SEED SELECTION: A RESEARCHER'S PERSPECTIVE ON COTTONSEED QUALITY, PROFITS & VARIETY SELECTION

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Abstract

Total cotton farming return depends on lint and seed value. As a percent of total revenue per acre, lint revenue represents about 88% and seed revenue about 12%. Data from the National Cotton Variety Test for 1980-98 were used to examine trends in lint and seed yield and lint and seed quality. Annual averages were taken of the data for all upland cotton varieties grown in performance tests in all regions of the U.S. Cotton Belt. Annual average lint premium/discount was used as a quantitative measure of overall lint quality for a given year, and annual average seed grade was used as a measure of seed quality. Premiums and discounts for lint were determined using the 1999 CCC Loan Schedule (USDA) and seed grade was calculated using the procedure specified by the National Cottonseed Products Association. The focus here is on the quality of cottonseed as a food and feed product (not planting seed quality). For the period 1980-98, lint yield and seed yield increased over time, with lint yield increasing slightly faster than seed yield as evidenced by the slight downtrend in seed yield per bale of lint (Figure 1). By comparison, for the same period, the lint premium/discount increased over time, while seed grade was essentially flat. So, what accounts for the difference in improvement of lint quality compared to seed quality?

Lint quality has improved over time because economic incentives (i.e., higher profits) guide growers to grow varieties that produce better quality lint. Because lint revenue represents a significant proportion of total revenue from cotton production, there is great interest in increasing lint value. By contrast, in the current pricing system for seed, growers are paid for seed based on average seed quality. For example, in the Mid-South region of the U.S. Cotton Belt, ginning charges are commonly paid by "ginning for seed," i.e., the Mid-South grower swaps his seed (regardless of quality or weight) to pay ginning cost. In this situation, the individual grower is not concerned about the quality or quantity of seed produced.

What are the prospects for improvement in seed quality? From a genetic viewpoint, cottonseed quality can be improved. By contrast, basic economics indicate that without profit incentives to growers to select varieties with high quality seed, progress in improving seed quality will be slow.

The widespread practice of paying growers for seed based on average price does not give an individual grower a profit incentive to consider seed quality in variety selection. Growers, seed companies, breeders, ginners, crushers, and other industry participants have an interest in improving seed quality. However, the decision on variety selection—and thereby cottonseed quality—is made by the individual grower (in conjunction with breeders and seed companies) who does not have an economic incentive to select varieties with higher quality seed. The economic incentive can be added by (1) measuring seed grade for each individual lot of seed, and (2) determining seed price based on the quality of seed offered for sale. Further study is needed to determine the technical feasibility and cost of measuring seed quality by individual grower lot.

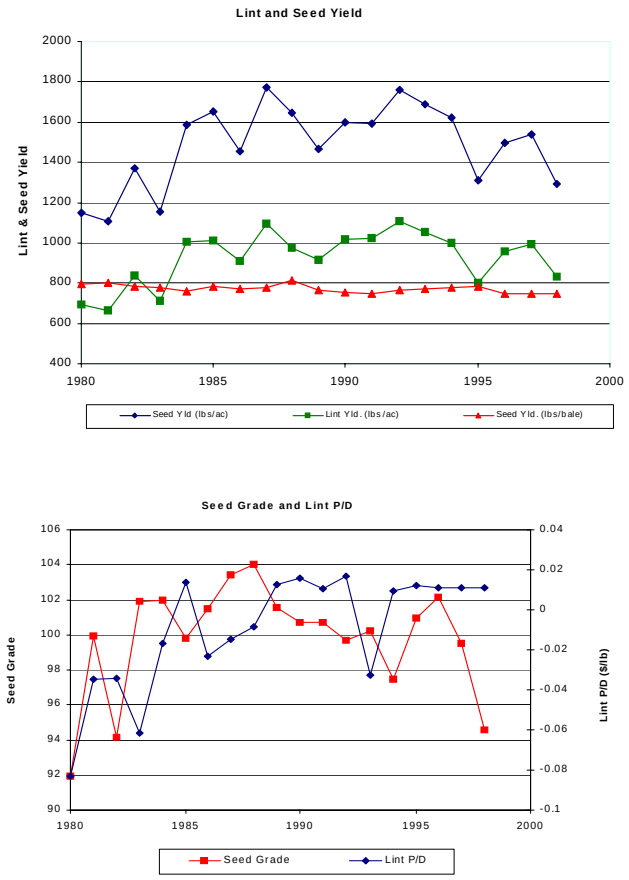

Figure 1. Cotton performance measures.

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