

# Burley Tobacco All-Practice Demonstration Outline-1963

## Objectives

(1) To increase burley tobacco yield, quality, and net income, particularly on farms where yields have been consistently low. (2) To determine production potentials when all the recommended production practices are used.

## Demonstration

Scope. A demonstration unit can vary in size from a few rows to the entire acreage on the farm. The number of official "All-practice" demonstrations should be limited to the number that can be closely supervised by the personnel available.

Local Organization. The demonstration should be a "team effort" of agricultural workers and industry, with the County Extension Chairman named as co-ordinator. It is suggested that the supervision of each phase of the demonstration outline be assumed by a member of the group with most experience, or specific interest, in that phase. For example, a fertilizer representative, or a machinery dealer, might be responsible for proper placing of the fertilizer to prevent injury to stands.

Selecting the farm cooperator. Choose a farmer who is a leader in the community, interested in improving his level of production, and the standard of living in his community. The farmer's past history of production should be about the average level of the community, or below. His resources and management should be typical of the community.

Variety Selection. Burley 21 (resistant to wildfire and mosaic) is recommended for all demonstrations except where black shank or black root rot are anticipated as serious disease problems. If black shank is anticipated, use Burley 37 (resistant to wildfire and black shank). If black root rot is anticipated, use Kentucky 12 (resistant to wildfire, mosaic and black root rot).

## Plant Bed Procedures

Location. Select a south to southwestern exposure, preferably with protection on the north. The location should be selected with the idea of using it as a permanent plant-bed site. A loamy type soil, of the type found along streams, is preferable. The bed should also be easily accessible and a source of water should be closely available.

Soil Preparation. The soil should be well pulverized and worked down to a smooth, pliable surface.

Fertilization. One to 1 1/2 pounds per square yard of a 4-9-3 tobacco plant-bed fertilizer should be thoroughly mixed with the upper 3 inches of soil. Time of application of the fertilizer will depend upon when the beds are fumigated. If spring fumigation is practiced, fertilize before fumigation. In this case, supplement the 4-9-3 fertilizer with 3 to 4 pounds of nitrate of soda per 100 square yards. If fumigation is done in the fall, fertilize the bed 7 to 10 days before seeding. In this case, the supplemental nitrate of soda will not be needed.

Fumigation. Use methyl bromide following procedures described in Extension Circular No. 427, "Kill Weeds and Nematodes in Tobacco Plant Beds." Fall fumigation is generally preferable over spring fumigation. When fall-fumigated, the beds must be boxed in and ditched adequately to prevent recontamination with weed seed from surface water.

Seeding. Seeding should be done between March 1 and 15. Use 1/4 ounce of certified seed per 100 square yards, spread uniformly over the bed.

Protection. The beds should be boxed in with boards or poles. It is, however, recognized that good plants are often produced when the covers are placed flat on the beds over a thin coat of straw, and pegged down around the edges. Use a good 24x28-inch mesh cheesecloth cover. (The use of plastic covers following seeding has proved to be very helpful in producing good stands and early transplants in experimental tests. Growers who want to use plastic covers will be advised on procedures.)

Watering. Adequate soil moisture should be maintained in the beds at all times.

Topdressing. When the fertilizer program outlined above is followed, topdressing is not usually necessary. Occasionally a nitrogen deficiency develops. This can be corrected by applying 3 to 5 pounds of nitrate of soda on the bed when the plants are dry, and then watering the bed thoroughly.

Hardening off the plants. Remove the cheesecloth cover 5 to 7 days before the plants reach transplantable size.

Pulling the plants. Be sure the plant-bed soil is moist and pliable before pulling plants. If it is hard and dry, most of the roots will be left in the soil. Pull only strong, thrifty plants.

Disease control. The use of methyl bromide and the three resistant varieties described above will control all diseases that the grower is likely to encounter in the plant bed, except blue mold, anthracnose, and damping-off. These three diseases are controlled by fungicides containing zineb, ferbam, or maneb applied as a spray or dust at the following rates:

	<u>Spray</u>	<u>Dust</u>
zineb	2 1/2 tablespoonfuls/gal. water	6.5% zineb with talc or pyrophyllite.
ferbam	5 tablespoonfuls/gal. water	11.4% ferbam with talc or pyrophyllite.
maneb	1 teaspoonful/gal. water	1.4% maneb with talc or pyrophyllite.

Apply first time when the plants are the size of a dime and make one application each week until transplanting.

Insect control. The following schedule of three insecticide applications will, in most cases, give adequate control of plant bed insects. However, other insects that attack plant beds may require specific control.

Dust or spray plants and soil (1) when plants first appear; (2) when leaves are about 2 inches across, and (3) immediately before pulling. For this preventative program, use 5% or 10% DDT at the rate of 3/4 to 1 1/2 pounds per 100 square yards, or spray with 1 pound of 50% DDT wettable powder in 50 gallons of water (1.6 oz. in 5 gallons) at the rate of 3-5 gallons of finished spray per 100 square yards.

Slugs and snails, which often attack burley plants, can be controlled with commercially prepared baits containing methaldehyde. Apply bait to ground (not on foliage) in late afternoon at rates according to labels on the container.

## **Field Procedures**

Field Selection. Select well-drained, fertile bottom-land or upland colluvial terrace. Field should have been out of tobacco for at least two years.

Soil Sample. During February, take soil sample in the field selected for the demonstration. Mark the container "Burley All-Practice Demonstration." Also, have copy of soil test report sent to D. M. Gossett. The County Extension Chairman and D. M. Gossett will then visit the location to make final recommendations.

Land Preparation. The field should be turned before the cover crop reaches a height of more than 12 to 14 inches, or at least six weeks before transplanting, and should be worked down to a firm seed bed.

Application of Fertilizer. Place not more than 600 pounds of mixed

fertilizer 6 to 8 inches deep in the row. Broadcast remainder of mixed fertilizer and phosphate, if needed, and disk in before rows are run. Additional potash and nitrogen should be sidedressed at first cultivation.

Date of Transplanting. Transplant about May 15 and not later than June 1. Replant within 7 to 10 days to assure 100% stand.

Plant Spacing. Use a 48-inch row and space plants 14 inches in the hill.

Cultivation. Shallow cultivation to a depth of not more than one inch and only at frequent enough intervals to control weeds.

Topping and Suckering.

1. Remove tops when most of the plants are in mid-flower, and,
  - a. Remove suckers by hand, or
  - b. Use an oil emulsion, or
2. Remove tops when most of the plants are in mid- to full-bloom; remove any existing sucker growth and treat with MH-30.

The height of topping will vary with plant spacing, varieties, amount of fertilizer, rainfall, and degree of growth at topping; however, it is recommended that all plants be topped down to a good marketable size leaf.

If suckers are removed manually (1 a), they should be removed before they are elongated and become tough to avoid undue growth and leaf breakage. All plants should be relatively free of suckers immediately before cutting.

If an oil emulsion is used (1 b), mix according to directions (usually 1 part material and 1 part water) and apply only enough to run down to the bottom of the plant, and no more. The usual amount is 5 to 8 cc per plant, with an adjustment for size of plant. Poor results can be expected if plants are leaning or crooked or unfavorable weather conditions exist.

If sucker growth is to be controlled by MH-30 (2), all elongated suckers should be removed immediately before, or soon after, application. The material can be applied with any type sprayer that will uniformly spray 20-50 gallons of liquid per acre. These include small hand sprayers, mule-drawn, tractor-drawn or tractor-mounted sprayers. A fine mist type nozzle should be used and directed to uniformly cover the upper half of the plant. Morning applications are preferred over late afternoon. If a hand or knapsack sprayer is used, three gallons of solution should treat between 450 and 550 plants (20-25 ml. /plant less 100 ml. or so left in the sprayer). To make the solution, use 3 gallons of water, 1/2 pint of MH-30 and mix thoroughly before spraying.

### Harvesting.

1. Priming - the bottom 4 to 6 leaves should be primed when ripe (having a creamy or lemon color) but before excessive deterioration. These leaves should be strung on sticks with two leaves per hand and about 25 to 30 hands per stick. The leaves in each hand should be placed back-to-back. After stringing, place the primed tobacco near the top of the barn with about 10 to 12 inches between sticks.
2. Cutting - the tobacco should remain in the field until it is thoroughly ripe. This is usually 4 to 5 weeks after topping. The top leaves should exhibit a distinct yellow color when harvested; however, the degree of deterioration of the lower leaves should also be considered and held to a minimum.

As the plants are cut, they should be speared with not more than five plants per 4-foot stick. After wilting a few hours, move the tobacco into the barn. This is particularly important when there is a chance of rain or other unfavorable weather conditions.

### Disease Control in the Field.

1. Nematodes - Obtain soil samples for nematode assay to determine kind and approximate number present. Send sample to F. A. Todd, Plant Pathology Extension Specialist, N. C. State College, Raleigh, N. C.
  - A. If medium to high population is present, use fumigant for control
    - (1) Apply fumigants (mixtures of soil fumigants such as Dorrone, Fieldfome, etc.) at rate of 6 gallons per acre, about 14 inches below top of large ridge prepared by the use of turning plow or four discs on tractor.
    - (2) Allow at least two weeks waiting period before transplanting.
  - B. Plow out tobacco stubbles following cutting in order to prevent late season build-up of nematodes during winter.
  - C. Plan rotation for long range control. Such alternate crops as fescue, bluegrass, corn, or orchard grass, should prevent a build-up of nematodes in burley soils. Legumes should not be used in rotation.
2. Black shank - Use resistant variety (Burley 37) and follow crop rotation.
3. Black root rot - Use resistant variety (Ky. 12) and follow crop rotation suggested under nematode control. Select field that has

been out of tobacco two or more years. Turn cover crop early and avoid use of more than 10 tons of manure per acre. Check soil pH and exercise caution in use of lime.

#### 4. Leaf Spot Diseases -

A. Wildfire - all varieties listed above have resistance.

B. Brown spot, Ascochyta leaf spot - Practice rotation suggested under nematode control. Destroy all crop refuse immediately after cutting. If leafspot diseases become severe, cut at an earlier date.

C. Mosaic -

(1) Use resistant variety (Burley 21 or Ky. 12).

(2) Practice crop rotation (use crops suggested for nematode control).

#### Insect control in the Field.

##### 1. Newly-set plants -

A. Wire worms - Broadcast and disc into soil surface 1 to 2 weeks before transplanting, 1 pound dieldrin or 2 pounds aldrin or heptachlor where failures have not previously been experienced. If satisfactory control has not been obtained with these materials, use Diazinon at rate of 1 pound per acre and disc into soil surface 1 to 2 weeks prior to transplanting. If transplant water solutions are to be used, see your County Extension Chairman for details.

B. Cutworms - When damage is noticed, dust plants and ground with 10% DDT. Dust late in the afternoon.

C. Flea beetles - If plant beds are treated, many of the early treatment problems will be solved. It is necessary to dust or spray the whole plant for effective flea beetle control. Use 5% or 10% DDT, 1 1/2% endrin, or 1 1/2% dieldrin dust.

##### 2. Larger tobacco plants -

A. Budworms - Use hand applications of recommended insecticides with puff duster or hand sprayer as soon as budworms are noticed. Dust with 10% DDT or TDE, 1 - 1 1/2% Endrin or 3% Thiodan at the rate of 5-8 lbs. /A. Direct dust at each bud. Contact your County Extension Chairman for materials and rates on sprayers and power equipment. If power equipment is used, spray or dust 2 to 3 times at 7 to 10-day intervals until flower bud forms, as a preventive treatment.

- B. Hornworms - Treat with TDE, Endrin, Thiodin, or Sevin if 5 or more medium sized worms are found per 50 widely scattered plants.
- C. Flea beetles - Same as for newly-set plants. Be sure to get complete coverage.
- D. Grasshopper - Treat tobacco plants and barriers around the field (15 to 30 feet wide) with Aldrin, Heptachlor, Dieldrin, or Chlordane dust or spray.
- E. Cabbage loopers - This insect is difficult to control. Endrin, as for hornworms, is fair.
- F. For miscellaneous insect problems that may arise, see your County Extension Chairman.

Curing. The barn should be located in an area where good air circulation and soil drainage exist. The vertical distance between tier poles should be a minimum of 5 feet and the bottom tier should be, at least 8 feet from the ground. Hang sticks with 5 plants, 10 inches apart, on tier. In barns with 4-foot tiers, hang every other tier and place sticks 8 inches apart.

Avoid open sheds. A reasonably tight barn should be used with means of providing ventilation when needed. Generally, the ventilators should be open during periods of clear to overcast days, and closed at night. During periods of rainy or foggy weather, the ventilators should be closed all day. Supplemental heat should be used during prolonged periods of wet weather.

#### Sorting and Marketing.

1. A casing-house is desirable to get the tobacco in proper case for stripping. Avoid stripping during rainy or foggy weather when tobacco is in too high case.
2. Strip and sort the tobacco according to group, quality, and color. This usually requires 5 to 6 farm grades.
3. After sorting and tying, the tobacco should be bulked down in proper case on tobacco sticks until it is placed on the basket for taking to market. Refer to Extension Circular No. 432, "Preparing Burley Tobacco for Market."

Records. Keep accurate cost, yield, and quality records on the demonstration and send to D. M. Gossett, Waynesville, N. C., after the tobacco has been marketed.

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