

► Record Corn Yields – How Can We Do Better?

Presented by Dr. Erick Larson

Extension Corn Specialist, MSU

Mississippi was generally blessed this season with good weather that promoted record corn yields, particularly compared to the past several seasons. Corn yields across the Mid-South region of the U.S. are primarily limited by high temperatures and excessive soil moisture normal to the region. However, we are also prone to experience substantial moisture deficit during critical corn reproductive stages during the summer. The timing and magnitude of these environmental variables may substantially impact corn productivity. Corn growers in the Mid-south may mitigate the detrimental effects of these limitations by growing corn on raised beds, planting early, improving surface drainage, using irrigation and many other practices. However, understanding how these variables specifically affect corn growth and development can help improve crop productivity and profitability.

Corn growth and maturation is dictated by heat unit accumulation. The 2012 corn season was characterized by abnormally high temperatures from planting through the vegetative growth stages. This caused early planted corn to reach tassel stage as much as 15-20 days prior to normal. This earlier maturation, coupled with relatively mild or normal temperatures during the critical early reproductive stages promoted excellent crop productivity given ample moisture to maintain plant needs. However, this response to early planting during 2012 would not be very repeatable given normal environmental conditions. Thus, growers should closely monitor those parameters which do affect corn seedling growth, including soil temperature and moisture, in order to establish a successful stand and 2013 crop.

Supplemental irrigation has generally proven to be a great tool for stabilizing high corn productivity in the Mid-South. However, the variation in corn yields the past few years has shown we can do a lot better in order to realize maximum corn productivity. Growers in the Mid-South usually grow crops on raised beds to alleviate negative effects of soil saturation on plant growth and development. However, we are also quick to turn on the irrigation at the first inkling of dry soil and continue to pump through the season. Our predominant furrow irrigation systems are going to inherently saturate the soil, which can produce negative results, particularly for corn grown on heavy clay or other soils with poor internal drainage. We must be aware that there are negative consequences associated with irrigation, depending on the timing. Therefore, we must adapt our irrigation schedule to match crop demand in order to optimize plant response and productivity.

This presentation will describe how environmental conditions, such as rainfall, temperature and other parameters affect corn growth and productivity. Understanding these variables, we will explore various management options which offer potential to enhance corn productivity even further or reduce risk associated with limitations you cannot control.