

2006 REPORT OF APPLIED RESEARCH ON SOYBEAN AND CORN
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Appreciation

None of this work could have been completed without the sustained support by the soybean farmers of Missouri. Each project in this report is partially funded by grants from the Missouri Soybean Merchandising Council (MSMC). For 17 years the MSMC Board of Directors and CEO Dale Ludwig have supported my extension and applied research programs. I am truly appreciative of this support. I know that they have many opportunities among which to decide on where to invest precious farmer-generated funds. Their investment in my programs allows the University of Missouri to provide a unique and relevant service to all of Missouri's citizens, rural and non-rural.

2006 Weather

A person cannot conduct field-based research without gaining a deep appreciation for the impact of weather on crop growth and productivity. Nearly all of these research reports include a statement similar to "the weather conditions greatly affected results" So, it is fitting to begin this introduction with a review of the weather in 2006.

Most of the research projects were conducted entirely or partially at the Bradford Research and Extension Center (BREC) near Columbia, Missouri. The predominant soil type in the fields used for research at BREC is a Mexico silt loam. This soil has a shallow claypan that restricts root growth and water infiltration. The depth from the soil surface to the claypan varies among the research sites, but is often no deeper than 8 inches. Timely rainfall is essential to high soybean and corn yields because rooting depth is restricted and water storage is less than in many other soil types.

Figure 1 presents 2006 growing season precipitation information for BREC. The most sensitive stages of development is silking for corn and pod set for soybean. These stages occur in early July for corn and early August for soybean. About one inch per week during these two months is needed for high yields. Weeks with 0.5 or less inches of rain were week 3 and 4 of June, week 4 of July, and week 1 and 2 of August. So, both crops suffered drought stress in central Missouri and at the BREC site.

Unfortunately, the sparse rainfall was accompanied with hot temperatures (Figure 2). High temperatures for most days between mid July and mid August were between 90 and 100 °F. Hot temperatures increases water evaporation from leaves and increases impact from drought stress.

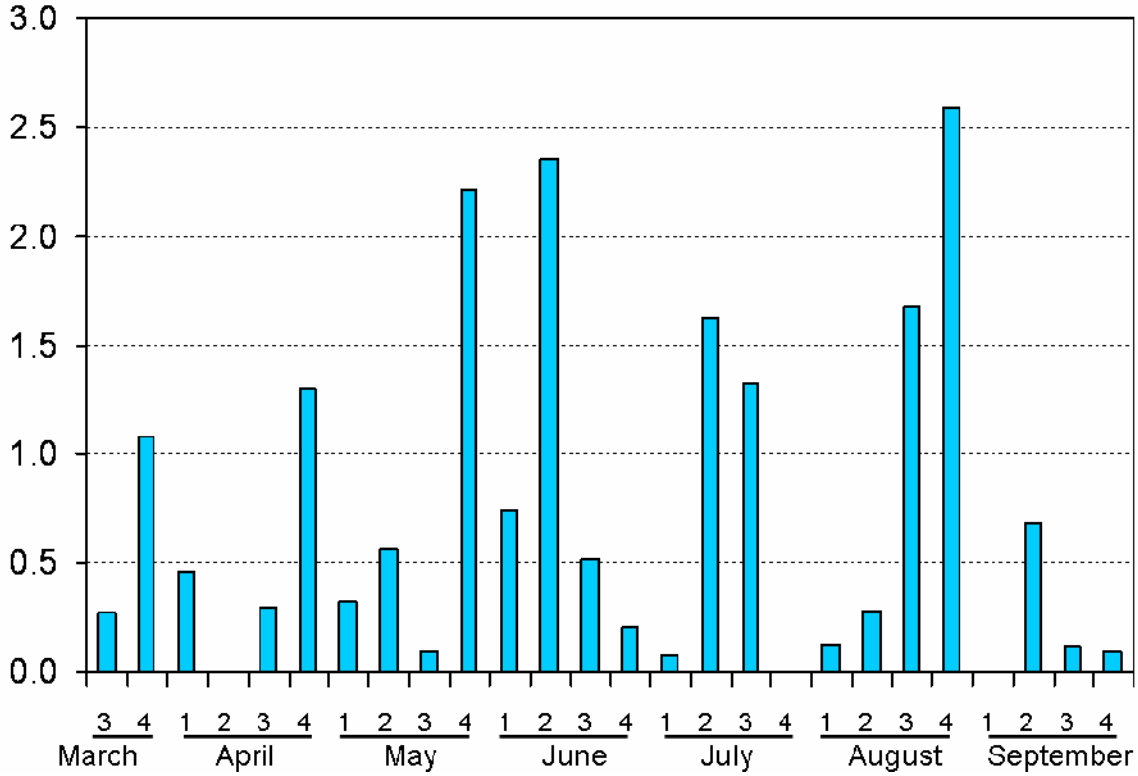


Figure 1. Weekly precipitation totals from mid-March through September 2006 at the Bradford Research and Extension Center near Columbia, MO.

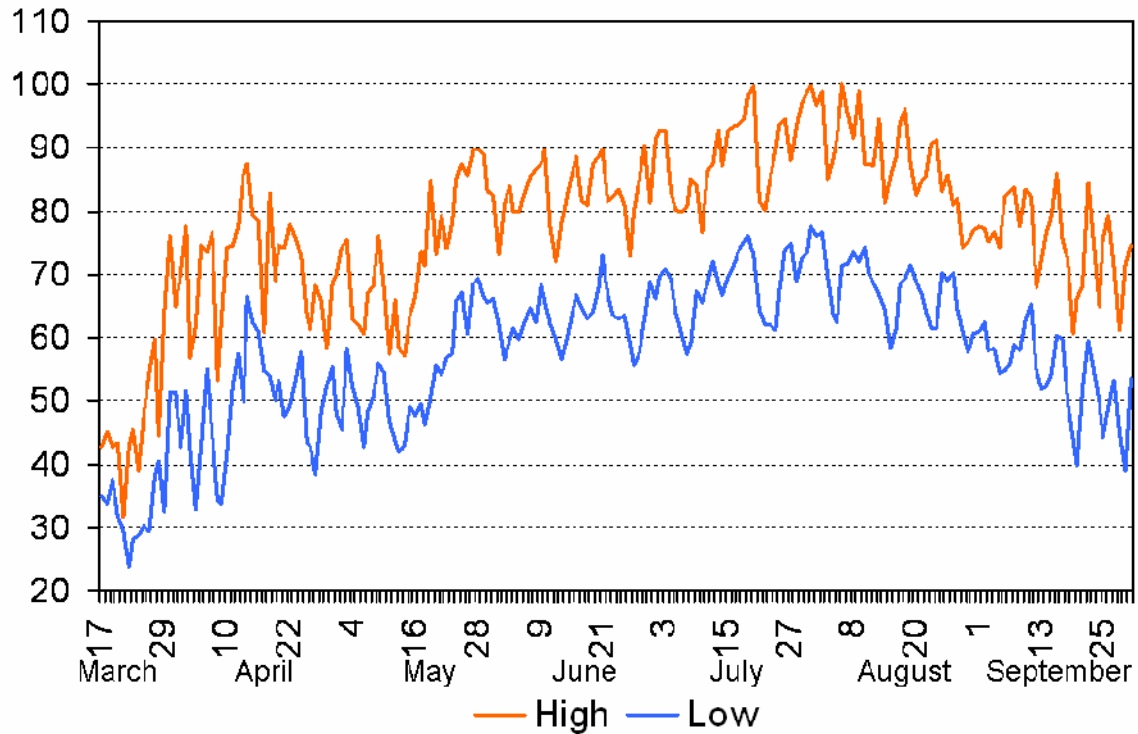


Figure 2. Daily high and low temperatures from mid-March through September 2006 at the Bradford Research and Extension Center near Columbia, MO

2006 Research

Most of the research projects conducted in 2006 were initiated because of questions posed by farmers or their advisers. Since 2004, soybean rust has been a topic of discussion. We present several research reports from experiments in which management of the host soybean plant is the focus. Look for reports related to date of planting, row spacing, maturity group, and the use of fungicides.

Farmers and their advisers continue to fine tune crop management practices to improve efficiency of soybean and corn production. Information in the reports that focused on rust management can also be used for crop management for yield. Date of planting, row spacing, seeding rate experiments all have important yield and production efficiency implications.

Many of Missouri's soils are classified as highly erodible. In the past, Missouri has ranked as high as second among all US states for the amount of soil erosion. Conservation tillage, including no-tillage, is an important weapon for reducing both water and wind caused soil erosion. We have two reports related to tillage choice.

With the increasing demand for ethanol the price of corn grain has increased dramatically. Many Missouri farmers are considering altering their crop rotations. We present two reports related to plant stand and yield implications of rotation choice.

All research reports are posted at the following web sites:
soybean information: <http://www.plantsci.missouri.edu/soyx/>
corn information: <http://www.plantsci.missouri.edu/cornx/>.

Feel free to print, distribute, and use the reports as needed. You may also contact me at: 573-882-0621 or wieboldw@missouri.edu

A handwritten signature in black ink that reads "Will Wiebold". The signature is written in a cursive, flowing style.