Field Test of "Farm For Profit®" Burley Tobacco Production Program

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Background

Considerable interest exists among local farmers in Scott County, Kentucky, about a “Farm For Profit®” tobacco production program being advocated by the representative of a product supplier as a means of improving burley tobacco production. Because of this interest, we conducted a field test of this program in 1993. The objective was to compare yield results from this “program” with those from two, more conventional practices.

Treatments Tested

1. The “Program.” This treatment involved use of what we assumed to be a soil wetting agent (Achieve) and a bacterial soil inoculant (Step 1 Bacteria). The “program” also consisted of foliar application of liquid fertilizer. It was recommended by the supplier that these products be applied in a prescribed manner in addition to the required amount of phosphate and potash based on soil test, and 200 lbs/A N broadcast and disked in just ahead of transplanting. The prescribed recommendations made for this “program” were as follows:
   - Spray 1 quart Achieve plus 1 pint Step 1 Bacteria per acre and disk it in ahead of transplanting.
   - Broadcast and disk in 200 lbs N per acre just ahead of transplanting (use either Amm. nitrate, urea, or UAN solution.
   - On a per acre basis, use 4 gallons 3-18-18, plus 1 quart Achieve, plus 1 pint Step 1 Bacteria in 300-400 gallons water as a setter water treatment when transplanting.
   - After the tobacco starts growing in the field (2-3 weeks after transplanting), begin the foliar fertilization. This program will consist of a minimum of 4 applications through the growing season and can be applied every time insecticide is applied. Unless the early season has been wet, begin with 3 gallons per acre of 3-18-18 and the switch to 2 gallons per acre of 10-20-10. Mix these in 20-30 gallons of water per acre. Do not spray in the heat of the day or when conditions might cause scalding.

2. Sidedressed N. This treatment consisted of broadcasting any phosphate and potash needed, based on soil test, plus 322 lbs N/A and disking it in just ahead of transplanting.

3. Producer’s Normal Practice. This treatment consisted of broadcasting any phosphate and potash needed, based on soil test, plus 322 lbs N/A and disking it in just ahead of transplanting.

Description of the Study

The study was conducted on a 2 to 6% sloping field of Maury and Elk silt loam soil with soil test levels of: pH 6.9, P205, and K 226. Both soil types are deep, well drained, and are excellent tobacco soils. The field had been used for double-cropped wheat and soybeans in 1992. The entire field received 250 lbs/A of K2O. No P2O5 was used because of the very high soil test. The potash together with the 200, 322, and 200 lbs N/A, respectively, for the Program, the producer’s normal practice, and the sidedressed treatments, were broadcast and disked in just ahead of transplanting. Additional prescribed treatments were applied to the “Program Treatment” as indicated in the treatment description. Also, the “Sidedress Treatment” received an additional 100 lbs N/A sidedressed. All treatments received an extra 30 lbs N/A, applied in irrigation water in mid-July, as insurance against leaching losses that
may have occurred following heavy rainfall soon after transplanting.

This was a field-scale study with all operations being performed by the grower with conventional tobacco equipment. Each treatment was laid out across the entire field length of approximately 1,000 feet. Two varieties were grown in the field (one half the field was “KY 10” and the other half was “8959”), and each of the three treatments tested was laid out in each variety. The “Program Treatment” was 6 rows wide along the edge of the field with the next 10 rows being used for the “Sidedress Treatment.” The “Producers Normal Treatment” made up the rest of the field. Plants were set 19 inches apart in 39 inch wide rows, for a population of 8,465 per acre. Leaf yields were estimated by weighing the cured leaf from 30 stalks (5 sticks) taken at each of 6 locations along the 1,000 ft rows. At each location, sampling of the 3 treatments was done “side-by-side.”

Yield Results

Yield estimates made from weighing the cured leaf from 30 stalks at each sampling site are summarized in the following table.

Discussion

As shown by the results, yield from use of the Farm for Profit “Program” for burley production was not as great as that from Reduced yields from the “program” very likely were due to the lower rate of nitrogen used. Products required for the “program,” and their cost of application added $111.20 in costs above that of the 230 lbs/AN and 250 lbs/A K,O applied. The following table summarizes average yields of the 2 varieties and the cost of fertilizer, “program components,” and application.

As shown in the table above, costs for the Farm for Profit “Program” added $80.09/A overfertilizer cost for the producer’s normal practices, and yields were less. The “sidedress” treatment cost the grower $9.39/A more than his normal fertilizer practice and returned him no extra yield. In this situation, where tobacco was produced on deep, well-drained soil, the producer’s normal practice of broadcasting N and K,O and disking it in just ahead of transplanting was the most profitable treatment tested.

<table>
<thead>
<tr>
<th>Sample</th>
<th>Var. KY 10</th>
<th>Var. 8959</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Program</td>
<td>Sidedressed</td>
</tr>
<tr>
<td>lbs cured leaf/A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>2792</td>
<td>3207</td>
</tr>
<tr>
<td>2</td>
<td>2323</td>
<td>3392</td>
</tr>
<tr>
<td>3</td>
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</tr>
<tr>
<td>6</td>
<td>2592</td>
<td>2949</td>
</tr>
<tr>
<td>Avg.</td>
<td>2794</td>
<td>3100</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Lbs N/A</th>
<th>Avg. Yield</th>
<th>K,O</th>
<th>Program Costs</th>
<th>Application Costs</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program</td>
<td>230</td>
<td>2915</td>
<td>58.65</td>
<td>62.50</td>
<td>86.20</td>
<td>35.00</td>
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<tr>
<td>Sidedress</td>
<td>330</td>
<td>3103</td>
<td>84.15</td>
<td>62.50</td>
<td>-</td>
<td>25.00</td>
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<tr>
<td>Normal</td>
<td>352</td>
<td>3168</td>
<td>89.76</td>
<td>62.50</td>
<td>-</td>
<td>10.00</td>
</tr>
</tbody>
</table>

Avg. from 2 varieties.
N cost was $ 0.255/lb N.
K,O cost (as sulfate of potash) was $ 0.25/lb K,O.
Program costs/A were for 2 qts Achieve, 3 pts Step 1 Bacteria, 4 gal 3-18-18 foliar fertilizer, 8 gal 10-20-10 foliar fertilizer.
Application costs/A were: Program, $10 for broadcasting N and K,O, $10 for spraying material prior to final disking, $15 for 1 foliar application (4 foliar sprays were made but only 1 was an added application cost since 3 sprays also contained insecticide). Sidedress, $10 for broadcasting N and sprays and K,O and $15 for sidedressing N. Normal, $10 for broadcasting N and K,O.

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