"Prepmaster" at Verona in 2007 and 2008 had 14% stand reductions, 7 to 13% early season crop stunting injury and 2 to 8% lower yield than the study mean yield. However, Prowl and Treflan applied preplant 4 to 6 weeks before planting and Prowl applied preplant at planting in both years had no negative effect on plant population, crop injury and yield. However, both Prowl and Treflan preplant applications made 4 to 6 weeks before and at planting at Stoneville in 2007 and 2008 had no negative effect on plant populations, crop injury or yield.

There were no yield differences between no-tillage and conventional tillage systems in 2007 and 2008 at Verona and in 2007 at Stoneville. But, there was a tillage by Prepmaster-herbicicde system interaction for yield at Stoneville in 2008. With the "Prepmaster" (no pre-plant herbicides) applications, no-tillage had higher yield than conventional tillage when applied in late March, with no tillage differences when the "Prepmaster" was applied at planting. Treflan "Prepmaster" applications in late March and at planting with conventional tillage had higher yield than no-tillage. Conventional tillage had higher yield than no-tillage when Prowl "Prepmaster" applications were made at planting in late March, with no tillage differences when "Prepmaster" was applied in late March. Treflan "Prepmaster" late March application had the highest yield for conventional tillage while the Prepmaster (no preplant herbicides) had the highest yield for the no tillage treatments. Both of these treatments showed no yield differences.

In summary, Prowl or Treflan in combination with "Prepmaster" implement, applied in late March or at planting, has the potential to minimize the development of Roundup resistance weeds. However, Treflan has the potential to cause some initial crop injury when applied at planting. The use of the "Prepmaster" implement also can reduce the number of trips across the field and improve cotton planting efficiency.

Yields And Economic Return Of Cotton Technology Systems In Alabama

Presented by Charles Burmester

Extension Agronomist, Auburn University

Presented by Tim Reed

Extension Entomologist, Auburn University

Presented by Dale Monks

Extension Agronomist, Auburn University

Presented by Eric Schavey

Regional Agronomist, Auburn University

Three cotton technology systems were evaluated in northern and central Alabama for the 2008 and 2009 growing seasons. In 2008 the cotton varieties ST 4554 B2RF (Bollguard II + Roundup Flex), PHY 485 WRF (Widestrike + Roundup Flex) and CT 210 (Conventional) were evaluated. In 2009 the PHY 485 WRF variety was replaced with PHY 440W (Widestrike) so another non-Roundup herbicide system could be evaluated. Both test sites were irrigated as needed to produce optimum yields.

Each season each variety was managed separately using best managements systems in making weed and insect control decisions. At planting, half the plots of each variety received a preemergence herbicide treatment of Prowl (1.5pt/A) and Cotoran (1qt/A). Additional weed control applications were made through the season as needed by each variety. Cotton was scouted weekly and all insects except Heliothines were controlled when they reached threshold levels. Larvicide treatments for Heliothine control were applied to half the plots of each variety when threshold levels were reached.

The 2008 growing season was excellent for both locations. Cotton lint yields ranged from two bales to slightly over four bales in the test areas. Insect pressures at both sites were also above normal. The central Alabama location (EVS) was over-sprayed five times to control plant bugs while the northern Alabama location was over-sprayed three times for plant bug control. Reductions in beneficial insects caused by the plant bug spraying also increased the need for Heliothine control at both tests. Four applications were made for Heliothine control at EVS while at the TVS site three Heliothine applications were made in 2008. The CT 210 cotton yields were dramatically reduced where Heliothine controls were not applied at both sites (Figure1). Phytogen 485 WRF cotton yields declined slightly without larvicide application at the TVS site but larvicides had no affect on PHY 485 WRF yields at the EVS site in 2008. Stoneville 4554 B2RF yields were not affected by larvicide treatment at either site. All the ST 4554 B2RF and PHY 485 WRF plots produced significantly more cotton than any of the CT 210 treatments at both locations.

In 2008, herbicide treatments had only a small effect on final cotton yields. The largest difference was found where the CT 210 cotton grew off slowly at the TVS location and early season grass competition reduced yields significantly where pre-emergence herbicides and larvicides were not applied.

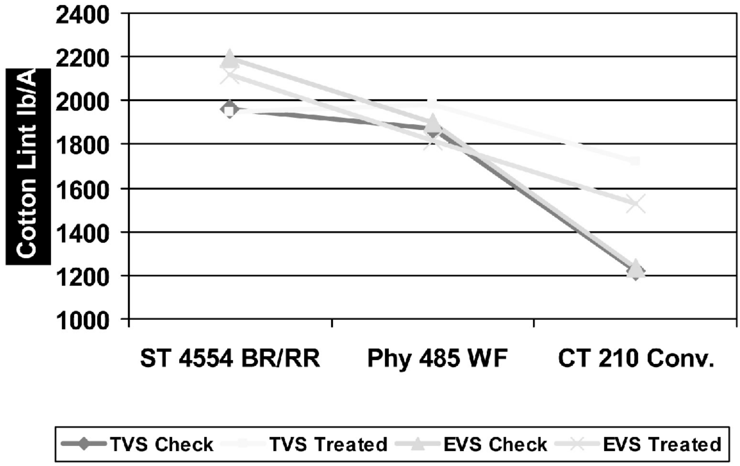
Late planting due to a wet spring and delayed harvest caused by a very wet and cool fall reduced cotton yields in 2009. These yields, however, were still well above normal for each area. The best treatment at the TVS site in 2009 produced over three bales per acre. Insect pressure was much lighter in 2009 than in 2008 with only one plant bug control and two larvicide applications required at the TVS site. As in 2008, ST 4554 did not produce a yield increase when larvicide applications were applied. The PHY 440W and CT210 produced a significant yield improvement with the larvicide applications. Both CT 210 and PHY 440W produced lint yields equal to ST 4554 when larvicides were applied at the TVS location.

As in 2008 the CT 210 cotton grew slowly early in the 2009 growing season and was later maturing than either PHY440W or ST 4554 B2RF at the TVS site. Herbicide applications again had little effect on cotton growth or yield in 2009. The late planting date in 2009 and warmer temperatures caused cotton to grow more rapidly which reduced possible weed competition. The EVS test site was harvested very late and yield data is still incomplete at this time.

The economic data from the two year study reveals the difficulty in determining which cotton technology will provide the best return for Alabama farmers. In 2008 with heavy plant bug and Heliothine pressure in central Alabama the CT210 WRF variety had low yields even where larvicides were applied. This resulted in CT 210 producing net return of $300-$400 less than ST 4554 B2RF. The PHY 485 WRF produced better yields but net returns were still about $100 less per acre than ST 4554 B2RF. In northern Alabama in 2008 the PHY 485 variety produced equal yields and returns compared to ST 4554 B2RF. The conventional variety CT 210 however produced net returns of over $200 less than either PHY 485 WRF or ST 4554 B2RF due to lower yields and higher insecticide costs. By comparison in northern Alabama in 2009 with much lower insect pressure, CT 210 produced a slightly higher net return than PHY 485 WRF or ST 4554 B2RF due to lower cost of seed and insect control. These results indicate there may be alternatives to the Bt and Roundup technologies currently used by most Alabama cotton farmers. Growing cotton without these technologies however, will require more management by the farmer especially if varieties do not contain Heliothine resistance.

Notes:

Figure 1. Cotton lint yields with and without larvicide treatment in 2008.



Cotton Seeding Rates: How Low Can We Go?

Presented by Dr. Owen Gwathmey

Associate Professor, Plant Sciences, University of Tennessee

Presented by Larry Steckel, Jim Larson, Dan Mooney

University of Tennessee

Rising costs of planting seed and technology fees have led some cotton producers to reduce their seeding rates in an effort to control costs. How far can we turn down the planter without hurting lint yield, fiber quality, and the bottom line? To address this question, we conducted small-plot experiments in two fields at the Milan Research & Education Center in Tennessee for three years. One field was managed with no tillage and no irrigation, while the other was conventionally tilled and pivot irrigated. Seeding rate varied with planting pattern (solid and skip-row), row spacing (15 and 30 inches), and number of seeds planted per foot of row (1 or 2 viable seed/ft). Cultivars were ST4357B2RF (2006) and ST4554B2RF (2007-08). Seed costs and tech fees ranged from $25.31 with 14,500 seed/ac, to $108.38 at 87,100 seed/ac. Plant stands were counted, and plots were rated for weed competition during the season. Earliness was measured as days from planting to 50% open bolls. Plots were spindle picked with a JD9930 harvester equipped with Pro-12 VRS headers for yield and fiber quality.

With no tillage and no irrigation, plant stands averaged 61% of seeds planted, final plant height averaged 29 inches, and lint yields averaged 1020 lb/ac. The highest lint yields were obtained with seeding rates ranging from 44,000 to 87,000/ac (26,000 to 49,000 plants/ac). The lowest yield was obtained with 14,500 seed (9,200 plants) per acre, which produced 81% of maximum yield. The highest seeding rates produced the earliest maturing cotton, while the lowest seeding rates (14,500 to 29,000/acre) delayed maturity by about five days. Suppression of weeds by cotton diminished with plant populations less than 26,000/ac, especially in skip rows. In solid planted rows, maximum net return was obtained from seeding rate of 44,000/ac. Net return was reduced at higher seeding rates by about $40 to $80/ac, due to higher seed costs and technology fees. In skip-row plantings, highest net returns were