

Instructions for 4-H Tobacco Club Members

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TOBACCO PROJECTS IN 4-H CLUB WORK

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REQUIREMENTS FOR COMPLETING TOBACCO CLUB PROJECT

1. Plant one or more acres of tobacco with seed from the source and of the variety recommended by the Farm Agent.
2. Select the land, prepare the seed bed, fertilize and cultivate the crop according to the methods recommended by the Extension Service.
3. Select seed in the field for next year's planting.
4. Harvest the crop and determine the yield per acre, the cost per pound and the profit or loss made on the acre.
5. Select an exhibit of tobacco according to specifications and exhibit at either a club, community, county or State Fair.
6. Keep a record of all labor and materials used in carrying out the project and submit it to Farm Agent on the date designated.

Basis for determining winner in 4-H tobacco contest:

BASIS OF AWARD

Yield per acre.....	25 points
Profit above cost of production.....	25 points
Field selection of seed.....	10 points
Selection and showing an exhibit.....	10 points
Record as shown by record book.....	30 points
Total.....	100 points

FACTORS AFFECTING THE QUALITY OF FLUE-CURED TOBACCO

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VARIETIES

The increasing use of cigarettes in the last 15 years has made it necessary that a wider leaf tobacco of thinner texture than was formerly grown be produced at this time. This being true, some outstanding work has been done in selecting the broad leaf varieties of flue-cured tobacco. At the present time, White Stem Oronoco, Virginia Bright Leaf, Jamaica Wrapper, Gold Dollar, Bonanza, and many other types have been selected for a broader leaf. The broad leaf varieties will produce a greater number of pounds of bright tobacco than will the narrow leaf varieties.

SELECTION, PREPARATION, AND FERTILIZATION OF SEED BEDS

The seed bed should be selected in the warmest location where the soil is very loamy and will not have a tendency to bake and get hard or the other extreme which would be extremely wet natured. It is best to select new soil which has been covered with leaf mold in order to prevent grass and disease.

The seed bed should be thoroughly broken 4 to 6 inches, then pulverized until the soil is very fine. Two pounds of a 4-8-3 fertilizer, the potash derived from sulphate of potash magnesia, should be applied to each square yard of bed and mixed thoroughly with the soil about 3 or 4 inches in depth. Then the soil should be smoothed off to make sure there are no clods and the seed sown. It is usually best to thoroughly mix the seed with about two gallons of fertilizer or cotton seed meal to make a good carrier so that it will make possible a more even distribution of seed. After the seeds are sown, the soil should be packed lightly. The method most commonly used is to tack a board to a wooden maul so as to tamp the soil evenly over the entire bed.

As soon as the seeds are sown and the bed tamped, a thin layer of wheat, rye or oat straw which has been thoroughly thrashed should be broadcast over the bed. The straw should be evenly broadcast. Twenty pounds of straw is sufficient to each 100 square yards. Then the canvas is placed on the straw and pegged to the ground around the edges of the bed to prevent the cloth from blowing off. The advantage of the straw is that it prevents the seed from being beaten into the ground too deeply by heavy rains and at the same time keeps the top of the soil moist. This enables the seed to germinate a week to ten days earlier than they normally would under average seasonal conditions. It generally requires about 100 square yards of seed bed for each two acres of tobacco that is to be planted. One level teaspoonful of clean seed, if evenly sown over the bed, will give an ideal stand of plants.

SELECTION AND PREPARATION OF THE FIELD

Tobacco soils should be uniform in depth and fertility, well drained and a type that will not become hard and compact. Where no disease is prevalent, such as Granville wilt and root knot, tobacco will produce well following a weed crop, but since most of the soils of our State have some type of disease of which weeds are host, it is better to follow a rotation from three to four years. Corn, cotton, peanuts, and sweet potatoes are the best row crops to precede tobacco. When tobacco immediately follows a row crop, the

soil should be broken in the early spring. When tobacco is planted following a weed crop the soil should be broken in the fall in order that the vegetation may decay before the tobacco is planted. If the soil is harrowed after it has been broken following heavy rains, it will preserve the moisture. The fertilizer should be drilled in the rows about two weeks prior to transplanting. A broad ridge which is generally made with two big furrows with a one-horse turning plow and the middles scattered with a sweep, gives an opportunity for a better stand and quicker growth. It is much better, however, to thoroughly mix the fertilizer with the soil before the row is ridged.

FERTILIZERS

The fertilizer used in the production of bright flue-cured tobacco is a very important factor. The average tobacco grown in rotation and preceded by corn or cotton should be fertilized with 800 to 1,000 pounds of a 3-3-5 tobacco fertilizer. The nitrogen should be made from one-fourth nitrate nitrogen, one-fourth ammonium nitrogen, one-fourth organic nitrogen, derived from cotton seed meal, and one-fourth from organic nitrogen, such as blood, tankage or fish, the phosphate derived from 16 percent superphosphate or the equivalent. The potash should be derived from muriate, sulphate or sulphate of potash magnesia. Tobacco fertilizers should carry from one to two percent magnesium oxide. The chlorine should not exceed two percent under average soil conditions. There are a number of minor elements which are essential but they are carried in the materials mentioned above. On soils where tobacco normally grows too large, even with a reduced application of the above mixture, the nitrogen should be reduced in the mixture; or, even left out in extreme cases. Potash of the sulphate form should be increased in the above formula whenever the tips of the leaves show a redish color in the field. Often 8% potash is necessary on some soils where tobacco is grown.

TRANSPLANTING AND CULTIVATING

Select plants of uniform size and transplant on the row at regular intervals. A distance of 24 inches between hills with the rows 4 feet wide has proven to be most satisfactory under average conditions. On the more fertile soil, even closer spacing on the row will be more profitable. About a week to ten days after transplanting, cultivate the tobacco with a small cultivator. A hoe cultivation is usually necessary at this time. Following this first cultivation, tobacco should be cultivated every week or ten days up to about a week prior to topping. At each cultivation the soil should be thoroughly broken and the middles scattered, care being taken not to disturb the root system when siding. One of the best plows for cultivating tobacco is a one-horse turning plow with a sweep attached to the shank by the bolt that holds the moldboard or wing. When the tobacco is small the soil can be thoroughly broken and the attached sweep will push the dirt around the plant. When it gets a little larger a small moldboard can be used and a longer sweep attached. The third time a still larger moldboard or wing with a still longer sweep and at the last cultivation, the largest moldboard or wing which is used on a one-horse plow with a sweep about 18 inches long and 2 to 2½ inches wide should be used. It is sufficient to scatter the middles with a sweep immediately following each siding. One furrow to the row is sufficient except for the second cultivation which should have four furrows to the row with turn plow with middle size wing or moldboard in order to give the soil a thorough breaking. In case of a packing rain, the tobacco will need to be plowed just as soon as the soil will do to cultivate, even if it had been plowed one hour prior to the rain.

CONTROL OF INSECTS, TOPPING, AND SUCKERING

Under average conditions, the bud worm causes more damage than most insects and the bud worm can be controlled very easily by dropping a pinch of bait in the bud of each of the plants. This bait is made by thoroughly mixing two pounds of arsenate of lead with fifty pounds of corn meal. The bait should be applied to the buds of the young plants early in the morning at the rate of about one peck to the acre. Apply the bait as soon as the first signs of bud worms appear and if necessary, a second application should be made in about ten to fifteen days.

Top the tobacco just as early as it has reached the height which will give a number of leaves that will normally mature. A person must have experience in observing tobacco growth, a knowledge of the amount of fertilizer used and the seasonal conditions to know how to top tobacco. Generally speaking, on the average tobacco soils of the State, tobacco will mature when fifteen to eighteen leaves are left on the stalk. On the poorer soils, it should be topped lower; on the richer soils, it should be topped higher. Tobacco develops best if not allowed to bloom and the stalk get hard. Just as soon as the seed parts of the plant begin to show, topping should begin. About every three days the tobacco will run up enough to top. If tobacco is topped as uniformly as possible, it will mature more evenly.

SELECTION OF SEED PLANTS

Select seed plants just before the tobacco is topped. The seed plants should be typical of the variety planted. The leaves on all cigarette varieties must be well spaced on the stalk and the seed plant stand out above the average plants, if the quality is to be improved by selection. The biggest plants which grow in a rich spot in a field will not give the best quality in all cases. Seed plants must be bagged in a 14-pound paper bag just before the first bloom opens to prevent cross-pollination. If the stalk is too slender at that time to hold the bag upright when tied on, pinch off the first blossoms and allow the stalk to become stronger. Bud worm bait should be applied to seed pods before the bags are put on. The branches of the seed pod must be pruned to three or four in order to give room for development under the bag. One seed plant selected, as mentioned above, will produce about one-half ounce of seed. When the tobacco is matured, the best seed plants must again be selected from the crop if the most is to be accomplished by selection.

HARVESTING

Begin harvesting just as early as the bottom leaves begin to turn yellow. The first leaves can be pulled a little greener if the leaf is matured than at any of the other primings. Tobacco usually has to be primed at least once each week if the seasons are normal. Only uniform, ripe, well-developed leaves should be primed. A uniformity in pulling tobacco will add to the quality as much as any other factor. The ripe leaves should be laid in the truck in manner that will not break or bruise the leaves when taken out of the truck to be looped in bundles on the stick. About three large leaves to the bundle with about 26 to 30 bundles to a 4½ foot stick is a sufficient amount of leaves. The sticks of tobacco should be hung in a rack conveniently located in the shade where the tobacco is strung to prevent bruising until it is ready to be hung in the barn. The sticks must not be crowded in the barn. About 6 inches between the sticks on the tip poles in the barn is a good distance for average size tobacco.

CURING

A fire is started as soon as the tobacco is hung in the barn, and the temperature raised in the barn five to ten degrees higher than the outside temperature, usually from 85 to 100 degrees Fahrenheit. This temperature is maintained until the leaf is fairly yellow, requiring from 24 to 36 hours. The temperature should then be raised 4 to 5 degrees each hour, depending upon the rapidity with which the green is fading, until 120 to 125 degrees Fahrenheit has been reached. By this time the leaves should be a pale yellow. This last raise will toughen the tobacco so that it will stand higher heat. Hold this temperature until the tips of the leaves begin to dry, then raise the temperature 4 to 6 degrees each hour until 135 to 140 degrees Fahrenheit has been reached. Hold this temperature until the leaf tissue is dry. During this period the color will be fixed. As soon as the leaf is dry, raise the temperature from 5 to 10 degrees each hour until 180 to 190 degrees Fahrenheit has been reached. This heat may be held until the leaf stem is dry in all parts of the barn. The time required to cure a barn varies from 84 to 96 hours.

After the tobacco is thoroughly cured, the fires are out, and the temperature has gone down, the barn doors are opened in order that the tobacco may come in "order or case," so that the tobacco can be removed from the barn without breaking. Frequently, it is necessary to wet the floor of the barn in order to hasten the softening of the cured leaf. The barn is emptied and refilled each week during the rush of the curing season.

When the tobacco is removed from the barn, it is carried to the pack house and packed in a long pile or windrow where it is left for a few days. It is then packed in a square coop with all the leaves turned inwardly and the butt of the leaves showing on the outside. Tobacco so cooped should have enough moisture in it so that it will straighten out nicely and undergo such changes as are necessary for the improvement in color. On the other hand, if it is in too high order when packed, it may damage. Tobacco packed in this way may then be left until the grower is ready to grade and market it.

GRADING AND MARKETING

All of the flue-cured tobacco grown in the United States with the exception of that grown in Georgia is graded and tied in bundles before it is marketed. The tobacco will need to have enough moisture to prevent breaking when it is to be graded. In the early fall, usually tobacco can be graded from the bulk. After the weather becomes cold, it is necessary to order the tobacco artificially for grading.

Generally five or six grades per barn is sufficient for average market conditions if the tobacco is primed uniformly in the fields. Factors to be considered in grading are the color of the leaf, the size of the leaf, texture and quality. The five grades generally are known as trash (priming), second lugs (third or fourth quality cutter), best lugs (first or second quality cutter), best leaf (wrapper or high grade cutting leaf) and second grade leaf. There usually is a grade of green to greenish leaves that will not match in quality with the other grades.

As soon as the tobacco is graded it should be tied in bundles, hung on sticks and shingled in a row to smooth the leaf out and give the best appearance. The graded tobacco should be repacked at least once a day to prevent mold in case the tobacco has a little too much moisture. The tobacco should generally be placed on the market as soon as practical after the curing is completed.

SCORE CARD TO RECORD THE PRACTICES USED BY THE PRODUCER IN GROWING TOBACCO

(Year) _____

PLANT BED RECORD

	LABOR RECORD	
	MAN HRS.	HORSE HRS.
1. Variety planted . . .		
2. Number of square yards of seed bed sown . .		
3. Amount of seed sown per 100 square yards . .		
4. Amount of fertilizer used per 100 square yards of plant bed		
5. Analysis of plant bed fertilizer		
6. Date seed bed was seeded		
7. Was the canvas placed on immediately after sewing?		
8. Amount of straw used before the canvas was put on		

RECORDING FIELD ACTIVITIES

9. Type of tobacco soil . .			
10. Date of breaking . . .			
11. *What type of rotation is being followed?	one, two, three	or four	year
12. Name the crops used each year			
13. Amount of fertilizer used per acre			
14. Analysis of fertilizer . .			
15. Was the fertilizer stirred in the row before ridging			
16. Was the tobacco planted on a two furrow ridge or the equivalent of a four furrow bed . .			
17. Was the fertilizer home-mixed or bought ready mixed according to specified formulas . .			

PLANTING AND CULTIVATING RECORD

18. Number of acres in project		
19. Date of transplanting .		

*Underscore rotation followed.

		LABOR RECORD	
		MAN HRS.	HORSE HRS.
20.	Distance of hills . . .		
21.	Date of first cultivation		
22.	Was the ridge method of cultivation used? . .		
23.	Number of cultivations		
24.	Date of last cultivation		

TOPPING AND HANDLING THE CROP TO THE POINT OF MARKET

25.	Number of seed plants selected		
26.	Dates of topping . . .		
27.	Number of times suckered		
28.	What control of insects were practiced? . . .		
29.	Date harvesting was begun		
30.	Number of times the tobacco was primed . .		
31.	Date harvesting was completed		
32.	Was the tobacco shingled in pack house and later packed in a four cornered pen?		
33.	Number of days to grade the tobacco		

MARKETING RECORD

34. Dates of Marketing	Total Number of Pounds	Net Value