

Earlier Irrigation Can Push Growth, Stave Off Drought Stress

LITTLE ROCK, ARK.

Earlier irrigation can help push maturity in late-planted cotton, said Tom Barber, extension cotton agronomist for the University of Arkansas Division of Agriculture.

Barber said accurately timed management decisions are crucial in a year where the window of opportunity was narrowed by this spring's flooding, which also stressed the crop, causing shallow rooting. In some fields, taproots may have been permanently damaged from cool soil temperatures and seeding diseases. In those fields, irrigation will be critical.

"With weeks of 90-plus degree weather and little rain in the forecast, irrigation comes to the top of that list of critical management decisions," he said. "Remember, we are trying to speed this crop up to maturity and remove stresses that will lead to further delays."

Cotton growth stages are described in part by "nodes," the places where leaves begin to branch off the stem.

Barber said that in four years of research in irrigation, "we have been able to gain an extra node at flowering by watering one week earlier."

"The cotton was approximately nine to 10 nodes when we initiated the early irrigation treatment, and at flowering, the early-irrigated cotton was 10 inches taller and bloomed with nine nodes above white flower," he said. "Where irrigation was delayed for one week, bloomed with only seven nodes above white flower."

Once the cotton plants begin to produce flower buds – known as squares – the demand for water goes from less than a tenth of an inch per day to about a quarter inch a day.

"Because we are behind this season, it is important to keep this seedling cotton growing and buy some time that we lost early on," Barber said. "With current temperatures, cotton can grow a new node every 2.5 to 3 days. Monitor your fields closely, and if the seedling cotton is not growing a new node at this pace, supplemental irrigation is needed."

Irrigation will also be needed in many fields to activate residual herbicides and move nitrogen into the soil solution. Nitrogen applications into dry dirt or dust will not be available for plants to use. △