



## COTTON AND SOYBEAN RESPONSE TO LATE PLANTING

Ideally, cotton and soybeans should be planted by mid-May in Mississippi. However, planting can be delayed for reasons such as double-cropping behind wheat, replanting poor stands, or unfavorable weather. Late planting generally requires modifications to the agronomic system. This demonstration testing was established in response to grower questions about late planting, especially after wheat.

### STUDY GUIDELINES

Demonstration trials were conducted by the Monsanto Learning Center in Scott, MS in 2011 to evaluate the yield response of cotton and soybean varieties to late planting. Evaluated in the demonstration were six Deltapine® Genuity® Bollgard II® with Roundup Ready® Flex cotton varieties ranging from early to mid maturity, and a total of eight Asgrow® Genuity® Roundup Ready 2 Yield® soybean varieties ranging in maturity from mid group IV to late group V. The cotton and soybean varieties were planted late on June 13, 2011, and evaluated under both dryland and irrigated conditions. There were two replications for each crop variety grown under dryland or irrigated conditions. Crops were grown under local standard agronomic practices, with the exception of population and plant growth regulator (PGR) treatment differences in cotton. Under dryland conditions, cotton varieties were planted at 47,000 seeds per acre, with 12 oz/ac of mepiquat-chloride PGR applied on August 15, 2011. Under irrigated conditions, cotton varieties were planted at 55,000 seeds per acre, with mepiquat-chloride PGR applied at 12 oz/ac on July 28, 2011 and 24 oz/ac on August 15, 2011. Soybean varieties were planted at 155,000 seeds per acre for both dryland and irrigated conditions. Cotton varieties were harvested on November 10, 2011, and soybeans were harvested on October 25, 2011.

### RESULTS AND DISCUSSION

#### Cotton

Cotton yields ranged from 278 to 697 lbs lint/ac under dryland conditions, and from 76 to 384 lbs lint/ac under irrigated conditions (Figure 1). Yields were well below that which could be obtained with an earlier planting of cotton. The early maturity DP 0912 B2RF variety out-yielded all other varieties in the demonstration testing. Yields for all varieties were higher when grown under dryland conditions, with cotton yields on average more than double that obtained under irrigated conditions (Figure 2). Cotton yielded less under irrigated conditions because vegetation growth was prolonged and fruiting decreased.

Cotton yields typically begin to decline when planted after mid-May in Mississippi.<sup>1</sup> Since cotton has a long growing season requirement, frost is a concern for a late planted crop. Managing cotton for earliness by planting an early maturing variety can be

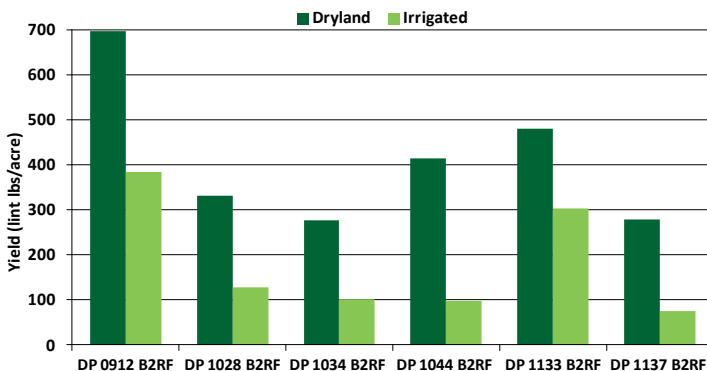


Figure 1. Yield of Deltapine® Genuity® Bollgard II® with Roundup Ready® Flex cotton varieties planted late under dryland and irrigated growing conditions—2011 Scott Learning Center.

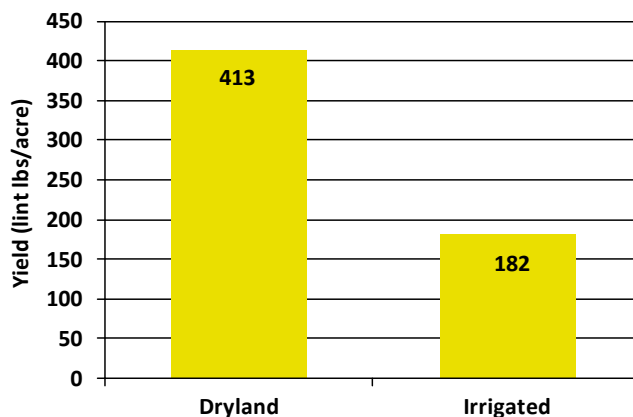


Figure 2. Average yield of six Genuity® Bollgard II® with Roundup Ready® Flex cotton varieties planted late as affected by dryland and irrigated growing conditions—2011 Scott Learning Center.

important with a late planting. Good management practices for irrigation initiation, fertilization, and PGR applications are also important. Managing late planted cotton in response to environmental conditions can be a better strategy than trying to follow a pre-designated plan.<sup>2</sup>

to pg. 2 ▶

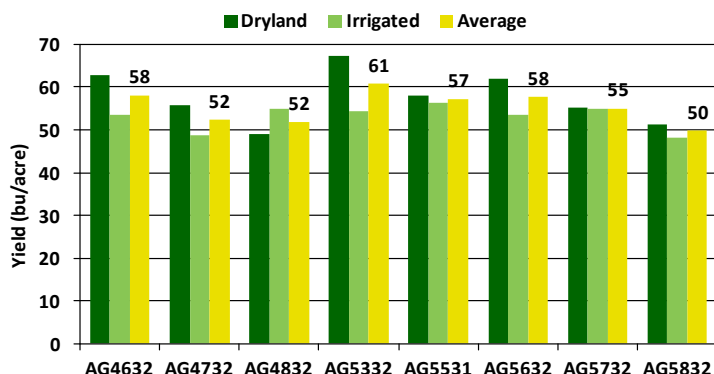
## COTTON AND SOYBEAN RESPONSE TO LATE PLANTING

from previous page

### Soybeans

Soybean yields ranged from 49 to 63 bu/ac under dryland conditions, and from 48 to 56 bu/ac under irrigated conditions (Figure 3). All varieties in the testing yielded well, and the yields were good compared to what could be obtained with an earlier planting of soybeans in the area. High yields resulted when soybeans were grown under both dryland and irrigated conditions. However, many of the varieties yielded more when grown under dryland conditions, with an average of 5 bu/ac more compared to irrigated conditions across all varieties. The dryland system generally yielded more than the irrigated system, possibly due to interactions with soybean maturity, disease pressure, and lodging at harvest.

Variety selection and planting dates are two of the most important considerations in soybean production.<sup>1</sup> Maturity group V and VI soybean varieties are generally more productive in Mississippi when planted in June.



**Figure 3. Yield of Asgrow® Genuity® Roundup Ready 2 Yield® soybean varieties planted late under dryland and irrigated growing conditions – 2011 Scott Learning Center.**

The information discussed in this report is from a single site, one-year demonstration. This information piece is designed to report the results of this demonstration and is not intended to infer any confirmed trends. Please use this information accordingly.

Monsanto Company is a member of Excellence Through Stewardship® (ETS). Monsanto products are commercialized in accordance with ETS Product Launch Stewardship Guidance, and in compliance with Monsanto's Policy for Commercialization of Biotechnology-Derived Plant Products in Commodity Crops. This product has been approved for import into key export markets with functioning regulatory systems. Any crop or material produced from this product can only be exported to, or used, processed or sold in countries where all necessary regulatory approvals have been granted. It is a violation of national and international law to move material containing biotech traits across boundaries into nations where import is not permitted. Growers should talk to their grain handler or product purchaser to confirm their buying position for this product. Excellence Through Stewardship® is a registered trademark of Biotechnology Industry Organization.

B.t. products may not yet be registered in all states. Check with your Monsanto representative for the registration status in your state.

Individual results may vary, and performance may vary from location to location and from year to year. This result may not be an indicator of results you may obtain as local growing, soil and weather conditions may vary. Growers should evaluate data from multiple locations and years whenever possible.



Before opening a bag of seed, be sure to read, understand and accept the stewardship requirements, including applicable refuge requirements for insect resistance management, for the biotechnology traits expressed in the seed as set forth in the Monsanto Technology/Stewardship Agreement that you sign. By opening and using a bag of seed, you are reaffirming your obligation to comply with the most recent stewardship requirements.



ALWAYS READ AND FOLLOW PESTICIDE LABEL DIRECTIONS. Roundup Ready® crops contain genes that confer tolerance to glyphosate, the active ingredient in Roundup® brand agricultural herbicides. Roundup® brand agricultural herbicides will kill crops that are not tolerant to glyphosate. Asgrow and the A Design®, Bollgard II®, Genuity and Design®, Genuity Icons, Genuity®, Respect the Refuge and Cotton Design®, Roundup Ready 2 Yield®, Roundup Ready®, Roundup®, and Technology Development by Monsanto and Design® are trademarks of Monsanto Technology LLC. Deltapine® is a registered trademark of Monsanto Company. ©2012 Monsanto Company. 12312011TED



However, it appears that relatively late group IV soybean varieties could be considered as planting is more delayed into the double-crop season. Planting soybeans in narrow rows helps to increase productivity by promoting quicker canopy closure, better weed control, and improved light interception. Late planted soybean seeding rates should also be increased to account for potential losses from seedling diseases, increased insect pressure and shorter soybean plants.

### SUMMARY

When planted late in this demonstration, soybean varieties performed more consistently than cotton varieties across the range of maturities tested. The early maturity cotton variety (DP 0912 B2RF) could achieve similar crop value compared the highest yielding soybean varieties for double-cropping. However, the comparison would be dependent on cotton and soybean prices.

The risks will always be higher for both crops in double-crop situations, when compared to normal planting dates. Proper variety selection and optimal management are key imperatives that can help to mitigate some of the risk. Selecting early varieties is particularly important with cotton. Optimal agronomic practices for double-crop situations, including reduced fertility, appropriate PGR applications, proper plant density, and judicious irrigation decisions can all contribute to earliness in cotton. Disease and insect management can be particularly important with a late planting of soybeans.

### REFERENCES

- <sup>1</sup>Larson, E. 2011. *After the flood: Row crop replanting. Mississippi Crop Situation. Mississippi State University Extension Service. June 10, 2011. <http://www.mississippi-crops.com> (verified 12/9/2011).*
- <sup>2</sup>Robertson, W.C. et al. 2005. *Management of late planted cotton for high yield and quality. Cotton Incorporated. <http://www.cottoninc.com> (verified 12/9/2011).*