

## Yield and Planting Seed Quality

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The old adage that 70 percent of the yield comes from 30 percent of the plants may be true. During the last several years we have found the more vigorous seeds in a seedlot usually perform better in the field.

Seedlots of different qualities were planted in eight replications at the Marana Station. On each plot, all seedlings emerging within a week after planting were marked as fast emergers; those that broke the soil surface two weeks following planting were marked as slow emergers. Plots were hand-thinned so that selected plants were under the same competition effects. Flower productivity was then followed by tagging and counting flowers on approximately 100 fast and 100 slow emerging plants during the growing season. Mature bolls were hand harvested, counted and weighed in the fall.

Fast emerging seedlings produced an average of 27 flowers per plant and 12 of those developed into mature bolls (Table below). The slow emerging seedlings produced only 13 flowers during the season and six developed into mature bolls. More importantly, yields of fast emerging seedlings were 100 percent higher than yields of slow emerging seedlings. Since the percentage of flowers that developed into mature bolls was similar for both fast and slow emerging seedlings, the reason for the large difference in yield was due primarily to the much higher flower productivity of fast emerging seedlings. The higher flowering rate in turn, must have been caused by a rapid and vigorous vegetative development providing for the formation of many more flowering points.

The fast emergers started flowering earlier, produced more flowers each week and reached cut-out later.

This test involved several different seedlot qualities. We observed that there were no differences in flower production, number of mature bolls, and total yield among the fast or slow emerging seedlings of the different seed quality groups. This fact suggests that the quality of fast and slow emerging seed is independent of the quality of other seeds in a seedlot. That is, for example, a slow emerging seed generally produces an unproductive plant, even if originated from a high quality seedlot.

We conclude that the major difference between a high and low quality seedlot is in the proportions of weak and vigorous seeds present in the seedlot.

Flowers/Plant		Mature Bolls/Plant		Seed Cotton/Plant	
Fast	Slow	Fast	Slow	Fast	Slow
27.0	12.8	12.2	6.0	45.2	22.1

### The Effect of Amplify D Seed Treatment on Seedling Vigor and Lint Yield of Deltapine 62 Cotton

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#### Summary

Deltapine 62 cotton seed treated with Amplify germination aid chemical showed more rapid emergence, greater seedling vigor, and higher stand percentage at Marana and Safford, Arizona field locations. Treated plants had a higher flowering intensity and greater lint yields at Marana.

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Acid delinted high quality Deltapine 62 planting cotton seed was treated with dry or liquid formulations of Amplify--a seed germination aid supplied by Conklin Company, Minneapolis, Minnesota. Seed received a dry Vitavax fungicide cotreatment immediately following Amplify treatments. Seed was planted in 100 seed replications on 40" beds with standard cotton cone planters. A preplant irrigation was standard, and the soil cap was removed from the top of the bed several days after planting, which helped to insure relatively uniform emergence counts. A third experiment was run at the Cotton Center in Phoenix; however, favorable conditions following planting elicited rapid, uniform germination, with no significant difference between any treatments seen in stand counts. Yield data were not gathered at the Phoenix location.