Irrigation Termination of Cotton with Boll Weevil Infestations

Charles Farr

ABSTRACT

Two irrigation termination trials at Buckeye and two at Laveen determined that irrigation the last four days of August produced as much lint as irrigation seven to ten days later. Pima S-6 and a late planting of DP 90 after oats responded to water in the same way as the early April plantings of Deltapine 77.

INTRODUCTION

Boll weevils have become a major problem; as a result, an expensive eradication program for the state was initiated in 1988. The objective of the Extension cotton program titled "Operation Early" in Maricopa County since October 31, 1966, has been to produce cotton in less time to reduce costs and overwintering insects. Timely termination of irrigation is a fundamental first step toward effective defoliation and efficient early harvest.

After more than 50 completed field trials in 22 years, the purpose of continuing trials is to persuade that remnant of reluctant growers who have not accepted the goal of termination between August 25 and September 8 (depending upon elevation and soil type).

Some grower reluctance is based on seasonal weather variations and/or their perception of their methods and results. Repeated trials are intended to represent the variations in locations, elevations, seasons, and varieties in a preponderance of data to help achieve community-wide stalk destruction in November or December. Few, if any, controlled tests have been run by growers for measurement under their own supervision in past years.

A report by Farr and Dennis of cotton classing in the 1969 Series P-15 Cotton Report charted the increasing delay each year in the start of harvest from 1961 to 1966 when the extremely serious outbreak of pink bollworms occurred. The previous serious outbreak had occurred in stub cotton south of Buckeye in 1958. The next serious outbreak with boll weevils, not pink bollworms, was in stub Pima one-half mile north of the 1958 outbreak. This perspective should aid in setting high priorities for cultural control benefits.
Table 1. Irrigation Termination Trial Saylor Bros., Buckeye, Coolidge Sandy Loam

<table>
<thead>
<tr>
<th>Final Date</th>
<th>Harvest Date</th>
<th>Lint Turnout</th>
<th>Lbs. Lint Per Acr</th>
<th>Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aug 29</td>
<td>Oct 14</td>
<td>36.3%</td>
<td>1882</td>
<td>31-35-48</td>
</tr>
<tr>
<td>Sept 8</td>
<td>Oct 15</td>
<td>36.0%</td>
<td>1860</td>
<td>31-36-48</td>
</tr>
<tr>
<td>Aug 21</td>
<td>Oct 14</td>
<td>34.5%</td>
<td>1714</td>
<td>21-35-47</td>
</tr>
</tbody>
</table>

Location - Palo Verde Rd/Freeway Irrigations - 15, 16, 17
Soil - Coolidge sandy loam 6/10, 6/15, 6/22, 7/6, 7/14
Variety - DP 77 7/21, 7/27, 8/4, 8/21, 8/29
Lbs seed - 15-16 (9/8)
Plant date - Apr. 7 Insecticides - 10
Germ. irrig. - Apr. 18 Dates - 5/8, 7/6, 7/16, 7/28
Plot size - 4 tows x 968’ 8/4, 8/13, 8/20, 8/29, 9/5,
Herbicide - Prowl & Caparol 9/15
Fertilizer - 10 T. manure Defoliation
5/10 - 10 gal Uran 32 9/15 - .174 #DROPP
6/9 - 30 gal Uran 32/Ac 9/29 - 2.29 pt. L-10
Single harvest - Oct 14, 15
Grades
Aug 21 - 80% 21’s, 20% 31’s
Aug 29 - 80% 31’s, 20% 21’s
Sept 8 - 100% 31’s
### Table 2. Irrigation Termination Trial, Saylor Farms, Buckeye, Laveen Sandy Loam

<table>
<thead>
<tr>
<th>Irrigation Final Date</th>
<th>Harvest Date</th>
<th>Lint Turnout</th>
<th>Lbs Lint Per Acre</th>
<th>Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aug 28</td>
<td>Oct 23</td>
<td>35.1</td>
<td>16802</td>
<td>21-35-47</td>
</tr>
<tr>
<td>Aug 21</td>
<td>Oct 23</td>
<td>36.0</td>
<td>1625</td>
<td>31-35-42</td>
</tr>
<tr>
<td>Sept 8</td>
<td>Oct 26</td>
<td>35.1</td>
<td>1620</td>
<td>31-36-47</td>
</tr>
</tbody>
</table>

Location - Baseline & Wilson, Irrigations - 15 (16)
1/4 west Dates - 4/24, 4/29, 5/18,
Soil - Laveen sandy loam 5/29/ 6/16, 6/26, 7/5,
Previous crop - C, Barley/E, C. 7/12, 7/16, 7/22, 7/30,
Variety DP 77 - 15 lbs 8/7, 8/18, 8/20, 8/29,
Plant date 4/13, irrig 4/24 (9/8)
Plot size - 4 rows x 1207' Insecticides - 7 applic.
Herbicide - Prowl, 1.14 pt Dates - 5/30, 7/28, 8/4, 8/13,
Fertilizer - 10 T. manure 8/20, 9/1, 9/12
6/12 sidedress 30 gal UN 32 Defoliation
7/7 10 gal UN 32 9/12 DROPP 50W - .14 lb
9/26 Harvest Aid .71 gal
10/9 L-10 2.27 pt.
Harvest - October 23, 26
Grades
Aug 21 - 71% 31's, 29% 21's
Aug 28 - 71% 21's, 29% 31's
Sept 8 - 86% 31's, 14% 21's

### Table 3. Irrigation Termination Lee Banning, Laveen, Late DP 90

<table>
<thead>
<tr>
<th>Irrigation Final Date</th>
<th>Harvest Date</th>
<th>Lbs Lint Per Acre</th>
<th>Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aug 31</td>
<td>Nov 10</td>
<td>1242</td>
<td>21-36-50</td>
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<tr>
<td>Aug 16</td>
<td>Nov 10</td>
<td>1231</td>
<td>21 36 50</td>
</tr>
</tbody>
</table>

Location - 1/2 so L. Buckeye Irrigations - 7
& 67th Avenue 5/5, 6/18, 7/2, 7/17,
Soil - Trix cl. loam, 7/30, 8/16, 8/31
Avondale cl. loam Insecticide Appl - 7
Variety DP 90 Rainfall 11/2, 12/5
Lbs. Seed - 12 Harvest date - Nov 10
Herbicide - Treflan & Caparol Grades - 21-36-50
Fertilizer - 15 gal UN32-5/14
150# NH3
7 gal UN 32
Table 4. Irrigation Termination, Lee Banning, Laveen, Pima S-6

<table>
<thead>
<tr>
<th>Irrigation Final Date</th>
<th>Harvest Date</th>
<th>Lbs Lint</th>
<th>Per Acre</th>
<th>Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aug 20</td>
<td>12/11</td>
<td>962</td>
<td></td>
<td>4-46-40</td>
</tr>
<tr>
<td>Sept 10</td>
<td>12/11</td>
<td>949</td>
<td></td>
<td>4-46-40</td>
</tr>
</tbody>
</table>

Location - 1/2 so L.Buckeye Irrigations - 7 & 67th Avenue 4/15, 5/5, 6/4, 6/21,
Soil - Gilman loam, Avondale 7/2, 7/24, 8/20, 9/10
Cl. loam
Variety - Pima S-6 Insecticide Appl - 7
Lbs seed - 12 Rainfall - Nov 2 - 1.28
Herbicide - Treflan & Caparol Dec 5 - 1.13
Fertilizer - 15 ga UN32 5/16 Harvest date - Dec 11
150# NH3 - 6/6 Grades: all 4’s
7 gal UN32 - 7/2
Germ. Irrig. - 4/15