

Weather to Make Your Production Decisions



■ Production Management

Whether you manage a few acres or a few hundred acres on your hobby farm, cow/calf operation or estate property, the weather plays a pivotal role in your daily workflow and can have a direct impact on your success.

From decisions as small as what to wear to large-scale choices like whether to provide animals with extra bedding or feed, most of your daily moves are affected by weather in some way. It pays to know as much as you can about weather patterns and forecasts in your area, and knowing what tools are available to you will make life easier for you, your plants and your animals.

Climate is what people want, but weather is what we get

Sure, it would be fantastic to have guaranteed weather forecasts (there's a billion-dollar invention waiting to happen!), but we'll likely never see 100 percent accuracy because there are too many complex weather variables we don't completely understand. Many of the variables we *do* understand can change without warning.

Stop and think for a second: how often does the weather report say temperatures today will be "average"? No, it's always too cold, too wet, too hot or too dry. Extreme weather conditions impact the conditions not only above ground, but below as well.



Use your kitchen meat thermometer to measure topsoil temperature before planting.

Measure that topsoil temp

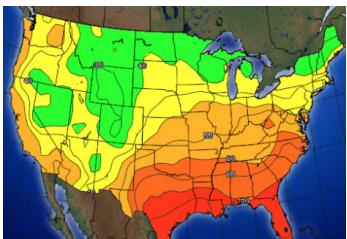
Optimum soil temperatures are a vital part of the plant germination process and serve as a lifeline to the plant through full maturity. The temperature measured in the first four inches below ground level is called the *topsoil temperature*. This is the critical temperature to know before planting, and measuring topsoil temperature is not as complicated as you might think. In fact, you might have what you need in the kitchen right now in the form of a simple meat or candy thermometer.

Here's how to use your handy kitchen option.

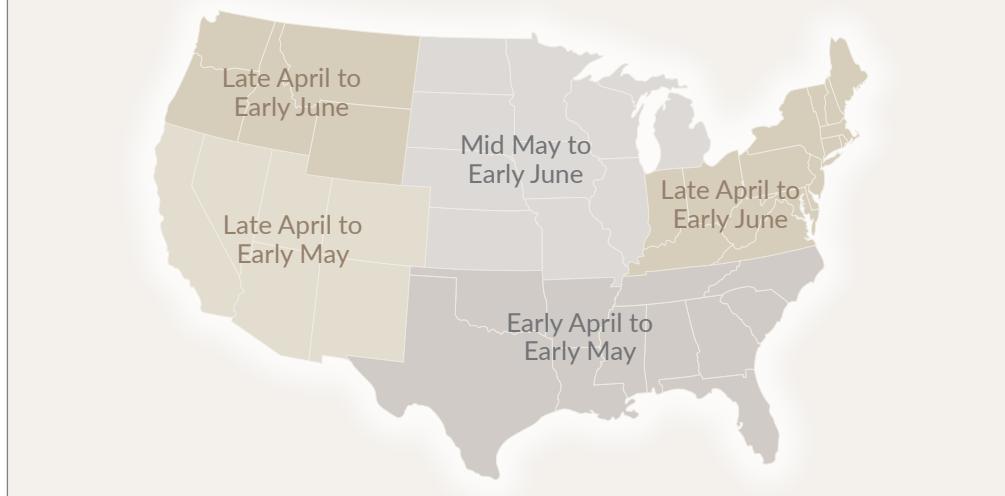


Push the thermometer into the ground so that at least four inches of the probe is below ground. Keep it in the ground for at least five minutes and then read the temperature gauge. If the soil is below 45°F, it's too cold for planting. Most forage seeds require the topsoil temperature to be 45°F or higher to germinate. Turf grass and row crops need the topsoil temperature in the 50 to 55°F range. For the southern U.S., four-inch soil temperatures typically reach an average of 50°F or higher in February or March. For example, Oklahoma has an average four-inch soil temperature of 50°F by early March. By mid-April, soil temperatures typically reach the low 60s. Around mid-May, upper 70s to low 80s.

[Click here for a map of current soil temperatures in the U.S.](#)



Average 4" Soil Temperature Reaches 65°F



State climatology offices, agriculture research centers, USDA field offices and county extension offices continually measure and record local soil temperatures throughout the growing season.



Optimal herbicide application temperature
55-60°F

The art of weed warfare starts underground

Keeping a property free of weeds can be a never-ending job for small-scale farmers and big-time forage growers alike. And just like forage, turf and food-plot crops, invasive weeds need optimum soil temperature ranges to germinate and thrive. Crabgrass, one of the earliest weeds to sprout, starts to grow when the four-inch soil temperature reaches 53°F or higher for two consecutive days. You can put the brakes on this invasive weed and others by timing herbicide treatments with the warming of the soil.

An even better plan is to start before the plants ever break the surface. **Applying pre-emergent herbicide before your soil temperature hits 55 to 60°F** puts you in the driver's seat when it comes to weed control. However, once topsoil temperatures reach 60 to 70°F, weeds such as goosegrass accelerate their growth and become much more difficult to kill. Spraying when the topsoil reaches the "sweet spot" of at least 60°F but less than 65°F reduces herbicide breakdown and dissipation, and makes your treatment most effective. Check the product label or reach out to your agronomist for specific advice on when to spray.

Wind and wet dictate when to spray

The moisture from a heavy overnight dew provides plants with additional moisture, allowing them to increase metabolism and growth rate. Good news for a crop. However, the not-so-good news is that frequent dew on plants—or lengthy exposure to any sort of moisture—can open the door to crop diseases.

Many hobby farmers and cattlemen prefer to spray herbicides and pesticides in the morning, when the wind is light. Morning dew makes this decision even smarter, because studies have found that wet plant leaves have a high herbicide absorption rate. Simply put, this means that herbicide stays on wet plants longer, leaving more time for weed killer to be absorbed.

On days when temperatures are high and the humidity is low, the leaves of crops short on moisture can start to curl as the plant conserves moisture. During these times, the plant also resists absorption of herbicides or pesticides.

Deciding when it is the right time to apply chemicals is not a perfect science. Because winds are at their lowest an hour or two after sunrise and a few hours before sunset, those are the best times to spray. Lighter winds minimize the drift from herbicides, pesticides and fertilizer. During a 2014 study, weed specialists from the University of Georgia, Louisiana State University, Mississippi State University, North Carolina State University and the University of Tennessee found that applying weed killer on a cotton crop at **5 a.m. had a 16 percent success rate**, while the same application done at **11 a.m. had a 56 percent success rate**.

Spraying time success rates



