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Fire-Cured Tobacco

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Agricultural Extension Service
Virginia Polytechnic Institute
Blacksburg, Virginia

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The average yield of fire-cured tobacco in Virginia is about 1300 lbs. per acre. Many growers who follow good production practices are producing 1800 to 2000 lbs. of high quality tobacco. However, there are also many growers who produce less than 1300 lbs. of poor to average quality tobacco per acre.

If you are in the low yield group, you can increase both your yield and quality by following better production practices. Check your practices against the following recommendations to see if you have weak points in your program.

Soils

Grow your tobacco on the best tobacco soil you have. Remember that soil type and fertility have much to do with leaf quality. The best tobacco is generally produced on the Cecil, Lloyd, Madison, and Appling soil series. These soils have grey to brown topsoil and dark red to reddish yellow subsoils. No soil will produce satisfactory tobacco crops if most the topsoil is gone, or if it is low in organic matter. Be sure the soil on which you plant your tobacco has good internal and external drainage.

Rotations

Use a 3-year rotation as follows: first year — tobacco; second year — small grain; third year — red clover. Plow under the second crop of red clover. It will add some ni-
trogen and do much to improve the physical condition of your soil. Red clover is better than lespedeza in the rotation because (1) it keeps the land covered with a green crop in winter and its green roots prevent leaching of valuable plant nutrients, whereas lespedeza is dead during the winter, (2) lespedeza in the rotation also seems to increase tobacco root rots, and (3) red clover adds more organic matter and nitrogen to the soil.

The crops in this rotation will remove from the soil, in a 3-year period, approximately 172 lbs. of nitrogen, 42 lbs. of phosphorus, and 180 lbs. of potash.* The large amount of potash removed focuses attention on the importance of providing large quantities of this element under your tobacco.

If root rot is a problem on your farm, grow your tobacco on fields with a pH of approximately 5.5. Since red clover will not thrive at this pH, it is suggested that small grain and/or fescue be substituted for clover in the rotation.

Varieties

If your tobacco yields have not been satisfactory, the trouble may be with the variety you are growing. Recommended varieties with their performance records are as follows:

Table 1.—Variety Performance* — 1961
(5 locations)

<table>
<thead>
<tr>
<th>Variety</th>
<th>Yield</th>
<th>Value</th>
<th>Price Per 100 lbs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lizard Tail Orinoco</td>
<td>1818</td>
<td>$919</td>
<td>$50.56</td>
</tr>
<tr>
<td>Hastings</td>
<td>1782</td>
<td>$879</td>
<td>$49.36</td>
</tr>
<tr>
<td>Brown Leaf</td>
<td>1675</td>
<td>$874</td>
<td>$52.27</td>
</tr>
<tr>
<td>Walker's Broad Leaf</td>
<td>1766</td>
<td>$867</td>
<td>$49.24</td>
</tr>
<tr>
<td>Nance</td>
<td>1753</td>
<td>$856</td>
<td>$48.75</td>
</tr>
</tbody>
</table>

*Quantities of nutrients removed are based on yields per acre as follows: Tobacco 1000 lbs. leaves, and 1000 lbs. stalks; wheat 25 bu.; red clover hay 2 tons.
Table 2.—Nine Year Average — 4 Varieties*  
(6 Locations)

<table>
<thead>
<tr>
<th>Variety</th>
<th>Yield</th>
<th>Value</th>
<th>Price Per 100 lbs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brown Leaf</td>
<td>1644</td>
<td>$787</td>
<td>$47.87</td>
</tr>
<tr>
<td>Walker’s Broad Leaf</td>
<td>1675</td>
<td>$769</td>
<td>$45.91</td>
</tr>
<tr>
<td>Lizard Tail Ori 10co</td>
<td>1608</td>
<td>$710</td>
<td>$44.15</td>
</tr>
<tr>
<td>Hastings</td>
<td>1583</td>
<td>$709</td>
<td>$44.79</td>
</tr>
</tbody>
</table>

*Data in Tables 1 and 2 are from Variety Evaluation Tests conducted in Amelia, Appomattox, Bedford, Campbell, Charlotte, and Prince Edward Counties, by the Virginia Agricultural Experiment Station.

Plant Production

One of the most important steps you can take in producing a satisfactory crop of tobacco is to have plenty of good, strong, healthy, plants for early transplanting. Here are 8 plant production practices that will help you have the kind of plants you want when you need them:

1. Select a good plant bed site on good loamy soil, near a source of clean (disease free) water.
2. Make your plant beds narrow (2 to 3 yards wide).
3. Control weeds by use of chemicals and cover crops.
4. Use plant bed fertilizer (4-9-3).
5. Seed at recommended rates (Do not use more than one level tablespoonful of seed per 100 square yards).
6. Water your bed as often as necessary to keep plants growing. (A critical time is when seeds are germinating and when transplants are pulled.)
7. Control blue mold.
8. Control plant bed insects (flea beetles, June beetle grubs and aphids).

Get a copy of V. P. I. Circular 437, “Tobacco Plant Bed Management,” from your county agent. This circular gives complete information about all phases of managing your plant bed.
Fertilization

A soil test will help you decide which grade of fertilizer you should use to provide your tobacco with adequate amounts of nitrogen, phosphorus, and potash. In addition to results of the soil test you should consider: (1) the amount and quality of manure to be applied, (2) the stand and growth of legume to be turned under, (3) the cropping and fertilizer history of the field, and (4) the yield and quality of tobacco generally produced on the field in question.

General Recommendations

Nitrogen — Failure to provide enough nitrogen is often the cause of low yields. However, too much nitrogen will cause your tobacco to be large, rough, and of poor quality. If you apply 10 tons of good manure per acre, and turn under a clover sod, the fertilizer you use should contain about 40 to 50 lbs. of nitrogen. But if you do not apply manure and you do not plow under a legume, you should add about 100 lbs. of nitrogen to your fertilizer.

Phosphorus — This element is essential for early growth and rapid root development. If the soil test shows phosphorus to be poor and heavy applications of phosphorus have not been made in recent years, broadcast and plow under 400 to 500 lbs. of 20% superphosphate per acre. If your soil test shows phosphorus to be medium to high, the amount of this element in the regular tobacco fertilizer should be adequate.

Potash — Your soil must have large quantities of potassium to produce high quality tobacco. If you apply 10 tons of good manure and your soil test shows potash to be high or very high, you should supply about 90 to 100 lbs. of potash per acre in your commer-
cial fertilizer. If you do not have manure and your soil test shows potash to be poor or medium, you should supply 180 to 200 lbs. of potash in your commercial fertilizer.

After you have decided upon the amount of nitrogen, phosphorus, and potash you should use, select from the tobacco fertilizer grades listed below the analysis that most nearly fits your needs.

### Nutrients contained in

<table>
<thead>
<tr>
<th>Analysis</th>
<th>1000 lbs.</th>
<th>1200 lbs.</th>
<th>1500 lbs.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N P₁O₅, K₁O*</td>
<td>N P₁O₅, K₁O</td>
<td>N P₁O₅, K₁O</td>
</tr>
<tr>
<td>3-9-9...</td>
<td>30-90-90</td>
<td>36-108-108</td>
<td>45-135-135</td>
</tr>
<tr>
<td>4-8-12...</td>
<td>40-80-120</td>
<td>48-96-144</td>
<td>63-129-180</td>
</tr>
<tr>
<td>5-10-15...</td>
<td>50-100-150</td>
<td>60-120-180</td>
<td>75-150-225</td>
</tr>
</tbody>
</table>

*N — Nitrogen, P₂O₅ — Phosphate, K₂O — Potash.

If no manure is used, or if the manure used is of poor quality, you will need to apply more nitrogen and potassium fertilizer than when an application of good manure is applied.

On the heavier soils (Cecil, Lloyd, etc.) you should apply all fertilizer before transplanting your tobacco. On lighter soils (Appling), you may need to apply extra nitrogen as a side-dressing.

Place your fertilizer in the soil so that it will not be in direct contact with the roots of newly set plants. Fertilizer injury is frequently the cause of poor stands and irregular crops.

### Soils of medium to low fertility — Place a part or all of the fertilizer in the row. If band placement equipment is available, place the fertilizer in two bands about 7 in. apart so it will be 1 to 2 in. below the roots of the newly set plants. If band placement equipment is not available, place the fertilizer in the center of the row deep enough so that it will be 1 to 2 in. below the roots of newly set plants.
Some growers are saving labor and getting good results by applying fertilizer broadcast and planting "flat", without ridging. When this is done the fertilizer should be plowed or disked in. Additional nitrogen and potassium is then added as a side application as needed.

Soils with high levels of fertility — On these soils, the fertilizer may either be broadcast or placed in the row as recommended above.

For more detailed information see circular 778 "Guide for Liming and Fertilizing Sun-Cured Tobacco Soil."

**Liming**

Never lime your tobacco land without first having your soil tested. Then apply only enough lime to meet the requirements for growing clover. A good time to apply lime in your tobacco rotation is just before seeding your small grain.

**Spacing**

Space your rows $3\frac{1}{2}$ ft. apart and your plants 30 in. apart in the row. This will provide approximately 5,000 plants per acre. Wider spacing is unnecessary and will give you fewer plants per acre. Closer spacing does not permit enough sunlight and increases competition for moisture and plant nutrients.

**Transplanting**

Here are 5 suggestions that will help you get a good stand of tobacco with your first transplanting:

1. Be sure your fertilizer is not in direct contact with the roots of the plants.

2. Grade your plants as they are drawn from the bed and use only those that
are stocky, uniform in size, and free of disease and insect injury.

3. Do not let the roots dry out between the time they are drawn and the time they are planted in the field.

4. If your plant bed is dry at transplanting time, be sure to wet it thoroughly with clean water before drawing plants. This will prevent breaking off fine feeder roots which the plants must have to withstand the shock of transplanting and to become quickly established.

5. If wireworms are a problem, use chlordane, heptachlor, aldrin, or lindane in your transplant water. Do this even though you plant on a “season.” Dipping of roots in transplant solution is not recommended.

(Assistance from pathologists and entomologists with the disease and insect aspects of this circular is gratefully acknowledged.)