

**MANAGEMENT TECHNOLOGY FOR LEAST
COST COTTON SYSTEMS**

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Abstract

It has become increasingly important to use best management practices to remain competitive in a very tight market. Growers are constantly looking for anything that might give them an edge to keep producing profitably. Although there are many areas to adjust and fine tune, there are some management areas that will not only reduce inputs of labor, equipment, and fuel, but will lead to increased yield. Some of these management points will be discussed. With good reason, starter fertilizer use on cotton has often been questioned. Research data shows little response to starter fertilizer on heavy soils, which is mainly a nitrogen (N) response. However, if minimum levels of N are being used on side dress applications, you may see a response to starter fertilizer. If levels of N are from 90-120 lbs./A on heavy soils, seldom does a yield response to starter fertilizer occur. However, at lower rates of N, starter responses may occur. Sandy soils are different in that yield responses may occur in almost all cases regardless of rate of N applied as a side dress application. Starter fertilizer should consist of a solution of half liquid N with S and half 10-34-0. Sandy soils are those soils that do not have a clay layer in the top 15 inches. Sulfur is a very important element on the sandy soils as well. Responses of one bale of lint per acre have occurred with from 35-40 lbs./A of S. These responses have come from various materials such as gypsum, ammonium sulfate, and ammonium thiosulfate. Sulfur needs should not be neglected on sandy soils.

Conservation tillage has caught on over much of the Cotton Belt. Our research has shown that we can increase yields by as much as 30% by planting into a heavy cover crop. Data has shown 5 degree cooler plant canopy temperature in crops planted strip till as compared to conventional tillage. Likewise soil temperatures are 25 degrees cooler under mulch than on bare soil at 10:00 a.m. Moisture measurements have shown as much as 50% more available moisture under the heavy cover crop as compared to conventional plantings. All of these factors result in less plant stress. Often by 10:00 a.m. conventional plantings were already wilting and strip till plots showed no signs of wilt. All of these reduced stress factors resulted in higher yields with strip tillage pointing to the fact that cover crop management is important. The heavy cover crops do moderate soil conditions better than light cover crops which may require residue removers on planters during the planting operation to insure good seed positioning in the soil. Messenger is a harpin protein that has been identified to cause systemic acquired resistance (SAR) in plants. This material has been tested on cotton for 4 years with tests conducted to determine how it effects the cotton plant and how to utilize it to get best yield responses. There is still much to be learned, but some of the things that we have seen are yield increases up to 35% (but more like an average of 15% over many studies) more than 40% decrease in hardlock, and an increase in boll numbers in some years. This is a new material with many questions to be answered, but it shows potential for increasing yield and reducing hardlock in cotton which has been a nemesis for many years to cotton growers.