Buildings, facilities, and equipment" in the **Building a Resilient Operation** section for guidance on necessary infrastructure for cattle.

Feed and hay storage and handling

- Monitor feed and hay for mold or other contaminants.
- Assess equipment needs for transporting and feeding cattle and confirm that additional resources are available if needed. Droughts often force producers to feed cattle more than normal due to declining forage options.

- Assess how much trough space your animals need. As drought conditions persist, your need for feed troughs may increase.
- For guidance on feed and hay storage and handling, see "Infrastructure" in the **Building a Resilient Operation** section.

Water management

- During dry conditions, frequently inspect water sources in each pasture or pen. If a location has only a natural water source, plan to provide additional water to that location or discuss where to move livestock if the natural water source is insufficient or diminishes.
- See "Water for cattle consumption" in the **Building a Resilient Operation** section for more information.

Stormwater capture

- During the summer months, monitor retention pond levels and water usage. If possible, run wells to help replenish ponds.
- See "Stormwater capture" in the **Building a Resilient Operation** section for guidance and resources to help you plan effective methods to utilize rainfall and runoff.

Recordkeeping, documentation, and insurance

- It is important to record observations concerning drought throughout the season to help document impacts and make adjustments for the following season. Records of conditions such as temperature and rainfall (or lack thereof), as well as any damage or losses due to drought and extreme heat, are essential for insurance compensation and recovery assistance purposes.
- Review insurance policies for information on which type of weather hazards and animals are covered. Remember that proper animal identification and documentation of ownership will be necessary with any coverage.
- Review and update your inventory system for potential insurance claims and disaster recovery assistance. It is critical to have a documented inventory (photos, videos, and written lists and descriptions) of your farm buildings, vehicles, valuable equipment, and livestock on your farm before a disaster occurs. Maintain accurate records of harvest, equipment inventories, and supplies purchased. Keep copies of this inventory in multiple places such as on your computer, offsite in a safe location, and on a cloud-based server using an established procedure to update and transmit the information weekly.
- Contact your insurance agent as soon as a problem is noticed to begin the insurance claim process (Federal or private, or both). This can facilitate filing claims during significant drought events. Accurate levels of loss may not be fully documented yet, but start the paperwork immediately because insurance claims can take months to resolve following drought.

Drone usage

- If you own and have a license to operate a UAV (i.e., drone), utilize it now to take aerial photographs of the damage to your fields. Some local Extension offices may have access to drones and personnel with a drone pilot license to assist you.
- See "Drones" in the **Building a Resilient Operation** section for guidance on the best way to utilize drone technology.

Contributing to the CMOR system

- Continue reporting your conditions in the CMOR system.
- See "Contributing to the Condition Monitoring Observer Reports system" in the **Building a Resilient Operation** section for guidance and resources to help you report your drought condition.

Disaster assistance

- The availability of many disaster assistance programs is based on the intensity and impact of drought as designated by the U.S. Drought Monitor (NDMC, USDC, USDA 2025). Drought monitor maps are released each Thursday at 8:30 a.m. eastern time.
- Communicate early and often with your emergency assistance contacts. Note that assistance will vary from one drought to the next and one budget year to the next.
- Call your local FSA office to report any losses or damages, and inquire about available assistance programs, application procedures, and deadlines. To find local FSA offices, see the Farmers.gov USDA Service Center website (USDA FG 2025b).
- To learn more about USDA Disaster Assistance Programs that may help you during a drought, see:
  - Noninsured Crop Disaster Assistance Program (NAP)—FSA program that provides assistance for eligible farmers who suffer losses or are prevented from planting agricultural commodities that are not eligible for protection by Federal crop insurance (USDA FSA 2025a)
  - Emergency Conservation Program (ECP)—FSA program with technical assistance through NRCS that helps eligible farmers and ranchers repair damage to farmlands caused by natural disasters and implement emergency water conservation measures in periods of severe drought (USDA FSA 2025b)
  - Emergency Assistance for Livestock, Honey Bees, and Farm-raised Fish (ELAP)—FSA program that provides payments to qualifying producers to help compensate for losses (USDA FSA 2025c)

- Livestock Forage Disaster Program (LFP)—FSA program that offers financial support to livestock producers who experience grazing losses due to qualifying drought conditions or fire on Federally managed rangelands (USDA FSA 2025d)
- Livestock Indemnity Program (LIP)—FSA program that does not provide financial assistance for losses from drought but may provide financial assistance during times of extreme heat (USDA FSA 2025e).

Long-term drought

- A drought that persists and exceeds one season is a serious issue. In many cases, little can be done until sufficient rainfall resumes, which will likely require many rain events over a long time to recharge ponds, reservoirs, and ground water.
- Be aware that diseases and insect pests typically associated with mid- to late-season drought conditions may become problematic earlier in the growing season, so monitor your fields early and respond appropriately.
- Depending on the severity and length of the drought, growers may choose not to treat insect populations if the reduced yield of the forage crop will not pay for the application.
- Consistently monitor cattle for signs of heat stress, including rapid respiration rates and declining body condition.
- Consider culling cattle or increasing supplemental feed as forage availability declines to reduce grazing pressure on forages.
- Long-term drought conditions may result in water restrictions in some regions. Although agricultural water applications are often prioritized over other uses, in severe droughts even those may be restricted.

SECTION 3

Drought Recovery (Post-Drought)

Once a disaster designation is declared or drought conditions are no longer negatively impacting your crop (the drought is over), take the following actions to begin the recovery process

A farmer views a prescribed grazing map developed with the USDA Natural Resources Conservation Service as part of their approved conservation plan. (USDA photo)

Personal health and well-being

Complete or partial loss of livestock or a crop to drought is stressful. It is crucial to take care of yourself and maintain your physical, mental, and emotional well-being. See "Personal health and well-being" in the **Adaptive Actions During a Drought** section for Federal and State resources to help you through this stressful time.

Communications

- Consistent communication with your veterinarian and local Extension agent offers outside professional input into management strategies.
    - Contact your Extension agent to review management protocols and production data from the drought period.
    - Use their input to adjust management practices and other protocols for future drought.

- Early and constant communication (including post-drought) with your insurance agent and adjuster, local FSA Office (USDA FG 2025b), and RMA agent (USDA RMA 2025b) can help increase the efficiency of processing insurance and disaster assistance claims.
- See the **Resource Links** in appendix 5 to find local Extension offices and other State and Federal resources which you may consult for further guidance.

Water management

- After a dry summer, retention ponds must recharge during the winter and spring. Ponds that cannot fully recharge will have limited usefulness during the growing season.
- If possible, run wells to help replenish ponds.

Recordkeeping, documentation, and insurance

Recordkeeping

- Keep notes throughout the recovery period for future use and considerations regarding any alteration to management practices. Describe the work you did and record all expenses. This includes keeping a log of contacts regarding conversations with insurance, State, and Federal agency personnel to create a record of your recovery efforts that can be used later as documentation for disaster assistance programs.
- It is recommended to have a second person involved in the conversations so that one person can ask questions and the other can take notes. This will provide a second viewpoint of the discussion and reduce inaccuracies.

Documenting damage

Photo and video documentation

- The phrase that a “picture is worth a thousand words” holds especially true when documenting drought losses.
- Take photos or videos of damages before beginning any grazing of pastures or marketing of livestock. This can be done with cellular devices, handheld cameras, or drones.
- Photograph and take a video of damaged pastures and hay fields with written notes describing what is in the pictures and where they were taken. Having a time stamp will be helpful. This “after” documentation will be used with your pre-drought “before” documentation to clearly show your losses.

Drone usage

- Continue to utilize a drone to take aerial photographs of the damage to your pastures and fields. Some local Extension offices may have access to drones and personnel with a drone pilot license to assist you.
- See “Drones” in the **Building a Resilient Operation** section for guidance on using drone technology.

Estimating losses

- Continue to record body condition scores and weights on cattle whenever possible to illustrate yield losses.
- Document yield losses of grazing pastures and hay fields. Document all losses with photos, receipts, data, and rainfall records.
- Estimate and assign monetary value to losses when possible to better illustrate financial loss. Be diligent in keeping detailed records each year, regardless of drought conditions. Records from nonstressed years can be compared to current yields to estimate loss due to drought.

Insurance claims process

- Continue the insurance claims process (Federal or private, or both) with your agent.
- Some policies do NOT allow harvesting to be conducted when making a claim. Ensure you know all procedures and rules and contact your agent when you first observe a problem.

Contributing to the CMOR system

- Continue reporting your conditions in the CMOR system even though the drought has ended.
- See "Contributing to the Condition Monitoring Observer Reports system" in the **Building a Resilient Operation** section for guidance and resources to help you report your drought condition.

Disaster assistance

- The availability of many disaster assistance programs is based on the intensity and impact of drought as designated by the U.S. Drought Monitor (NDMC, USDC, USDA 2025). Drought monitor maps are released each Thursday at 8:30 a.m. eastern time. Some disaster assistance programs will become available after the disaster, perhaps even years later, and an operation can receive assistance only for documented damage. The work must be documented, and producers must receive pre-authorization from their local USDA office.
- Communicate early and often with recovery assistance contacts. Check in with them throughout the recovery process. Note that assistance will vary from one drought to the next and one budget year to the next.
- Call your local FSA office to report any losses or damage and inquire about available assistance programs, application procedures, and deadlines. To find local FSA offices, see the Farmers.gov USDA Service Center website (USDA FG 2025b).
- Check in with your local Extension office, USDA agencies, and State Department of Agriculture to see what assistance may be available following the drought.

- Consult the following resources:
  - Federal Emergency Management Agency (FEMA), Disaster Recovery Center Locator (USDHS FEMA 2025a) and Individual Assistance website (USDHS FEMA 2025b) to find the closest recovery center and other resources to assist you during your recovery
  - USDA, Disaster Resource Center website (USDA DRC 2025) for updates on emergency designation areas and available assistance programs
  - Farmers.gov, Protection and Recovery website, including the five-step Disaster Assistance Discovery Tool to learn which USDA disaster assistance programs are available to assist you with your recovery (USDA FG 2025c)
  - U.S. Department of Labor, Disaster Unemployment Assistance Program website (USDL ETA 2025).
- To learn more about USDA Disaster Assistance Programs that may be right for you, see:
  - Emergency Farm Loans—FSA program that provides eligible farmers and ranchers low-interest loans to help them recover from production and physical losses (USDA FSA 2025f)
  - Disaster Set-Aside Program—FSA program that allows eligible FSA borrowers to skip an annual installment payment and move it to the end of the loan repayment period (USDA FSA 2025g)
  - Emergency Assistance for Livestock, Honey Bees, and Farm-raised Fish—FSA program that provides payments to qualifying producers to help compensate for losses (USDA FSA 2025c)
  - Livestock Forage Disaster Program—FSA program that offers financial support to livestock producers who experience grazing losses due to qualifying drought conditions or fire on Federally managed rangelands (USDA FSA 2025d)
  - Livestock Indemnity Program—FSA program that does not provide financial assistance for losses from drought but may provide financial assistance during times of extreme heat (USDA FSA 2025e)
  - Noninsured Crop Disaster Assistance Program—FSA program that provides assistance for eligible farmers who suffer losses or are prevented from planting agricultural commodities that are not eligible for protection by Federal crop insurance (USDA FSA 2025a)
  - Emergency Conservation Program—FSA program with technical assistance through NRCS that helps eligible farmers and ranchers repair damage to farmlands caused by natural disasters, including severe drought (USDA FSA 2025b).

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APPENDIX 1

Drought Plan

Drought preparedness is essential for improving operational efficiency, profitability, and sustainability. A critical step in drought preparedness is developing a drought plan. A Drought Plan, customized for your location, should outline available resources, key responsibilities, and tasks for each person, and decision-making tools based on drought severity and duration. Although drought is often thought of as a slow progression, during high temperatures the effects of drought may be seen within a few days to a week (i.e., flash drought). Having a plan to help prioritize and guide you through management decisions can improve efficiency and enhance sustainability.

The following template should be tailored to your operation. Work with your local Extension agent or NRCS office (or both) to develop this into a useful working document. Some overlap will be seen with tasks listed in the **Building a Resilient Operation** section. This plan should guide you through tasks and decisions as drought conditions begin and worsen. Additional information may also be found in the **Initial Site Planning** guidance in appendix 4.

Basic information

Your drought plan should include basic information about your operation: name, date, location, contact information, livestock herd size, and the total number of grazable acres. Attach aerial photos of your property and include information about each management area (e.g., buildings, grazing areas divided by fencing, and water sources).

Pre-drought operation and inventory

Your drought plan should contain the following information:

Tracking weather conditions

Routinely observe and record onsite or nearby measurements of temperature and precipitation (or lack thereof). Use these measurements to monitor drought and make livestock management decisions. Your drought plan should include a list of nearby weather data sources. Refer to the **Resource Links** in appendix 5 for reliable sources of data in your State.

Consider becoming a Community Collaborative Rain, Hail & Snow Network (CoCoRaHS) precipitation observer. Through CoCoRaHS, you can monitor and report precipitation on your farm and help improve precipitation data quality and forecasting.

Water sources

Consider including the following in your drought plan:

- A list of your water sources. Mark these sources on a map or aerial photos. Consider your access to streams and surface water sources, well water, or water supplied by a municipality.
- The size and locations of water troughs or estimated amount of natural water available.

- An estimate of the daily or weekly amount of water your animals require.

Animal nutrition management

Consider including the following in your drought plan:

- Forage species available or planted each season
- Weed species present in pastures
- Stored feed inventory (e.g., hay, silage, and grain)

Equipment and field labor

Include an outline of available and needed equipment and people and where equipment will be moved or sourced. As a starting point, consider items required to provide water to animals, feed troughs, hay rings, shade structures, imaging equipment (drones and cameras), and a laptop or notebook for recordkeeping. Additionally, consider any vehicles or tractors needed for transporting livestock, water, feed, or hay. Additional people may also need to perform temporary tasks such as helping with transportation, operating farm equipment, and scouting grazing areas for poisonous weeds.

Key contacts

Complete the **Contacts List** in appendix 3 by adding the names and phone numbers of emergency personnel, insurance agents, contractors, suppliers, and Federal, State, and local agencies. Keep a copy of this list with your drought plan so that your important information is together in one place and readily available.

Important considerations during the drought

Your drought plan should address the following concerns as drought develops and worsens:

Water considerations

- Will you transport water to livestock or livestock to water?
- How much water is needed daily to maintain the health of your livestock?
- What is the condition of surface water sources on your land?
- What will you do if pond or stream levels get too low?
- If you use a municipal water supply, are there regulations that govern its use?

Grazing area considerations

- What strategy will you use to reduce grazing pressure in your pastures (e.g., limit the number of animals grazing, limit the time of grazing, supplement with additional forage or feed)?
- How will you monitor pastures for the presence of toxic weeds (e.g., perilla mint [*Perilla frutescens*] and Johnsongrass [*Sorghum halepense*])?

- What steps will you take to help your pastures recover once drought conditions have ended?

Animal health considerations

- Will you adjust how you monitor livestock health during a drought?
- Do you plan to work closely with your veterinarian to monitor the herd's overall health? Both environmental (heat) and nutritional stress can compromise pregnancies and cause internal problems that may not be immediately evident.
- How will you determine if additional feed or hay will need to be purchased to meet nutrient demands?
- Will you adjust culling criteria for cattle that have lower body condition scores?
- Do you have a plan to test stored forage and feed for potential toxicity concerns?

Drought impacts

- Bookmark and view the weekly U.S. Drought Monitor to remain current on drought conditions and designations in and around your county.
- Document culled cattle. Record body condition scores and weights for remaining cattle to illustrate yield losses.
- Document yield losses of grazing pastures and hay fields.
- Document all losses with photos, receipts, data, and rainfall records.
- Estimate and assign monetary value to losses when possible to illustrate financial loss.

Insurance and disaster assistance help

- Begin the insurance claims process (Federal or private, or both). Contact your agent to facilitate filing claims.
- Stay in touch with Federal and State agencies to learn about disaster assistance that may be available to you.

Other drought plan considerations

- Reevaluate all procedures and protocols utilized before, during, and after the drought. Note what did and did not work; then adjust plans as needed for future use.
- Review production data and alter any production goals or culling criteria to help select for more adaptable and resilient cattle that maintain production standards during drought.
- Examine and update all inventory lists (e.g., livestock, equipment, and supplies) and develop a list of anything that should be purchased or sold in preparation for future droughts.
- What lessons from previous droughts can you incorporate into your drought plan?

Drought Plan Template

Basic information

Name_____ Date_____

Location _____ Contact info _____

Livestock herd size _____ Grazable acres _____

Operations and inventory

List weather data sources

List nearby water sources and amount required by livestock

List the type, quantity, and quality of planted and stored forages

List equipment and labor needs

List contact information for key personnel, suppliers, and agencies

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Animal concerns and drought response

Water considerations

Grazing area considerations

Animal health considerations

Drought impacts

Insurance and disaster assistance help

APPENDIX 2

Decision Tables

Decisions and Drought Considerations During Pregnancy, Calving, and Weaning

Decision topic	Drought impacts on decision considerations	Decision information needs	Tools/Data/Resources to help growers make the decision
Animal health	Heat stress and nutritional stress can compromise pregnancies and impact herd health. Work with a veterinarian to schedule health checks and determine pregnancy status. A veterinarian can also help you keep track of your animals' needed vaccinations. Cows that are properly vaccinated are better protected from the stresses associated with drought.	Current drought status and short-term forecasts may help you prepare for periods of heat stress. Consult seasonal climate outlooks to help determine when cattle may be most vulnerable to drought stress.	• U.S. Drought Portal (Drought.gov) Local Drought Information • U.S. Drought Monitor Current Drought Conditions • Climate Prediction Center Outlooks • National Weather Service Local Forecasts • Weather Prediction Center QPF
Early weaning and creep feeding	Consider alternative management strategies for calves, such as early weaning, creep feeding, or creep grazing. During drought, these strategies may help reduce the energy demands on cows and maintain their body condition.	Monitor forecasts, drought outlooks, and soil moisture to help you prepare for a reduction in available forage and an increased need for supplemental feedstuff.	• U.S. Drought Portal (Drought.gov) Local Drought Information • U.S. Drought Monitor Current Drought Conditions • Climate Prediction Center Outlooks • National Weather Service Local Forecasts • Drought.gov Soil Moisture Maps • Weather Prediction Center QPF
Water	The daily amount of water needed by each animal varies by age, size, body condition, stage of production, and average daily temperature. If possible, place water troughs in shaded areas because cattle are less likely to drink water that is warmer than 80 °F.	Monitor temperature and precipitation forecasts and drought outlooks to help determine your animals' daily water needs. Monitor and record streamflow levels on your property to better track potential changes in water availability and inform drought planning.	• U.S. Drought Portal (Drought.gov) Local Drought Information • U.S. Drought Monitor Current Drought Conditions • Climate Prediction Center Outlooks • National Weather Service Local Forecasts • Weather Prediction Center QPF • U.S. Geological Survey (USGS) National Water Dashboard
Shade availability	Providing adequate shade is vital in helping cattle have relief during the hottest part of the day. If natural shade sources are limited, consider installing permanent or portable shade structures. The amount of shade needed varies with animal size. For example, a 400-pound calf requires 15–20 square feet of shade.	Monitor short-term temperature and cloud cover forecasts. Watch seasonal climate outlooks to help plan and be ready with artificial shade sources where needed.	• U.S. Drought Monitor Current Drought Conditions • Climate Prediction Center Outlooks • National Weather Service Local Forecasts

Decisions and Drought Considerations for Grazing and Grain-Finished Cattle

Decision topic	Drought impacts on decision considerations	Decision information needs	Tools/Data/Resources to help growers make the decision
Water and shade availability	The daily amount of water needed by each animal varies by age, size, body condition, stage of production, and average daily temperature. If possible, place water troughs in shaded areas because cattle are less likely to drink water that is warmer than 80 °F. If natural shade sources are limited, consider installing permanent or portable shade structures. The amount of shade needed varies with animal size.	Consult temperature, precipitation, and cloud cover forecasts. Monitor seasonal climate and drought outlooks to help stay prepared with supplemental water and shade resources if necessary.	• U.S. Drought Monitor Current Drought Conditions • Climate Prediction Center Outlooks • National Weather Service Local Forecasts • Weather Prediction Center QPF
Feed and forage	Beef cattle primarily rely on grazed forage for their nutritional demands. Extended drought may impact forage quality and availability. Consult with a veterinarian, nutritionist, or Extension agent to develop a nutritional plan for cows in each production stage. Analyze stored forage and feed for potential toxicity concerns.	Monitor forecasts, drought outlooks, and soil moisture to help prepare for a reduction in available forage and an increased need for supplemental feedstuff.	• U.S. Drought Monitor Current Drought Conditions • U.S. Drought Portal (Drought.gov) Local Drought Information • Climate Prediction Center Outlooks • National Weather Service Local Forecasts • Weather Prediction Center QPF • Drought.gov Soil Moisture Maps
Body condition management	The goal is to maintain healthy body condition scores during drought. Monitor the herd's nutritional needs closely and consult with a veterinarian if necessary. For cattle with a lower body condition score, decide if supplemental feeding or culling is a better option.	Seasonal climate and drought outlooks are useful for planning and determining when cattle may be most vulnerable to drought stress. Monitoring forecasts and soil moisture will help prepare for a reduction in available forage and an increased need for supplemental feedstuff.	• U.S. Drought Monitor Current Drought Conditions • Climate Prediction Center Outlooks • National Weather Service Local Forecasts • Weather Prediction Center QPF • Drought.gov Soil Moisture Maps
Grazing and pasture management	Develop a rotational grazing plan based on the forage varieties best suited to your location. Prepare a contingency plan ready to be implemented during periods of drought. If drought persists, you may consider reducing stocking rate to preserve pasture health and sustainability.	Monitor forecasts, drought outlooks, and soil moisture to help prepare for a reduction in available forage and an increased need for supplemental feedstuff.	• U.S. Drought Monitor Current Drought Conditions • Climate Prediction Center Outlooks • Drought.gov Soil Moisture Maps • National Weather Service Local Forecasts
Mortality management	Increased mortality during heat stress and drought should be expected. Producers should be familiar with animal disposal regulations in their State. Before disposing of animal carcasses following a catastrophic event, determine if an approved emergency disposal plan should be in place.	Pay attention to heat advisories and daily temperature forecasts. Monitor seasonal climate and drought outlooks to help stay prepared with supplemental water and shade resources if necessary.	• U.S. Drought Monitor Current Drought Conditions • Climate Prediction Center Outlooks • National Weather Service Local Forecasts
Facilities and equipment	Inspect buildings and equipment and perform maintenance and repairs as needed. Ensure that air flow is not restricted in buildings. Address potential fire hazards. Verify that feed bunks and water troughs are appropriately located. Ensure that equipment needed to transport water or feed is well maintained.	Monitor forecasts and seasonal climate and drought outlooks to help stay prepared with supplemental water, feed, and shade resources if necessary.	• U.S. Drought Monitor Current Drought Conditions • Climate Prediction Center Outlooks • National Weather Service Local Forecasts
Market considerations	Consult with your local Extension office about the best market options for your cattle. Producers should consider how drought or other extreme weather events may impact the beef market.	Consider current drought conditions as well as long-range climate and drought outlooks for planning and deciding when market conditions are optimum.	• U.S. Drought Monitor Current Drought Conditions • U.S. Drought Portal (Drought.gov) Local Drought Information • Climate Prediction Center Outlooks

APPENDIX 3

Contacts List

You may customize this for your operation. Delete items that do not pertain to your commodity or location and add companies or organizations specific to your commodity.

Individuals

Name(s)	Role(s)	Phone number(s)	Notes
	Owner(s)		
	Members of the Drought Response team		
	Other key employees or managers		

Emergency Services

Organization	Name(s)	Phone number(s)	Notes
Emergency Management agency			
Emergency medical responders			
Fire Department			
Hospitals			
Law Enforcement			
Veterinarian			

Insurance Companies

Organization	Name(s)	Phone number(s)	Notes
Commodity insurance companies			

Contractors and Suppliers

Organization	Name(s)	Phone number(s)	Notes
Electrical contractor			
Equipment dealer			
Equipment rental company (lifts, generators, etc.)			
Fuel supplier			
Generator servicing			
Mechanic			
Plumbing contractor			

Federal, State, and County Organizations

Organization	Name(s)	Phone number(s)	Notes
County Emergency Management Agency			
County Health Department			
Local Extension Office			
State Department of Agriculture			
USDA Farm Service Agency (FSA)			
USDA Natural Resources Conservation Service (NRCS)			
U.S. Department of Homeland Security Federal Emergency Management Agency (FEMA)			

APPENDIX 4

Initial Site Planning

Considerations when deciding on a new location to establish or purchase farmland

Drought Risk

Droughts are inevitable in the Southeastern United States. Although drought severity and duration are difficult to predict, beef cattle producers can still develop management plans specific to individual locations. If you are thinking of purchasing or leasing additional pastureland, there are some site characteristics to consider that will help you be better prepared to adapt to drought conditions in the future.

Site Characteristics

Water and shade sources

- Choose land with adequate surface water or groundwater sources. Having access to a pond or stream could be invaluable during drought conditions. Consider the number of cattle and their physiological stage to estimate how many animals these water sources could support.
- Consider limitations on the use of both ground water and surface water supplies. Some areas require permitting.
- Consider the quality of surface water and groundwater sources. Be aware of potential issues with water sources (e.g., salinity, hardness, and pH).
- Choose land with adequate shade sources. Estimate the number of cattle that could be supported by this amount of shade.

Grazing areas

- Choose land with an adequate number of grazable acres. Consider how the grazing areas are divided by fencing.
- Consider forage species that are already available at this location.
- Estimate how many animals may be stocked at this location when grazing is ideal.
- Are feed troughs, hay rings, and other supplemental feed equipment present?
- Evaluate the water sources and consider if drought will affect water quantity and quality.

Roads and utilities

- Ensure your site has reliable access to the electrical grid and water supply.
- Choose a site with good roads that will accommodate the movement of livestock, water, feed, and hay.

Other factors

- If you plan to establish a site for animal burial, consider whether the land falls within city limits or a zoning area that may be subject to regulations.
- Consider the history of the land and how it was previously used. If you are concerned about any areas of potential contamination, an environmental site assessment may be necessary.
- If possible, try to learn whether the property lies in the path of any plans for road construction or building projects that could impact your operation.

APPENDIX 5

Resource Links

Extension, State, and Federal websites

Alabama

Extension websites*	Purpose
Beef	Resources to help beef cattle producers improve management and productivity
Extension Office Locator	Contact information for Extension agents in your county

*Alabama Cooperative Extension System

State websites	Purpose
Alabama Governor's Office	News and information from the Governor, including evacuation orders and emergency declarations
Alabama Department of Agriculture and Industries	Main source for answers to your agriculture-related questions
Alabama Office of the State Climatologist	Primary source of weather and climate information in the State
Auburn University Water Resources Center and Alabama Agricultural Experiment Station Alabama Drought Reach	Provides drought communication and agricultural impact monitoring in the State; includes weekly drought summaries

Arkansas

Extension websites*	Purpose
Beef Cattle	Resources to help beef cattle producers improve management and productivity
Extension Office Locator	Contact information for Extension agents in your county

*University of Arkansas Cooperative Extension Service

State websites	Purpose
Arkansas Governor's Office	News and information from the Governor, including evacuation orders and emergency declarations
Arkansas Department of Agriculture (ADA)	Main source for answers to your agriculture-related questions
ADA Cattle	Main source for answers to your cattle related questions

Florida

Extension websites*	Purpose
Cattle	Guidance to help cattle producers improve management and productivity
Beef	Resources to help beef producers improve management and productivity
Extension Office Locator	Contact information for Extension agents in your county

*University of Florida IFAS Extension

State websites	Purpose
Florida Governor's Office	News and information from the Governor, including evacuation orders and emergency declarations
Florida Department of Agriculture and Consumer Services (FDACS)	Main source for answers to your agriculture-related questions
FDACS Division of Animal Industry	Main source for answers to your animal industry-related questions
Florida Climate Center	Primary source of weather and climate information in the State

Georgia

Extension* and university websites	Purpose
Beef*	Resources to help beef cattle producers improve management and productivity
Extension Office Locator*	Contact information for Extension agents in your county
University of Georgia Weather Network	Reports on current weather conditions from an automated network of stations, as well as historical data and applications

*University of Georgia Cooperative Extension

State websites	Purpose
Georgia Governor's Office	News and information from the Governor, including evacuation orders and emergency declarations
Georgia Department of Agriculture (GDA)	Main source for answers to your agriculture-related questions
GDA Animal Industry Division	Main source for answers to your animal industry-related questions
Georgia Office of the State Climatologist	Primary source of weather and climate information in the State

Kentucky

Extension and university websites	Purpose
Beef Extension*	Resources to help beef cattle producers improve management and productivity
Extension Office Locator**	Contact information for Extension agents in your county
Drought Resources**	Information and resources meant to assist in dealing with drought

*University of Kentucky, Department of Animal and Food Sciences
**University of Kentucky Cooperative Extension Service

State websites	Purpose
Kentucky Governor's Office	News and information from the Governor, including evacuation orders and emergency declarations
Kentucky Department of Agriculture (KDA)	Main source for answers to your agriculture-related questions
KDA Livestock	Main source for answers to your livestock-related questions
Kentucky Climate Center	Primary source of weather and climate information in the State

Louisiana

Extension websites*	Purpose
Beef Cattle	Resources to help farmers improve beef cattle management and productivity
Animal Health	Information and resources for managing beef cattle health
Extension Office Locator	Contact information for Extension agents in your parish
Louisiana State University AgCenter Louisiana Agriclimatic Information System	A network of automated weather stations that collect and share climatic data relevant to agricultural production in the State

*Louisiana State University AgCenter

State websites	Purpose
Louisiana Governor's Office	News and information from the Governor, including evacuation orders and emergency declarations
Louisiana Department of Agriculture and Forestry (LDAF)	Main source for answers to your agriculture-related questions
LDAF Livestock	Main source for answers to your livestock-related questions
Louisiana Office of State Climatology	Primary source of weather and climate information in the State

Mississippi

Extension websites*	Purpose
Beef	Resources to help beef cattle producers improve management and productivity
Animal Health	Information and resources for managing animal health
Extension Office Locator	Contact information for Extension agents in your county

*Mississippi State University Extension Service

State websites	Purpose
Mississippi Governor's Office	News and information from the Governor, including evacuation orders and emergency declarations
Mississippi Department of Agriculture and Commerce	Main source for answers to your agriculture-related questions
Mississippi Office of the State Climatologist	Primary source of weather and climate information in the State

North Carolina

Extension websites*	Purpose
Beef	Resources to help beef cattle producers improve management and productivity
Extension Office Locator	Contact information for Extension agents in your county

*North Carolina Cooperative Extension

State websites	Purpose
North Carolina Governor's Office	News and information from the Governor, including evacuation orders, safety orders, and emergency declarations
North Carolina Department of Agriculture and Consumer Services	Main source for answers to your agriculture-related questions
North Carolina State Climate Office	Primary source of weather and climate information in the State
North Carolina Drought Management Advisory Council	Includes weekly infographic updates

South Carolina

Extension and university websites	Purpose
Cattle Production*	Resources to help beef cattle producers improve management and productivity
Beef Cattle Information**	Resources to help beef cattle producers improve management and productivity
Extension Office Locator*	Contact information for Extension agents in your county

*Clemson University Cooperative Extension Service
**Clemson University Livestock Poultry Health

State websites	Purpose
South Carolina Governor's Office	News and information from the Governor, including evacuation orders and emergency declarations
South Carolina Department of Agriculture	Main source for answers to your agriculture-related questions
South Carolina State Climatology Office	Primary source of weather and climate information in the State
South Carolina Drought.com	Current drought status and State-level information and resources to assist in dealing with drought

Tennessee

Extension and university websites	Purpose
Beef and Forage Center*	Resources to help beef cattle producers improve management and productivity
Extension Office Locator**	Contact information for Extension agents in your county

*University of Tennessee Institute of Agriculture
**University of Tennessee Extension

State websites	Purpose
Tennessee Governor's Office	News and information from the Governor, including evacuation orders and emergency declarations
Tennessee Department of Agriculture (TDA)	Main source for answers to your agriculture-related questions
TDA Beef	Main source for answers to your beef-related questions
Tennessee Climate Office	A primary source of weather and climate information in the State; it also produces Weekly Drought Summaries

Virginia

Extension and university websites	Purpose
Beef Cattle*	Resources to help beef cattle producers improve management and productivity
Extension Office Locator*	Contact information for Extension agents in your county
Beef Cattle Extension**	Resources to help beef cattle producers improve management and productivity

*Virginia Cooperative Extension
**Virginia Tech Department of Animal and Poultry Sciences

State websites	Purpose
Virginia Governor's Office	News and information from the Governor, including evacuation orders and emergency declarations
Virginia Department of Agriculture and Consumer Services (VDACS)	Main source for answers to your agriculture-related questions
VDACS Animals	Main source for answers to your beef cattle-related questions
Virginia Department of Environmental Quality Drought	Important site that monitors hydrologic conditions in the State and issues drought guidance and declarations

State (FSA and NRCS)

State FSA websites	Purpose
USDA FSA Alabama	Focus on State FSA resources, including financial and technical information sharing
USDA FSA Arkansas	
USDA FSA Florida	
USDA FSA Georgia	
USDA FSA Kentucky	
USDA FSA Louisiana	
USDA FSA Mississippi	
USDA FSA North Carolina	
USDA FSA South Carolina	
USDA FSA Tennessee	
USDA FSA Virginia	

State NRCS websites	Purpose
USDA NRCS Alabama	Focus on State NRCS resources, including financial and technical information sharing
USDA NRCS Arkansas	
USDA NRCS Florida	
USDA NRCS Georgia	
USDA NRCS Kentucky	
USDA NRCS Louisiana	
USDA NRCS Mississippi	
USDA NRCS North Carolina	
USDA NRCS South Carolina	
USDA NRCS Tennessee	
USDA NRCS Virginia	

Federal

Federal websites	Purpose
Regional Climate Centers: Midwestern (KY), Southeastern (AL, FL, GA, NC, SC, VA), Southern (AR, LA, MS, TN, TX)	The regional climate centers house climate maps, drought maps, precipitation summaries, and other climate monitoring information
U.S. Department of Agriculture (USDA)	News and announcements related to agricultural commodities and disaster recovery programs
USDA Agricultural Research Service U.S. Meat Animal Research Center (USMARC)	Provides information and research on safe and efficient methods of production
USDA Disaster Resource Center	Resources to help you build long-term resilience to and recover from droughts and other disasters
USDA Farm Service Agency (FSA)	Assistance with securing loans, receiving payments, and applying for disaster relief programs
USDA Natural Resources Conservation Service (NRCS)	Financial and technical assistance for farmers, ranchers, and forest landowners
USDA Office Locator	Contact information for USDA offices in your county, including FSA, NRCS, Rural Development, and Conservation Districts
USDA Publications	Publications that summarize current weather, climate, and agricultural developments across the United States
USDA Risk Management Agency (RMA)	Assistance with Federal crop insurance and management risk
USDA RMA Agent Locator	Contact information for local RMA offices in your county
U.S. Department of Commerce National Oceanic and Atmospheric Administration (NOAA)	Resources to view historical, current, and predicted drought activity and warnings in your area
NOAA Climate.gov ENSO Blog	Contains detailed scientific information like sea surface temperature anomalies, expert discussions, and diagnostic tools
NOAA National Integrated Drought Information System (NIDIS) Drought.gov	A multi-agency resource that coordinates drought monitoring, forecasting, planning, and information at national, Tribal, State, and local levels
NOAA NIDIS Drought.gov Evaporative Stress Index (ESI)	A good tool for assessing surface soil moisture and crop stress conditions; it is also useful for capturing early signals of flash drought
NOAA NIDIS Drought.gov Mississippi River Basin Drought & Water Dashboard	Timely information on past, present, and future drought conditions in the Mississippi River Basin
NOAA NIDIS Drought.gov Southeast Drought Early Warning System (DEWS)	An interagency effort to improve drought early warning capacity and build long-term drought resilience throughout the region
NOAA High Plains Regional Climate Center Applied Climate Information System Climate Maps	Maps showing a variety of past conditions, including precipitation, temperature, and departures from the long-term average
NOAA National Weather Service (NWS)	Current conditions, hourly forecasts, and daily forecasts for your area
NWS Drought Information Statements	Provides up-to-date reports on recent weather and hydrologic conditions, drought impacts, and drought outlooks
NWS Climate Prediction Center Drought Information	Provides monitoring tools and outlooks based on timeframe and location

APPENDIX 5: Resource Links

Federal websites	Purpose
NWS National Hurricane Center (NHC) Atlantic 7-day Graphical Tropical Weather Outlook	Describes the percent chance of tropical cyclone formation in the Atlantic Basin during the next 7 days
NWS Weather.gov National Forecast Maps	Hourly and daily forecast maps of weather-related variables, including precipitation, temperature, and cloud cover.
U.S. Department of Homeland Security (DHS) Federal Emergency Management Agency (FEMA)	News and information to help you prepare for and recover from droughts and other disasters
U.S. DHS, Ready.gov Drought	Resources to help individuals prepare for and recover from droughts
U.S. Department of the Interior Geological Survey (USGS) National Water Dashboard	Real-time water and streamflow data collected at USGS observation stations throughout the United States, with additional data layers that include recent and forecasted precipitation, temperature, and drought
U.S. Drought Monitor (USDM)	Shows drought location and intensity across the United States and its territories; the map is released every Thursday

Edwards, A.K.; Twidwell, E.K. 2026: Beef: a producers guide to drought preparation, management, and recovery in the Southeastern United States. (Gavazzi, Michael; McNulty, Steven; Britton, Stephen, eds.). Gen. Tech. Rep. SRS-288. Asheville, NC: U.S. Department of Agriculture Forest Service, Southern Research Station. 63 p. https://doi.org/10.2737/SRS-GTR-288.

Drought is a natural part of the Southeastern United States climate and a threat to agricultural productivity and profitability. Whether slow developing or rapid onset, droughts can have negative effects on agricultural crops and livestock, depending on timing, severity, and length. Droughts are expected to become increasingly common in the Southeast due to increasing temperatures, longer dry periods between rain events, and growing water demand across the region. To help producers remain resilient and productive in the face of this threat, the U.S. Department of Agriculture (USDA) Southeast Climate Hub co-produced this guide to help beef producers prepare for, manage, and recover from droughts.

KEYWORDS: farm planning, resilient agriculture, disaster recovery, adaptation, farm, crop, weather.

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