

Program 14C-2

► **Scott Learning Center – Background 2014**

Presented by Jay Mahaffey

Learning Center Manager, Monsanto Company

During the past few seasons the Scott Learning Center (located on the historical home site of Delta and Pine Land Company) has helped to develop southern specific data useful to southern growers in making better decisions in their farming operations. This presentation will outline what the Learning Center is, how it does the described work and how the information can be useful in the placement of products on a given field.

The Scott Learning center (SLC) is a 200 acre research farm that is farmed in a “commercially simulated” way. This refers to the fact that the farming system in place is intended to represent as much of the farming world as possible. The SLC uses, by design, equipment and techniques that a farmer can readily access in the field. We farm across a variety of soil types in an effort to represent many environ-

SLC – Profile – 2013 - 2014

- Soil type ranges from Sandy Loam to Clays
- Soil Ph from 6.61-7.79
- CEC ranges from:
 - 9.2 on Sands; 14 on Sandy Loam; 22 on Clay Loam; 34 on Clays
- Organic Matter ranges from 0.5-1.6%
- 50-55 inches rainfall /year
- Yield Expectations –
 - Irrigated – 215 Corn; 65 Soybeans; 1300 Cotton
 - 2013 – 260/80/2000+
 - Dryland – 110 Corn; 35 Soybean; 750 Cotton
 - 2013 – 185/60/1450
 - And every gradation in between



ments around the world. Also, multiple crops are cultivated on the Center. Those crops include corn, cotton, soybeans, and occasionally some vegetable species. The chart below outlines the basic setup for the SLC.

SLC – PRIMARY SUBJECTS OF INTEREST

CORN – Corn production is a primary focus of the SLC. We spend a great deal of time contrasting corn production to historical crops of the South, primarily cotton. In producing corn, growers are often faced with decisions which are very different than ones made in other crops. For example, many of the pre planting/planting decisions made in corn production influence the outcome (yield) of a corn crop. These factors include hybrid selection, planting depth, population planted, etc.. Most of these decisions cannot be changed after planting. For this reason, good planning is essential in optimizing the yield of any corn crop. As an example of the potential impacts, let's consider a few of the factors that we have control over when planning a production system.

Planting Depth – Planting depth in corn has two primary impacts as discussed below and in the presentation.

Reduced Productivity - One impact of planting depth is directly agronomic. That agronomic impact is rooting depth which determines the ability of the plant to uptake nutrients and water along with influencing the standability (via root placement) of the crop. In our work the SLC has shown the influence of planting depth to be 15-20 bushels/acre in direct agronomic loss via lower productivity.

Bird Predation – Planting depth influences bird predation by making it more difficult for birds to pull up plants that are more deeply rooted. Across 2 years

we found the yield advantage in changing planting depth from 1.5 to 2.25 inches deep to be 60-100 bushels depending on bird pressure and the associated yield loss.

Population Selection x Hybrid – Many of the newer hybrids in the marketplace today respond positively to higher populations than the historical products grown in the south. The SLC spends time every year in learning how to optimize the yield potential of southern specific hybrids as they enter the marketplace. Some hybrids should be grown at historical populations and some should be pushed to higher (high 30000's) populations to optimize yield. This information will be shared in the presentation.

Soybeans – As a staple crop of the south, soybeans remain a focus of the SLC program. We evaluate populations, row configurations, and various other agronomic components of the southern soybean production systems. These studies include replanting evaluations, 30" vs wide 38" row production, planting populations x variety, and planting date studies. Soybeans, being plastic in their very nature, also allow with good decision making, the opportunity to grow high yielding and sustainable crops in the presence of many factors in the field. Optimization of this decision making can allow growers to produce higher yields. The SLC is generating data to participate in that very conversation.

Cotton. – The SLC continues to support the development, introduction, and management of cotton varieties both old and new. One primary focus of the SLC cotton program is the characterization of cotton varieties early in their cycle. Prior to introduction, the SLC plants new cotton varieties across a widely diverse set of soil types and applies both aggressive and passive plant growth regulator to those varieties along with including an untreated check. As measured in height reduction, crop managers can then have a better idea of how varieties respond to growth regulation. From this work we have identified a range of responses that are as much as 2X different in response to PGR applications across the range of tested varieties. Using this information we can then offer better guidance about how specific varieties should be managed in a grower's field.

Please remember, about 2000 people visit the site every season. The SLC staff has a winter program series that another 1500 or so growers, consultants, and retail partners attend. The SLC is open to the public and we invite anyone interested to attend. To arrange a tour please contact Krista Fratesi at 662-742-4282 or email to us at learning.center-scott@monsanto.com. We would love to see you in the field at Scott.