

VALUE OF ON-FARM TESTING FOR VARIETY SELECTION**Darrin M. Dodds****Mississippi State University****Mississippi State, MS****Christopher L. Main****University of Tennessee****Jackson, TN****L. Thomas Barber****University of Arkansas Division of Agriculture****Little Rock, AR****Abstract**

Cotton variety development and subsequent commercial release is currently occurring more rapidly than at any time in history. However, due to the rapid pace of variety development and intense pressure to continually introduce higher yielding varieties, often times varieties are released after limited testing. As such, growers are recommended to plant only a small percentage of their acres to any new variety until they fully understand growth and development, proper management, and yield potential for a given variety on their farm.

University official variety testing (OVT) programs provide valuable data regarding variety performance. However, OVT programs have often been criticized for not representing field scale data. In addition, maturity discrepancies in testing programs with large numbers of entries may contribute to perceived yield differences due to timing of insecticide applications, growth management, irrigation timing, and defoliation timing. Small plot OVT programs do offer the advantage of being easier to place on uniform soil types as well as being easier to intensively manage in order to determine inherent yield potential within a given variety. Additionally, small plot OVT programs allow for determination of yield for varieties containing different insect and/or herbicide resistance traits. Large plot variety testing is not conducive for examination of large numbers of varieties. Also, large plot variety trials are not designed to be conducted under the same level of management as small plot OVT programs; however, they allow the participant to examine a core set of varieties across multiple management strategies employed by growers. Large plot variety testing also allows for examination of a relatively small number of varieties that may be planted on the majority of the acreage in any given state. By reducing the number of varieties examined, increasing plot size, and replicating, large plot variety trial data can provide useful information in regard to on-farm performance.

While all variety testing programs have inherent bias, most provide useful data as long as the limitations of the testing program are understood. The goal of all variety testing programs is to minimize bias associated with the testing program due to design, number of entries, and management and in turn, provide yield information that can be supplied to growers to assist with variety selection decisions. While field scale significance of small plot OVT programs may be questioned, they allow for determination of genetic potential of a wide number of varieties. Large plot variety testing programs are not designed to replace small plot OVT testing programs, rather to supplement the information provided by small plot OVT programs. In essence, the objective of both programs is to determine yield potential of a given variety as well as yield stability of a given variety. On-farm variety testing is beneficial for all involved. Growers gain first hand knowledge of how varieties will perform on their farm under their management system. Consultants gain experience with management practices and their effect on variety performance. Industry personnel are provided with data that can be use to determine proper varietal placement as well as product exposure. University personnel also gain knowledge of variety performance which is used to formulate variety recommendations. Furthermore, on-farm variety testing provides the opportunity to develop and foster relationships with all participants which can lead to increased communication and ultimately, more knowledge for all participants. In short, on-farm variety testing continues to provide useful information in regard to variety selection and is mutually beneficial for all involved.