# Yield Adjustment for Small Plot Trials on the Texas High Plains


## Valerie M. Morgan, Jane K. Dever, Carol M. Kelly

**Texas A&M AgriLife Research, 1102 E FM 1294 Lubbock, TX 79403**


### Introduction

In small plot yield studies variable stands are a common problem. Because a perfect stand is rare, researchers are often faced with making adjustments to small plots for data analysis. The current standard of 18in of compensation[1] has been called into question, due to new varieties and production practices. How should yield compensation be done to gain an accurate picture of the variety in a given environment? What is the effect of skip on total plot yield, and what is the minimum skip that needs adjustment? A multi-year study was conducted in an irrigated environment to help address these questions.

### Hypothesis

Cotton varieties can compensate for no more than a 3ft skip within irrigated small plot yield trails. Yield adjustments should be made on skips larger than 3ft and on multiple skips within a plot.[1]

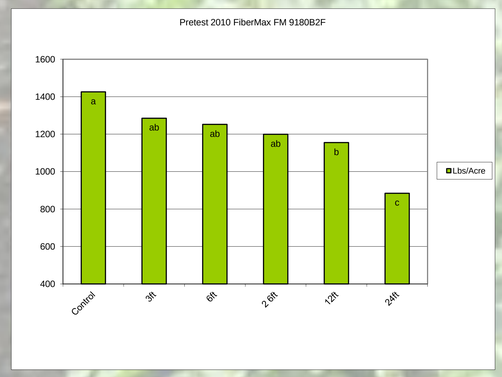
### Materials and Methods

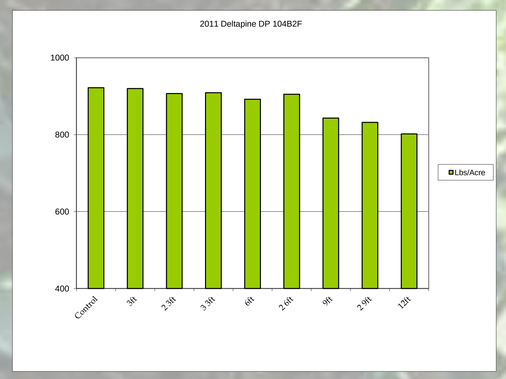
**Pretest 2010 irrigated**

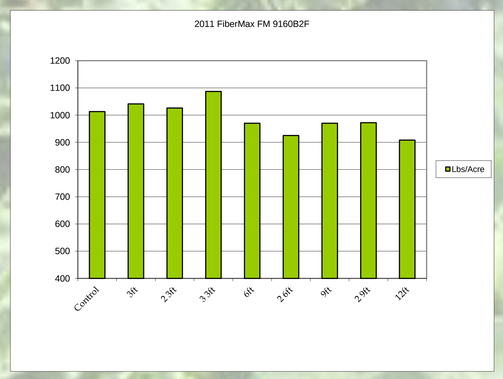
- 1 variety, RCBD 3 reps
  - FiberMax FM 9180B2F
- 24ft plot length 2 row plots
- 7 treatments at 5th true leaf
  - Control
  - 3ft skip
  - 6ft skip
  - 2 6ft skips
  - 9ft skip
  - 12ft skip
  - 24ft skip

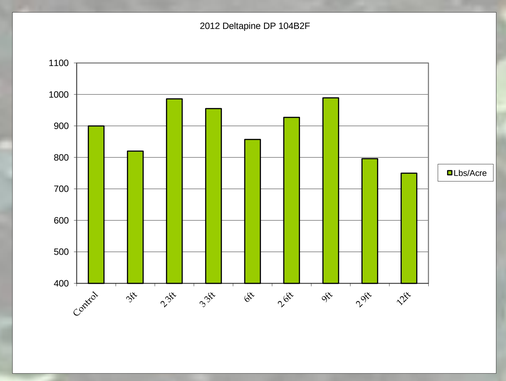
**Trial 2011 and 2012 irrigated**

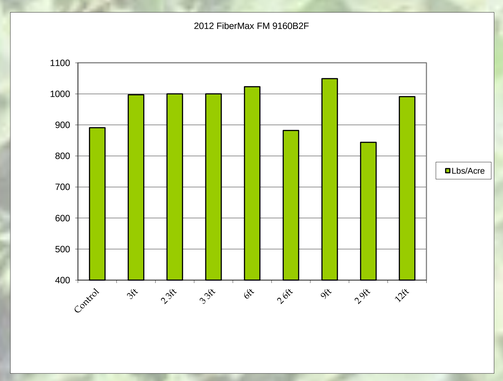
- 2 varieties, split plot 3 reps
  - Deltapine DP 104B2F
  - FiberMax FM 9160B2F
- 32ft plot length 2 row plots
- 9 Treatments at 5th true leaf
  - Control
  - 3ft skip
  - 6ft skip
  - 9ft skip
  - 12ft skip
  - 2, 3 ft. skips
  - 3, 3 ft. skips
  - 2 ,6ft skips
  - 2, 9ft skips




### Results

The 2010 pretest showed that skip was significant but only at the 12ft or higher lengths. Another variety was added and the 24ft length was dropped from the experiment. The 2011 test showed that only variety was significant. The test was repeated in 2012 and again the only significant difference was between varieties, not between differences in stand establishment within varieties.

### Conclusions and Further Research

In conclusion, only very large skips require any correction factor and in those cases the best adjustment may be to simply drop that plot from analysis. In the future this test should also be conducted in a dryland setting.

### References


[1] Pope O.A., 1947. Effects of Skips or Missing Row Segments on Yield of Seed Cotton in Field Experiments, Journal of Agricultural Research, Vol 74.