

# EVALUATION OF THE ADAPTATION OF ULTRA-SHORT SEASON CORN FOR THE MID-SOUTH

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## INTERPRETIVE SUMMARY

### Research Question

Most soils in the Southern United States are shallow with low water storage capacity. The majority of the rainfall occurs in the winter months, which means summer crops often are exposed to drought conditions. Planting alternative crops to avoid drought conditions has entailed the use of cereal crops and early maturing soybeans. The stored soil water and incidental rainfall are usually sufficient to meet the needs of these crops in the spring. Ultra-short season corn and grain sorghum cultivars have been developed for the northern corn belt, and these cultivars could also take advantage of the usually sufficient moisture if they matured about the time that wheat is harvested. The objectives of these experiments were to evaluate the potential of ultra-short season corn for the region and to observe its growth; characteristics and cultural practice needs.

### Literature Summary

Even though the Southeastern United States receives in excess of 40 in. of rainfall annually, crops grown in the region can experience drought stress due to the timing of the rainfall and shallow soils that have low water storage capacity. Ultra-short season corn can avoid drought stress if it matures at the time that wheat is harvested. It would also return more plant residue to the soil than current dryland crops, such as cotton and soybeans, which could enhance the building of organic matter.

### Study Description

Field experiments were conducted in Arkansas in 1998 and in Louisiana in 1994 and 1995. Observations were made in Arkansas on variety, plant population, N rates, soil compaction, drainage, and yield. In Louisiana, evaluations were made on variety, planting date, maturity, and yield.

Corn was considered mature when 75% of the kernels in the middle portion of the ear had developed a black layer.

### Applied Questions

#### Does ultra-short season corn have a niche in the South?

Potential evapotranspiration estimates for corn indicate that there would be sufficient moisture to meet the needs of ultra-short season corn in most years if it matured about the same time as wheat is harvested.

#### Are there any special cultural practices that need to be employed?

Soil compaction due to traffic patterns needs to be addressed. Land preparation, planting, fertilizer application, and pesticide application creates soil compaction which reflects in plant growth and survival. Drill planting does not provide adequate control of traffic patterns nor does it provide a necessary system of drainage. Planting in rows of at least 19 in. width with furrows for drainage is needed. Planting in 19 in. rows also permits the in-season N to be applied as a side dress application to avoid unnecessary fertilizer leaf burn.

### Conclusions

There appears to be a niche in the South for ultra-short season corn. The development of suitable varieties could result in consistent desirable yields, and a chance to miss some weather related problems concerning quality, such as aflatoxin. An earlier harvest could mean better grain prices, and may present the possibility of double-cropping with soybeans. However, more research is needed regarding production systems in relation to these cultivars.

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