A STUDY OF THE BURLEY TOBACCO INDUSTRY

OF

WASHINGTON COUNTY, VIRGINIA,

BY

S. B. FENNE

A STUDY OF THE BURLEY TOBACCO INDUSTRY OF WASHINGTON COUNTY, VIRGINIA

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BY

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STATEMENT OF PROBLEM.

Though tobacco has been grown in Washington County for many years, it has become of commercial significance only during the last decade. The growing interest in the crop is due to the increased use of white Burley tobacco in cigarettes and smoking tobaccos, which has caused this type to sell at a relative high price.

As the number of growers of this crop is increasing in the county, and, since careful attention to all cultural operations is necessary for success, it was thought desirable to study the methods of the best growers of the section and publish the results of this study for the benefit of new growers. To date, no experimental work has been done in this state with Burley tobacco.

MATERIALS AND METHODS

The suggestions in this paper are based upon seventy-five questionnaires filled out by Washington County tobacco growers and upon numerous visits and conferences with the more successful growers.

QUESTIONNAIRE ON BURLEY TOBACCO.

1. Variety or strain of tobacco.

2. Method of preparing and seeding plant bed.

   (1) Quantity of seed sown per 100 square yards of bed.

   (2) Date of seeding.

   (3) Amount of fertilizer used.

   (4) Kind of fertilizer used.

   (5) Location of plant bed.

   (6) Previous crop.

   (7) Area seeded.

3. Preparation of land.

   (1) Previous crop.

   (2) Rotation followed.

   (3) When plowed.

   (4) How prepared for planting.

   (5) Kind and amount of fertilizer used.

4. Planting crop.

   (1) Area planted.

   (2) Number of plants to acre.

   (3) Space between rows and plants.

   (4) When set.

   (5) Natural or artificial season.

   (6) Size of plants when set.

5. Cultivating crop.

(1) How many cultivations.

(2) Nature of each cultivation.

(3) Is crop hoed? If so, how many times and what stages.

(4) How long are cultivations kept up.

6. Topping.

(1) At what stage is tobacco topped.

(2) How many leaves left to plant.

(3) Is priming practiced.

7. Suckerings.

(1) At what stage are suckers pulled.

(2) How many crops of suckers are pulled each season.

8. Insects and Diseases.

(1) What are the most important insect enemies?

(2) How are they controlled?

(3) What are the most important diseases?

(4) How are they combatted?

9. Harvesting.

(1) At what stage is tobacco harvested?

(2) What is the method used in harvest (pulling, cutting or cutting and spearing)

(3) Are plants wilted before hanging in barn?

(4) Are plants scaffolded in field?

10. Curing.

(1) What type of curing barn is used?

(2) Is artificial heat used in curing?

A. Is heat applied in open fires or flues?

B. What are the temperatures maintained?

(3) What is type of ventilation in barns?

(4) How long is tobacco hung and spaced in barn?

(5) How long does curing process take?

11. Sorting and stripping.

(1) How soon after curing may tobacco be stripped?

(2) How is tobacco brought into order or case for stripping?

(3) On what basis is tobacco graded?

(4) How many grades are made?

(5) How is tobacco tied?

12. Marketing.

(1) In what condition is tobacco placed on market?

A. Hogsheads.

B. Loose leaf.

C. Graded.

D. Tied.

(2) How is it sold?

A. Auction.

B. Sample.

(3) How paid for.

(4) Average price of different grades.

PRESENTATION OF DATA.

QUESTIONS.	ANSWERS.	
1. Varieties or strains of tobacco planted.	Kelly's	40
	Judy's Pride	28
	Lockwood	11
	White Twist Bud	1
2. Methods of preparing and seeding plant bed.		
(1) Quantity of seed sown per 100 square yards.	One Ounce	20
	¾ "	9
	⅛ "	7
	4 teaspoonsful	6
	5 "	6
	2 "	6
	3 "	5
	1 "	3
	6 "	1
	3 ounces	1
(2) Date of seeding.	February	29
	Feb. to Mar.	19
	Mar. 1st to 15th	11
	Jan. 15th to Mar. 15-	5
	Jan. 15th to 31st	1
(3) Amount of fertilizer used per 100 square yards.	25 lb.	9
	15 "	9
	½ bu.	8
	17 lb.	8
	50 "	7
	8 "	7
	100 "	2
	1½ bu.	2
	1 "	2
	75 lb.	1
(4) Kind of fertilizer used.	10-0-4	22
	8-3-3	4
	8-2-2	4
	12-5-0	3
	16%	5
	16-4-0	2
	8-4-4	2
	16-4-4	1
	8½-2-2	1
	8-3-5	1

(5) Location of plant bed.	Southern exposure - - - - - - 30
	Southeastern exposure - - - 10
	Eastern exposure - - - - - - 7
	Well drained - -- - - - - 7
	Loose loamy spot - - - - - - 6
	North and South - - - - - - - 3
(6) Previous crop.	Sod - - - - - - - - - - - - - - 14
	New soil - - - - - - - - - - - 11
	Pasture - - - - - - - - - - - 10
	Grass and clover - - - - - - 5
(7) Area seeded.	540 sq. yds. - - - - - - - - - 8
	30 " " - - - - - - - - - 8
	75 " " - - - - - - - - - 6
	300 " " - - - - - - - - - 5
	60 " " - - - - - - - - - 3
	500 " " - - - - - - - - - 2
	400 " " - - - - - - - - - 2
	90 " " - - - - - - - - - 2
	20 " " - - - - - - - - - 2
	270 " " - - - - - - - - - 1
	80 " " - - - - - - - - - 1
	120 " " - - - - - - - - - 1
	250 " " - - - - - - - - - 1
	200 " " - - - - - - - - - 1
	225 " " - - - - - - - - - 1
	150 " " - - - - - - - - - 1
	40 " " - - - - - - - - - 1
3. Preparation of land.	
(1) Previous crop.	Sod - - - - - - - - - - - - - - 23
	Clover - - - - - - - - - - - - 21
	Tobacco - - - - - - - - - - - 6
	New Ground - - - - - - - - - - 3
(2) Rotation followed.	Wheat-grass-grass-tobacco 8
	Tobacco-tobacco-rye - - - 5
	Tobacco-wheat-clover - - 4
	Corn-wheat-clover-tobacco 4
	Tobacco-wheat-corn-hay - 2
	Corn-wheat-clover-grass-tob. 2
	Tobacco-wheat-grass-grass 1
	Tobacco-wheat-oats -- - - 1
(3) When plowed.	February - - - - - - - - - - 31
	March - - - - - - - - - - 16
	December - - - - - - - - - - 5
	April - - - - - - - - - - 5
	Early - - - - - - - - - - 5
	Fall - - - - - - - - - - 5
	January - - - - - - - - - - 2

(4) How prepared for planting.	Plow-disc-harrow and drag - - 31
	Plow-harrow and drag - - - - 15
	Plow-disc and cultipack - - - 1
	Cross plow and harrow - - - 1
(5) Kind and amount of fertilizer used per acre.	600 to 1000 lbs. - - - - - - - 7
	400 lbs. - - - - - - - - - - 7
	200 " in hills 10-0-4 and 400 lbs. broadcast 4
	200 " - - - - - - - - - - - - - 3
	20 loads manure - - - - - - - 3
	24 " " - - - - - - - 2
	15 " " - - - - - - - 2
	600 lbs. 8-4-4 or 9-3-3 - - 2
	100 " in hills 10-0-4 - - 2
	800 " 10-0-4 - - - - - - - - 2
	600 " 10-0-4 - - - - - - - - 2
	16% superphosphate - - - - 2
	600 lbs. broadcast and 200 lbs. in hills - - - - - - - - 2
	600 lbs 2-8-2, ½ broadcast - 2
	600 " 3-8-3 - - - - - - - - - 2
	100 " in hills and 200 lbs. broadcast - - - - - - - 1
	600 " 4-10-4 - - - - - - - - - 1
	600 " 2-8½-2 - - - - - - - - - 1
	8-2-2 - - - - - - - - - 1
	200 " 2-4-0 - - - - - - - - - 1
	8-3-3 - - - - - - - - - 1
	200 " veg. and 400 lbs 3-8-3 1
	125 " 10-0-4 in hills - - - 1
	300 " 8-3-3 - - - - - - - - 1
	400 " 10-0-4 - - - - - - - - 1
	200 " in hills - - - - - - 1
	225 " - - - - - - - - - - - - - 1
	10-0-4 - - - - - - - - 1
	400 " superphosphate - - - - 1
	400 " 4-8-4 in hills ½ - - - 1
	600 " 8-3-5 and 10 lds. manure 1

(4) Planting crop.

(1) Area planted.	1A. - - - - - - - 11
	3A - - - - - - - 9
	2A - - - - - - - 7
	1¼A. - - - - - - 5
	1½A. - - - - - - 4
	3½A - - - - - - - 3
	½A. - - - - - - 3
	6A - - - - - - - 2
	10A - - - - - - - 2
	7½A - - - - - - - 1
	4A - - - - - - - 1
	7A - - - - - - - 1
	14A - - - - - - - 1

	5A	4
	¾A	1
	1-1/3A	1
	2½A	1
	13A	1
(2) Number plants per acre.	7000	23
	8000	14
	6000	10
	7500	8
	9000	3
	5000	3
	10,000	3
	12,000	1
	9764	1
	6500	1
(3) Space between rows.	4' between rows and 18" apart	12
	3½' " " " 18" "	12
	4' " " " 15" "	8
	3½'	6
	3½' between rows and 16" apart	4
	4'	4
	3'	3
	3½' between rows and 20" apart	3
	3' " " " 18" "	3
	4' " " " 20" "	3
	4½' " " " 12" "	1
	2½' " " " 18" "	1
(4) When set.	June	41
	May	39
	When 3" to 4" high	2
(5) Do you wait for a season?	Yes	56
	No	8
	Not always	3
(6) Size of plant when set.	4"	14
	3"	8
	5"	7
	6"	6
	4" to 5"	5
	Larger the better	5
	3" to 5"	4
	6" to 8"	3
	3" to 4"	3
	2"	1
	4" to 8" and strong	1
	3 leaves	1
	Do not like too large	1
	Very small	1
	2" to 3"	1

	5" to 6" - - - - - - - - - 1
	4 to 6 leaves - - - - - - - 1
5. Cultivating the crop.	
(1) How many cultivations.	3 - - - - - - - - - - - - - -21
	4 - - - - - - - - - - - - - 17
	3 or 4 - - - - - - - - - - 7
	4 Or 5 - - - - - - - - - - 6
	7 - - - - - - - - - - - - - 1
	6 - - - - - - - - - - - - - 1
	2 - -- - - - - - - - - - - 1
	4 to 6 - - - - - - - - - - 1
	3 to 5 - - - - - - - - - - 1
	3 to 6 - - - - - - - - - - 1
	Every ten days - - - - 1
	As often as you can - - 1
	3 plowings and 2 hoeings 1
	After each rain - - - - 1
	8 days apart - - - - - 1
(2) Nature of each cultivation.	Plow and hoe - - - - - - 20
	5 ft. plow - - - - - - - 19
	3 ft. plow - - - - - - - 3
	Cultivator - - - - - - - 3
	First 3 cultivations plow deep - - - - - - - - 3
	4 plowings and 3 hoeings 2
	7 to 8 days after planting,hoe after plow - - - 1
	2 ft. plow - - - - - - - 1
	Double plow - - - - - - - 1
	1st deep then shallow as grows - - - - - - - - - 1
	14 tooth cultivator - - 1
	Soon as plant takes root 1
	Plow shallow - - - - - - - 1
	Plow deep - - - - - - - - 1
(3) Is crop hoed? If so how many times and at what stage?	Yes - - - - - - - - - - - - 53
	2 to 3 times - - - - - - 18
	Twice - - - - - - - - - - - 10
	Every ten days - - - - 5
	5 times - - - - - - - - - 4
	When start to grow - - 4
	4 times - - - - - - - - - 3
	After plowing - - - - - 3
	3 to 6 times - - - - - - 1
	When needed - - - - - - 1
	Once, 5 or 6 days after setting - - - - - - - - 1
	The more the better - 1
	Twice when needed - - 1
	Until too large to cultivate - - - - - - - - - 1
	Once soon after setting as possible - - - - - - 1

(4) How long are cultivations kept up?	Until too large to work - - 30 Until ready to top - - - - 6 6 to 8 weeks - - - - - - 5 6 weeks - - - - - - - - - - 4 1 month after set out - - 4 When about knee high - - - 4 3 weeks - - - - - - - - - - 1

6. Topping.

(1) At what stage is tobacco topped?	When buds appear - - - - - 42 When it blooms - - - - - - 9 When 3' or 4' high - - - - 2 When 18 leaves high - - - 2 When 12 to 14 leaves - - - 1 When 16 leaves - - - - - - 1 When pink in bud - - - - - 1
(2) How many leaves left to plant?	15 to 17 - - - - - - - - - - 14 16 to 18 - - - - - - - - - - 13 14 to 16 - - - - - - - - - - 6 14 to 18 - - - - - - - - - - 6 16 to 20 - - - - - - - - - - 6 12 to 18 - - - - - - - - - - 5 18 to 20 - - - - - - - - - - 5 10 to 20 - - - - - - - - - - 2 9 to 12 - - - - - - - - - - 2 18 to 24 - - - - - - - - - - 1 12 to 20 - - - - - - - - - - 1
(3) Is priming practiced?	No - - - - - - - - - - - - - 57 Not much - - - - - - - - - 1

7. Suckering.

(1) At what stage are suckers pulled?	2" long - - - - - - - - - - 21 3" long - - - - - - - - - - 16 4" long - - - - - - - - - - 11 6" long - - - - - - - - - - 8 After topped - - - - - - 2 1" long - - - - - - - - - - 1
(2) How many suckers are pulled each season?	3 - - - - - - - - 35 2 - - - - - - - - 23 6 - - - - - - - - 3 10 - - - - - - - - 1 4 - - - - - - - - 1

8. Insects and Diseases.

(1) What are the most important insect enemies?	Budworms - - - - - - -	55
	Tobacco worm - - - -	30
	Cut worm - - - - - - -	9
	Grasshoppers - - - -	5
	Flea beetles - - - -	2
	Ants - - - - - - - -	1
(2) How are they controlled?	Worming - - - - - - -	34
	Spray - - - - - - -	18
(3) What are the most important diseases?	Wildfire - - - - -	34
	Rootrot - - - - -	18
	French - - - - -	9
	Frog-eye - - - -	7
	Blackfire - - - - - -	2
(4) How are they controlled?	Crop rotation - -	11
	Treat seed - - - -	7
	Dusting, arsenate of lead and lime - - -	3
	Poison - - - - - - - -	2

9. Harvesting.

(1) At what stage is tobacco harvested?	When dapple - - - -	18
	When yellow - - - -	16
	When ripe - - - - -	11
	When leaves spot- -	9
	When mottled - - -	2
	Colored - - - - -	2
	100 days after setting - - - - - - - - -	2
	90 days after setting - - - - - - - - -	1
	When two-thirds ripe	1
(2) What methods so you use in harvesting? Pulling, cutting, or cutting and spearing.	Cutting - - - - - -	50
	Cutting and spearing	9
	Splitting - - - - -	1
(3) Are plants wilted before hanging in the barn?	Yes - - - - - - - - -	53
	No - - - - - - - - -	12
(4) Are plants scaffolded in the field?	No - - - - - - - - -	28
	Yes - - - - - - - - -	20
	Sometimes - - - - -	12

10. Curing.

(1) What type of curing barn is used?	Common barn - - - - - - - 37 Tobacco barn - - - - - - 20 Open barn - - - - - - - - 4 Well ventilated - - - - 1
(2) What type of ventilation in barns?	Doors and windows - - - 23 Doors and cracks - - - 15 Open around plate - - - 8 Doors - - - - - - - - - 7 Windows - - - - - - - - 5 Ventilators - - - - - 5 Cracks - - - - - - - - - 3
(3) How is tobacco hung and spaced in the barn?	12" apart - - - - - - - 10 10" " - - - - - - - 10 5 or 6 plants on stalks 12" - - - - - - - 9 8" apart - - - - - - - - 7 6" " - - - - - - - - 6 10" to 12" apart - - - 6 8" to 10" apart - - - 3 4' tiers 8" between sticks - - - - - - - - - 4 8" to 12" X 3½' apart 4 14" apart - - - - - - - 4 6" to 8" apart - - - - 3 4 or 5 plants on stick 10" apart - - - - 2 18" apart - - - - - - - - 1 16" " - - - - - - - - 1
(4) How long does curing process take?	2 months - - - - - - - - 30 1½ " - - - - - - - - 15 3 " - - - - - - - - 4 2 to 2½ months - - - - 4 8 to 12 weeks - - - - 3 2 to 3 months - -- - 3 Until stalks are dry - 2 Until frost or freezing - - - - - - - - - - 1 3½ months - - - - - - 1
(5) Is artificial heat used in curing?	None used in County.

11. Sorting and stripping.

(1) How soon after curing do you strip tobacco?	When in case - - - - - -41 When thoroughly cured 6 When stems are dry - - 6 Two months - - - - - - 2 Immediately - - - - - 1

(2) How is tobacco brought into case for stripping?	Natural case - - - - - - -	23
	Wait for season - - - - -	18
	By rain and damp weather -	12
	By damping - - - - - - -	10
	By air - - - - - - - - - -	1
	Spray with salt water - -	1
	Cover floor with manure and sprinkle-close barn - -	1
(3) On what basis is tobacco graded?	Quality and color - - - - -	7
	Color and length - - - - -	6
	Quality - - - - - - - - - - -	5
	Color, size and body - - -	3
	Color and weight - - - - -	1
	Color - - - - - - - - - - -	1
(4) How many grades are made?	5 - - - - - - - - - - -	20
	6 - - - - - - - - - - -	18
	7 - - - - - - - - - - -	11
	5 to 8 - - - - - - - -	6
	5 to 6 - - - - - - - -	2
	4 to 8 - - - - - - - -	2
	10 to 15 - - - - - - -	1
	6 to 10 - - - - - - -	1
(5) How is tobacco tied?	In hand - - - - - - - -	28
	With leaf - - - - - - -	23
	Small hands - - - - - -	5
	In hands size of 50¢	4
	Neat - - - - - - - - -	3
	Medium - - - - - - - -	2
	15 to 20 leaves - - -	2
	11 leaves to hand - -	1
	14 leaves to hand - -	1

12. Marketing.

(1) In what condition is your tobacco placed on the market?	Tied - - - - - - - - -	37
	Graded - - - - - - - -	31
	Loose leaf - - - - - -	8
	Hogsheads - - - - - -	2
(2) Average price of different grades.	Trash.	
	20¢ - - - - - - -	2
	22¢ - - - - - - -	1
	Lugs.	
	38¢ - - - - - - -	5
	35¢ - - - - - - -	3
	40¢ - - - - - - -	3
	39¢ - - - - - - -	2
	30¢ - - - - - - -	1
	25¢ - - - - - - -	1
	41¢ - - - - - - -	1
	26¢ - - - - - - -	1
	32¢ - - - - - - -	1

(2) Average price of different grades (contd.)

Bright lugs or cutters.	
42¢	7
41¢	7
40¢	4
39¢	4
44¢	2
36¢	2
43¢	2
45¢	1
30¢	1
Long red	
40¢	4
42¢	3
43¢	3
38¢	3
41¢	2
Short red	
36¢	6
32¢	4
39¢	4
34¢	3
40¢	3
38¢	1
43¢	1
Tips	
25¢	6
28¢	3
29¢	3
30¢	3
35¢	2
20¢	2
32¢	1
26¢	1
34¢	1
Green	
20¢	4
18¢	3
23¢	2
28¢	1
25¢	1
21¢	1
14¢	1
12½¢	1
Average price	
38¢	5
37¢	3
36¢	3
35¢	3
22¢	2
27¢	2
34¢	2
31¢	2

(2) Average price of different grades (contd.)	Average price (contd.)	
	28¢	2
	42¢	1
	37½¢	1

SUMMARY AND CONCLUSIONS.

VARIETIES

The most popular varieties of tobacco seed planted in this section are Kelly's and Judy's Pride. There is also some Lockwood and White Twist Bud grown.

PREPARATION OF THE PLANT BED.

The production of a vigorous, well formed plant for setting deserves the most careful consideration by tobacco growers. The earliness, uniformity, yield, and, to some extent, the quality, depends upon the setting of strong, healthy plants in good season.

The first step in the production of a good plant is to use good seed of high germinating capacity, free from all light and immature seeds.

The success of a tobacco plant bed depends in a large measure upon the selection of a favorable site in regard to soil, exposure and convenience.

Preparation of the plant bed should begin in January or early February. A sunny, rich, protected spot in new ground where the soil is well drained and full of humus, with a south

or southeastern slope, is best for the bed. Sometimes a grown up fence row is used. The soil must be rich in humus to prevent crusting, and level enough to prevent washing. The bed should be placed lengthwise with the slope of the hill, and protected from washing by furrows above it. It should not be near growing trees.

To kill weed seeds thoroughly, burn the plant bed while dry by placing small poles on the ground two feet apart. These should be covered with brush weighted down with discarded fence rails or rough wood, etc., and burned evenly. The coals should then be raked off and the ashes dug into the top soil, thoroughly pulverized. A great many people do not burn their beds enough.

Sow plant beds between February 15 and March 15. A bed 9x25 feet is a convenient size. Sow one teaspoonful of clean tobacco seed mixed in wood ashes or fertilizer on this size bed, sowing both ways and then diagonally across the bed. Even distribution is important. The seeds are pressed into the soil by tramping or tamping. On most beds one-half pound of good tobacco fertilizer should be applied to each square yard. The above size plant bed will be sufficient to plant one acre.

The bed should then be boxed with six inch boards placed on edge and dirt thrown up against them on the outside, forming a ditch to carry off surface water. A tight canvas of cheese cloth should be stretched at once over the bed, tacking the edges tightly to the side boards. The canvas may

be supported by placing lathes, smooth poles or wires about four feet apart, across the bed. This canvas should be kept on until a few days before transplanting into the field.

If flea beetles become bad, the plants should be dusted with a mixture of one part paris green to five parts of lead arsenate. One-half pound of this mixture will be sufficient to dust 100 square yards. If plants appear to be weak and yellow after they are the size of a dollar, growth may be encouraged by a thin sprinkling of water in which manure has been soaked. Strain the mixture through a cloth. Nitrate of soda may be used at the rate of one-eighth pound per square yard.

PREPARING THE FIELD FOR PLANTING

The preparation of the tobacco soil should be such as is the most conducive to perfect tilth, retention of moisture, and the destruction of weeds and insect larvae. Fall plowing should be practiced where possible. The most practical method of killing cutworms is by exposing the larvae to the killing effect of freezing and thawing of the surface soil; however, many of our best farmers plow in February and March.

A deep, well drained, loamy soil, growing a grass and clover sod, is the best place for the tobacco patch.

If the crop is to mature early, the plants must grow rapidly from the time they are set in the field - not a few but all of them; this requires a soil full of humus and in good tilth. A good rich soil produces a higher quality and heavier yield.

A rotation of corn-wheat-clover and tobacco gives good results, or plow under a blue grass sod. Thoroughly work and pulverize the soil.

On practically all soils some good high analysis fertilizer should be used, generally from 600 to 1000 pounds per acre is sufficient. This may be applied at one time, or one-third of this amount drilled in the row and the other two-thirds sown broadcast. Many of the best farmers use from 20 to 25 loads of manure per acre instead of fertilizer.

PLANTING THE CROP.

It is not deemed advisable that large acreages of tobacco should be planted on individual farms in Washington County. From one to three acres on each farm, year after year, will help to balance a well diversified farm system. One acre of tobacco for each working family on the farm is the rule in this County.

Transplanting is generally done from May 15th to June 15th, as there is danger of frost injury from later transplanting. No fixed time can be recommended, as this varies with the season. In general, get the plants into the field as soon as the danger of frost is past. The proper size of the plants for setting is from four to six inches high. Transplant only good, strong, vigorous plants, and press the soil firmly around the roots.

The rows should be three and one-half feet apart with the plants set eighteen to twenty inches apart in the rows.

This will make about 8000 plants per acre.

The plants should be set after a good rain if possible, preferably in the evening, this will prevent "burn out." In a dry season, with water and labor at hand, it is worthwhile to set the plants with water rather than have a late crop. No amount of resetting can compare with a regular stand at the first setting. However, it is better to replant than to leave vacant hills, and this should be done promptly.

CULTIVATION.

As soon as the ground is in condition to work after tobacco is set, the soil should be cultivated very shallow-just enough to keep down the weeds. Work the soil as near the plants as possible, but do not cover the plants or injure the roots.

The grower should always bear in mind the principal object of cultivation, that of conserving the soil moisture which evaporates very rapidly from any surface not protected with a mulch. This is especially important in seasons of drought. A shallow mulch, one or two inches deep is all that is necessary.

Cultivation should be made after each rain until the plants become too large to work.

TOPPING AND SUCKERING.

Tobacco must be topped so that the leaves will properly develop. If topped too low the leaves will become coarse and thick, depending on the fertility of the soil,

spacing, weather, stage of growth, etc. If topped too high, the leaves will fail to develop fully. Those plants showing later development than the average should be topped lower to make them mature with the others.

Generally, tobacco is topped when the blooms first show white in the bud, or preferably when the buds appear. From sixteen to eighteen leaves are generally left on the stalk.

Suckering: After topping, suckers or branches will appear. They should be removed when two or three inches long and kept off. Generally, two or three crops of suckers will appear in a season.

Priming is not practiced in this county.

INSECTS AND DISEASES.

Insects: The tobacco worm is one of the worst insects to be combatted. Hand picking on small acreages is usually practiced. However, the application of arsenate of lead, properly applied through a dust gun, or as a spray, will control the tobacco worm effectively. Three or four dustings of three and one-half to five pounds of lead arsenate per acre each time is sufficient. The arsenate should be mixed with an equal amount of lime or sifted wood ashes, and applied on a still morning when the plants are wet with dew.

Cutworms are controlled, principally by fall plowing. Budworms are serious in some seasons. They may be controlled by mixing arsenate of lead and corn meal, half and half,

and placing a small amount of this mixture in each bud. Grasshoppers and flea beetles are also sometimes troublesome.

Diseases: Blackfire, wildfire, root-rot and Mosaic are the worst tobacco diseases in this section. Blackfire and Wildfire may be very materially controlled by treating the seed and following general sanitary practices in and about the plant bed. Either a new canvas should be used, or the old one should be boiled for one hour. New poles or boards should be used each year, and the tobacco bed should always be located on land that has never grown tobacco before. Do not use the natural leaf tobacco in any form while working in or around the plant bed, and do not allow others to chew tobacco while near the plant bed. Discard all diseased plants at transplanting time and do not use the apparently healthy plants which are located near the infected spots in the bed. Do not use tobacco refuse in plant bed or field.

Root rot: As the name suggests, root rot affects the roots of the tobacco plant. Growers frequently see plants that gradually get weaker and weaker; on pulling the plant up, they find that the roots are black, or mostly rotted off. Since so many other plants are susceptible to root rot, (clovers, beans and many weeds), control methods are very difficult. By following a regular rotation and not letting tobacco follow tobacco, root rot may be controlled to a considerable degree. The use of resistant varieties should be of great value.

Mosaic, often called "walloon", "mottled top," "french", etc., is a very common disease in Southwest Virginia.

It reduces the quality and quantity of tobacco grown to a considerable extent. To control Mosaic, use an insect proof canvas; do not allow weeds to grow near the plant bed because they may be hosts for the disease; pull out and destroy all the diseased plants found in the plant bed; do not top and sucker diseased and healthy plants at the same time; do not chew natural leaf tobacco in or around the plant bed.

Crop rotation is very important in the control of all diseases and insects.

HARVESTING.

Tobacco is harvested when ripe. This is shown by the leaves beginning to droop and show a crinkled, leathery appearance. The color is generally a mottled golden yellow. It should ripen four or five weeks after being topped. If the bottom leaves are firing the top leaves show no improvement, the plant should be cut.

The stalk should be split from the top down to about three-fourths of its length from the ground and should be cut off just below the bottom leaf, so it can be placed astride a stick split out of chestnut or some light timber. Take care not to break or bruise the leaves as this will cause a very poor quality of tobacco.

The sticks are generally from four to four and one-half feet long, and the plants are placed ten to twelve inches apart on the sticks as soon as cut. Do not put over five large plants on a four foot stick. The sticks should be hung immediately on a scaffold to wilt with butts toward the sun. It is

a bad practice to leave the plants on the ground for any length of time, when the weather is hot, as they will sunburn in a few minutes and will be greatly damaged. Tobacco should be placed in the barn as soon as it wilts and hung in tiers eight to twelve inches apart. Shake out the plants on the stick so that each leaf is separate and the air can circulate. Do not crowd in the barn. Tobacco should not be left on the scaffold in the field over night; dew and rain will damage it.

HOUSING AND CURING.

Ventilation and protection from dampness are the important things to be considered in housing. The ordinary barn is not the best but it will answer the purpose. The barn should be ventilated at both the top and the bottom to give the air free circulation. A barn 30 X 30 X 16 feet will hold a thousand pounds, which is an average acre yield. No artificial heat is applied to curing.

Tobacco barns should be closed at night and on very foggy days to prevent dark curing. Usually it takes about sixty days to properly cure tobacco. Do not plant more than can be housed properly.

STRIPPING AND GRADING.

When leaves have thoroughly air cured and are in proper "case", the plants are taken down; the leaves stripped from the stalk, graded, and tied into hands. Damp weather brings tobacco into "case"; generally, no artificial methods are necessary . Be sure that the stalk is thoroughly cured before

stripping.

Tobacco is graded according to its size, body and color. The position on the stalk governs the grade to a certain extent. Starting from the bottom are "trash", "lugs", "cutters", "long red or bright red", "short red or dark red", "tips", and "green".

Usually from fifteen to eighteen leaves make a hand. The hands are made by wrapping a folded leaf, beginning at the tip of the leaf, around the stems of a bunch of leaves, and then folded through the center, leaving the bright side of the leaf to the outside. Bands should be of the same quality as the tobacco.

Hands are then placed together according to kind. Care should be taken to keep each grade separate. Great care should be taken in the grading and the tying because, after the crop is raised and in the barn, it should be handled so that the maximum price can be realized for it.

If tobacco is handled when too wet, it will be bruised in tying and will mold under the bands, seriously injuring the quality.

Do not bulk when the tobacco is too high in "case" and never put heavy weights on the bulk. Each stick should be bulked after stripping, four square with tails to the center of the bulk. A light weight should then be placed on top.

MARKETING.

Most of the tobacco of this section is marketed by auction at the two Abingdon warehouses. Some tobacco is sold as loose leaf and some in hogsheads.

Burley tobacco is handled in the warehouse on baskets, according to grade. Each lot of tobacco, is weighed in, and the grower's name, serial number, basket number and weight is placed in a book, also on a tag which is placed on each basket. A copy of this is made for the farmer. After the sale it is figured and checked with the book, sent to the office for the warehouse commission to be deducted, and a check is then given to the farmer. The weight book is kept by the office as a permanent record of every pound of tobacco sold.

The sales manager makes the original bid on every lot of tobacco; the buyers bid accordingly. The ticket makers then mark the price, name and grade of the buyer on the tag. If the grower is dissatisfied with the price received for his tobacco, he can tear off the buyer's name, thereby cancelling the sale of his tobacco. This must be done within thirty minutes after his tobacco has been sold. Checks may be obtained immediately after sale.

After the tobacco is sold it is trucked to the packing room where it is packed into hogsheads of a 1000 pounds each, according to grade. It is then shipped to the buyers' redrying plants.

The warehouse charges on the Abingdon market are eighty cents per one hundred pounds and twenty cents for each basket used.

The average price paid on the Abingdon market in 1928-29 was about thirty cents per pound.