2010 Demonstration Report

THE LEARNING CENTER

at Scott, Mississippi

Corn Replant Strategies

Decisions on whether to leave an existing planted stand or to replant it can be difficult. When deciding to replant corn, several factors must be assessed such as evaluating the surviving stand for plant counts and spacing, replant timing, and production potential.

Study Guidelines

In 2009 and 2010, a study on corn replant strategies was conducted at The Learning Center at Scott, MS to better assess how replant decisions can affect final harvest yield. To evaluate how relative maturity (RM) may affect yield potential in a replant situation, two corn products were selected: a 114 RM and a 119 RM. Large blocks of both corn products were planted in March at 36,000 seeds/A with fertility, irrigation, and weed control remaining consistent throughout all plots. The trial was comprised of four simulated replant scenarios and a check consisting of the original stand. Excluding the check, all other plots were treated 14 days after peak emergence, about 25 days after planting. The treatments were as follows:

1. **Check plot:** left as planted.
2. **Simulated 100% crop loss:** SelectMAX® herbicide applied across the entire plot and replanted on 4/20/09 and 4/22/10 at 36,000 seeds/A.
3. **Simulated 30% crop loss:** SelectMAX herbicide applied across a block of 30% of the plot and the block replanted on 4/20/09 and 4/22/10at 36,000 seed/A.
4. **Simulated poor stand with no replant:** Stand thinned to 18,000 seeds/A and not replanted.
5. **Simulated poor stand with interplant:** Stand thinned to 18,000 seeds/A and the entire plot interplanted on04/20/09 and 4/22/10 at 18,000 seeds/A.

Results

Yield results from the trial suggest that the corn products selected may be sensitive to optimum planting populations. Corn yields were reduced in both scenarios where corn stands were thinned to 18,000 seeds/A and either left at 18,000 seeds/A or interplanted with an additional 18,000 seeds/A (Figure 1). In the thinned and interplanted scenario, the poor plant spacing resulted in yield reductions caused by poor interception of light, nutrients, and water. In the 18,000 plant population, less competition within the row still did not make up for the fewer number of plants for grain production.

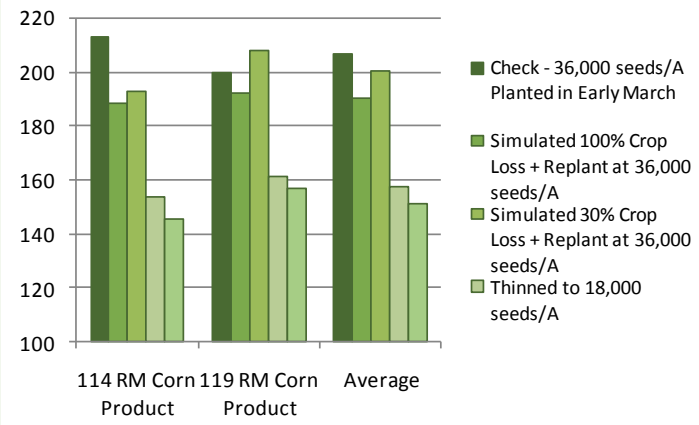

Figure 1. Average yield results from 2009 and 2010 corn re-plant study.

The check plot, which was planted at 36,000 seeds/A in March reported the highest yield of 206.5 bu/A when averaged across both RM products and 2009 and 2010 data (Figure 1).

In the simulated 100% crop loss scenario, SelectMAX was applied to kill all corn seedlings and the entire plot was replanted. When averaged across both years and corn products, the simulated crop loss scenario yielded 16.25 bu/A less than the check plot .

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For the simulated 30% crop loss scenario, SelectMAX was applied to kill all corn seedlings in a section equaling 30% of the total plot. This section was then replanted. The simulated 30% crop loss scenario yielded 6 bu/A less than the check plot when averaged across corn products and years.

Evaluation of average yield results from 2009 and 2010 data suggest highest yields are obtained when an ideal planting population is maintained throughout the growing season. The data also suggests that in situations where early-season crop loss occurs to an entire field or portion of a field, some yield may be recovered. This points out the potential for successful spot planting, which could also be applied to larger field areas such as corners, ends, and washes. While these areas may be successfully replanted, special consideration should be given to area-specific agronomic management, inputs needed, and weather influences on the ultimate outcome. The same corn hybrid should be used when replanting a portion of a field. When replanting an entire field a different hybrid may be selected; however, a shorter season hybrid may not tolerate late-season heat stress typical in the South. Remember that replanting can delay harvest, and in replant situations late-season harvest conditions may have a greater impact on yield potential. Replanted corn may need to be harvested at a higher moisture content than usual, and diligence must be taken to harvest in a timely manner.

This study also helps to demonstrate the importance of optimum stand establishment as thin stands reduced yield potential. Planting equipment should always be calibrated and checked to avoid any mechanical and/or seed placement errors. Seed treatments, adequate soil fertility, and planting into a favorable weather forecast can also help increase seedling survival. If replanting becomes necessary, to ensure proper plant spacing and uniform crop maturity, a burndown herbicide treatment should be applied to any surviving corn plants.

Replanting is time consuming and costly to producers, but it can be a viable agronomic practice given the right conditions. Careful consideration of the stand should always be taken before making the decision to replant.

Figure 2. Simulated 30% field loss and replant scenario.

Figure 3. Simulated 100% Crop Loss + Replant at 36,000 seeds/A .

Sources: Farnham, D.E. 1998. Making corn replant decisions. Integrated Crop Management. Iowa State University Extension. http://www.iastate.edu/

Larson, E. 2009. Corn replant/late planting suggestions. Mississippi State University. http://msucares.com

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