2004 BELTWIDE COTTON CONFERENCES, SAN ANTONIO, TX – JANUARY 5-9

IMPERIAL VALLEY COTTON TRIAL

Herman Meister
University of California Cooperative Extension
Imperial County, CA

Abstract

In this trial under a "short season" regime, the DP 565 performed the best with 2.53 bales per acre. Early season crop monitoring using the H:N is adequate up until bloom. Once fruiting begins, measuring the distance between the 4th and 5th internode (MID) may be a better choice to monitor plant growth for Pix decisions.

Introduction

Imperial Valley's cotton acreage has dropped to new lows in recent years. Unfavorable markets compounded by increasing expenses such as fuel costs and workman's compensation insurance rates have reduced acreage dramatically. Cotton acreage in the last 30 years has ranged from a high of 140,000 acres in 1977 to a low of approximately 5,200 acres this year. Nevertheless, cotton is a viable crop for the Valley and growers have the capability of rapidly increasing acreage providing markets show some upward movement.

Procedure

Arrangements were made with Bob Bedwell (grower and gin manager) and John Benson (operator) to plant a variety trial on Oleander 27, which is adjacent to Planter's Ginning Co east of Brawley, CA. Six varieties were planted with a John Deere planter on 30-inch row spacing: DP 555BR, DP 565, DP 448B, DP 449BR, DP 33B and SG 125. The 6 varieties were replicated 4 times in a block design. The trial was planted on March 10th and irrigated to a stand on March 12th. The field was pre-irrigated and the weeds were burned down with Roundup. Prowl and Roundup was applied pre-emergence for weed control.

Emergence was satisfactory, but cool spring weather hindered the development of a strong plant, consequently an application of Kelthane was necessary to control mites on April 23rd. Observations indicated that the DP565 showed the strongest emergence followed by DP449BR and SG125. Bloom was initiated in all the varieties during the first week of June. Petiole nitrate nitrogen levels were adequate with levels in the 18,000 ppm range on May 28th. The level gradually declined to 5600 ppm on July 15th.

Results

Stand Count

A stand count early in the crop cycle was inadvertently omitted. Consequently, the stand count was made after the crop was picked. At this time I noted a situation that I would not have seen earlier. Approximately 10% of the plants were "crowded out" or dominated by stronger plants. They were present, but they did not contribute to the yield of the crop. The average plant population was 72,333 plants per acre with an average plant spacing of 2.9 inches. An analysis of variance indicated that there was no difference in plant populations between varieties.

Impact of Mepiquat Chloride (Pix Ultra)

Many researchers have been investigating how to "time" Pix applications for cotton growth suppression. This trial provided an opportunity to compare the "H:N ratio" method to the "maximum internode distance" (MID) technique on several different varieties. The results support previous observations where the MID method is more effective in detecting treatment levels and measuring the impact of the growth suppression during mid and late season the H:N method. The reason for this difference is that the H:N measures the impact of Pix on the entire plant whereas the MID considers the impact on the distance between the 4th and 5th internode only. (Tables 1 & 2)

Silverleaf Whitefly (SWF) Observations

In early August some varietal differences in response to SWF populations were visually evident. A SWF population assessment was performed to determine if there were varietal differences in SWF attractiveness. The results indicated a significantly higher SWF nymph population on the SG 125 than the other Delta Pine varieties. There was no difference in SWF egg and adult populations on the different varieties.

Yields

The March 10th planting date would be considered "early" for our area. The grower intended to plant early and harvest early. The last irrigation was July 18th and Def was applied on August 8th. The field was picked on September 15th. It would have been picked earlier, but the commercial harvesting company delayed an earlier harvest. Even with an early harvest, five of

the six varieties averaged close to 2.5 bales. DP555BR, a variety designed to grow on "tough" ground came up short with about a 2.0 bale average. DP565 and DP 33B produced about 2.5 bales with no difference in production. The DP 448B, SG 125, and DP 449BR were not different from each other in the second group with about 2.4 bales per acre. DP 555BR was last in production with about a 2-bale average. The yields are shown in Table 3.

Summary

In this trial under a "short season" regime, the DP 565 performed the best with 2.53 bales per acre. Early season crop monitoring using the H:N is adequate up until bloom. Once fruiting begins, measuring the distance between the 4th and 5th internode (MID) may be a better choice to monitor plant growth for Pix decisions. In this trial under Imperial Valley conditions, 72,000 plants/acre may have been too high in light of the observations indicating that crowding apparent. Observations indicate that SG 125 is susceptible to SWF damage.

Table 1. Plant Monitoring.

	H:N Evaluations*		
	June 10	**June 23**	**July 1**
DP 565	1.78	1.81	1.82
DP 555BR	1.55	1.65	1.64
DP 448B	1.48	1.64	1.46
DP 449BR	1.53	1.69	1.63
DP 33B	1.46	1.70	1.62
SG 125	1.67	1.81	1.84

*Pix applied on June 13th

Table 2. Plant Monitoring.

Maximum Internode Distance Evaluations (cm)*			
	June 10	**June 23**	**July 1**
DP 565	8.0	5.7	5.4
DP 555BR	7.4	5.5	4.0
DP 448B	7.1	6.1	4.4
DP 449BR	7.5	5.8	4.3
DP 33B	8.6	5.6	4.9
SG 125	7.9	7.2	5.1

*Pix applied on June 13th

Table 3. Cotton Yields.

DP 565	2.53 B/A	A*	32% Turnout
DP 33B	2.49	AB	34%
DP 448B	2.40	BC	35%
SG 125	2.40	C	36%
DP 449BR	2.39	C	37%
DP 555BR	1.98	D	37%

*lsd at .05