Dark-Tobacco Project For 4-H Clubs

CIRCULAR NO. 290

UNIVERSITY OF KENTUCKY
College of Agriculture
Extension Division

THOMAS P. COOPER, Dean and Director

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REQUIREMENTS

1. Boys and girls 10 to 18 years of age inclusive may take this project.

2. Enrollment should take place not later than March 15.

3. Each member must grow at least one-fourth of an acre of tobacco, following the advice of his county agent and project leader.

4. Each member must keep a record on the forms in this circular, of all work done on the project. The record must be approved and signed by the county agent.

5. The county agent or two disinterested persons must measure the ground and certify to the yield.

6. Each member should make an exhibit of tobacco at his county show or one of the district shows.

7. Each member should receive the net return from his project.

8. To get the most development out of 4-H club work, a member should attend all meetings of his club and take part in its activities.

TIMELY REMINDERS

January— Plan the year's program. Meet with the leader. Study project literature. Get a good variety of tobacco seed.

February— Select site for plant bed (fence row or woods). Prepare plant bed—burn or steam—seed the bed—box and cover with tobacco cotton. Allow 9 x 12 feet of bed for ¼ acre.

March— Complete work of February. Plow sod land. If land is in small grain plow when 6–8 in. high. Measure your land. See that records are complete to date.

April— Learn how to make a hygrometer, also method of firing. Apply stable manure broadcast. Drag or roll ground. Weed plant bed, water if necessary. Watch bed for insects. If plants make slow growth use fertilizer.

May— Cut and drag ground. Set as early as plants are ready. Set plants 16-20 in. in rows 3 feet 6 in.

June— Finish setting by June 20. Cultivate as soon as plants are set. Keep accurate record of time. Reset missing hills. Keep down worms.

July— Cultivate to keep down weeds. Watch for bud worms. Top early plants high (16-24 leaves) and leave 2 top suckers to grow.

August— Complete topping. Control worms. Prepare barn for crop. Let tobacco ripen as long as it is not wasting at the ground. Cut the plants and place on sticks. House when wilted. Visit other members.

September— Attend to curing. Use hygrometer. Fire if necessary. Seed the tobacco plot to a cover crop.

October— Strip when the thoroly cured tobacco comes in case. Bulk the tobacco on sticks when stripped.

November— Write a story of your project in the record book. Complete stripping. Keep the tobacco in bulk until marketed.

December— Sell the tobacco thru your district 4–H tobacco show. Arrange with other members for hauling to market. Your completed record book is required at the show, and also to close this project.

NOTE. While these suggestions are arranged by months, the weather must govern the activities.

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By E. J. KINNEY

Raising the Plants. Probably most club members can get plants from their home plant beds, but if necessary to raise plants they may proceed as follows:

Select a very productive plot of land, such as a clearing in a woods, or an old fence row. Old sod ground is good. For a quarter of an acre of tobacco,* plow or spade an area 9 by 12 feet and make a good seed-bed. Pile a layer or dry brush on the bed and on this place poles, old boards or other wood. Enough wood should be used to give a hot fire for a half hour at least. Set fire to the brush in several places and let it burn down. After the bed has cooled, sprinkle 2 pounds of mixed fertilizer on it and rake in very lightly. Mix half a level teaspoonful of tobacco seed very thoroly with a quart of slightly moist sand or soil and sow on the bed, going over it several times in order to get an even distribution. Tramp the bed carefully; then box in with six-inch boards and cover with tobacco cotton. Water when the soil becomes dry, using about a barrel of water once a week. If cutworms or other insects give trouble, dust the bed with lead arsenate. A half pound of nitrate of soda dissolved in 5 gallons of water should be sprinkled over the bed if at any time the plants fail to make a good growth. Follow immediately with 5 gallons of clear water to prevent the solution from burning the plants. Prepare the plant bed as early as the ground can be worked.

Selection and Preparation of the Land. Choose fertile, well-drained land. A good clover sod is perhaps best for dark tobacco. Break the land as early as possible, especially if in sod. Fall plowing is particularly desirable for heavy grass sods. Disk at intervals to keep down weeds and put the land in good condition for transplanting.

* It should be clearly understood that the directions given in this circular as to size of plant-bed, plant-bed fertilizer and fertilizer on the field are on the basis of one-fourth acre. The club member who wishes to raise more than a quarter of an acre must use a proportionately larger plant bed and fertilizer application.

Fertilizers. Fertilizer seldom fails to give an increase in yield of tobacco and often improves the quality of the leaf. Purchase a fertilizer containing 4 to 5 percent of nitrogen, 8 to 10 percent of phosphoric acid and 4 to 5 percent of potash. Use 100 to 125 pounds of such fertilizer for one-quarter acre. If the new highly concentrated fertilizers are used, such as a 12-24-12 analysis, apply only one-third as much, or about 40 pounds for the quarter acre. When it is impossible to obtain a fertilizer with a high percentage of nitrogen as recommended, use 100 pounds of the best fertilizer obtainable and, after the tobacco has started to grow, apply 25 pounds of nitrate of soda or sulfate of ammonia around the plants, but do not get any on the plants.

Applying the Fertilizer. Spread 75 pounds of the fertilizer broadcast and harrow into the soil before marking out the plot. Then mark rows, 3½ feet apart both ways. Drop the rest of the fertilizer in the cross marks and mix with the soil thoroly in making the hills for the plants.

Setting the Plants. Dark tobacco is usually planted in checks 3½ feet apart each way so that it may be cultivated in two directions. For this reason transplanting machines are seldom used. Checking is not necessary, and if a transplanter is available it should be used. The secret of getting a good stand of tobacco, whether transplanted by hand or machine, is to have the earth pressed firmly around the plants. Early transplanting – from May 10 to June 1 – usually gives the best quality of tobacco.

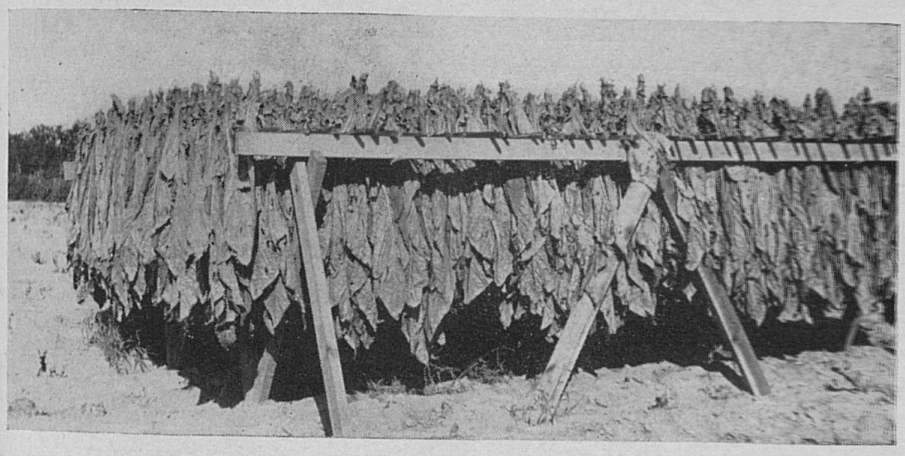
Cultivation. As soon as the plants start to grow, or before if rain crusts the ground, give tobacco a shallow cultivation. It is desirable to loosen the soil around the plants with a hoe, but care should be taken not to loosen the plants. Further hoeing is unnecessary except to destroy weeds. Cultivate after heavy rain and whenever necessary to keep down weeds. Shallow cultivation is best. Discontinue cultivation when the passage of the cultivator between the rows begins to break and bruise the leaves.

Combating Worms. One should be constantly on the watch for tobacco worms. At the first appearance, dust the plants with lead arsenate. This poison is much safer than Paris green, as the latter, unless applied very carefully, may burn the plants.

Topping and Suckering. Top dark tobacco as soon as the flower bud appears, leaving ten to fifteen leaves. Keep the suckers closely

pulled and never leave them until large. Close suckering tends to give heavy, thick leaves, desirable in dark tobacco.

Harvesting. Dark tobacco is ready for harvest when the leaves begin to lose their intense green color and small yellow areas appear near the edges. When ripe, the leaves are brittle and break readily when bent. Dark tobacco may be harvested by either splitting or spearing, altho splitting is somewhat better. Turn the plants upside down after cutting and allow them to wilt before putting them on the stick. Handle very carefully in order not to bruise the heavy, thick leaves. Scaffolding dark tobacco to wilt is a very desirable



Scaffolding is recommended for Dark Tobacco.

practice. For air curing, put 5 or 6 plants on each stick, and space the sticks about 10 inches apart on the tiers. For fire curing it has been customary to space the plants much closer in the barn, than for air curing. It is now rapidly becoming the practice to use much less heat in curing and to keep humidity higher in the barn, so as to produce a more elastic, better-colored leaf. This change has brought about wider spacing so that now plants are given as much space as in air curing.

Curing Dark Fired Tobacco. The yellowing of dark fired tobacco usually requires four to seven days, depending upon temperature and humidity. In cool, damp weather, very small fires may be necessary to cause tobacco to yellow properly, while in warm, wet weather such fires are needed to prevent houseburn. The temperature during the yellowing period should not be higher than 75 to 80 degrees, F., and the humidity should be high — 80 to 85 percent.

As soon as yellowing is practically complete and brown spots begin to appear on most of the leaves, the tobacco is ready for firing. Begin with small fires and, with all ventilators closed, bring the temperature gradually to 70° to 80° F. The wet-bulb thermometer should read 2 to 4° lower than the dry bulb, at this time. When the tobacco on the bottom tiers has colored brown, it is time to begin driving the moisture out. Gradually bring the humidity down by increasing the ventilation and, if necessary, raising the temperature until the wet-bulb thermometer reads about 6° lower than the dry-bulb. Hold at this until the midribs color and darken. The temperature in the barn should not exceed 100° F. Such a temperature along with an abundance of smoke answers every purpose. Sawdust is necessary in firing to slow down the fires when the temperature begins to get too high. After the stems have darkened, the temperature should be reduced to 80 to 85° and continued at this level for two to three weeks, with a large volume of smoke. This later firing – really smoking – which can be done largely with sawdust, gives the leaf a good finish. As soon as firing is completed the tobacco should be bulked down to preserve the finish.

The hygrometer is a great aid in both air and fire curing; in fact, it is indispensable in fire curing. Talk over the use of the hygrometer with your county agent. On the next page are shown the temperatures and humidities actually observed while curing a crop of dark tobacco. The quality of the cured leaf was very fine. This record can be used to advantage by club members as a guide in curing their crops.

Air-Curing Dark Tobacco. Wilt the tobacco well before housing, preferably on a scaffold. Leave all ventilators open until the leaf is *well* wilted, then ventilate only enough to prevent houseburn until completely yellowed. If weather remains very hot and damp for over 36 hours, it may be necessary to use coke stoves or other method of smokeless heating to avoid houseburn. Keep humidity at about 80 percent until the tobacco has colored well. Then ventilate sufficiently to dry the leaf.

Stripping and Sorting. The leaves on a stalk of cured tobacco differ greatly in size, soundness, texture, body (thickness) and color; hence they can be separated into several classes based on these differences. This is known as sorting. Sorting is necessary for two reasons. The various classes of leaf are used for different purposes

TOBACCO BARN HYGROMETER READINGS

Caldwell County, Ky.
J. F. Graham, County Agent

Name: H. K. Williams Address: Star Route 6, Princeton, Ky.

Date	Hour	Dry Bulb	Wet Bulb	Difference	Relative Humidity	Outside Temp.	Weather and Remarks
	6 AM						
9/11	12	64	64	0	100		Very clear—wind in east.
	6 PM	85	82	3	88	76	Dry clear weather.
	12 M	76	72	4	82	58	Dry clear weather.
9/12	6 AM	77	76	1	96	50	Dry clear weather.
	12	90	86	4	85	82	Dry clear weather.
	6 PM	88	82	6	77	72	Dry clear weather.
	12 M	80	78	2	91	62	Dry clear weather.
9/13	6 AM	84	81	3	88	64	Yellowing, dry clear weather.
	12	100	94	6	80	85	Dry clear weather.
	6 PM	94	88	6	79	74	Dry clear weather.
	12 M	86	80	6	77	62	Bottom ventilator closed.
9/14	6 AM	82	78	4	84	65	Bottom ventilator closed.
	12	92	86	6	78	88	Bottom and top ventilators closed.
	6 PM	93	88	5	82	76	All vestilators closed. Coloring.
	12 M	86	80	6	77	70	Bottom and top ventilators closed.
9/15	6 AM	88	83	5	81	76	Bottom ventilators closed.
	12	94	88	6	79	86	Bottom ventilators closed.
	6 PM	93	86	7	75	78	Bottom and top ventilators closed.
	12 M	86	78	8	70	68	Bottom and top ventilators closed.
9/16	6 AM	87	82	5	81	70	Bottom and top ventilators closed.
	12	97	87	10	66	92	Bottom and top ventilators closed.
	6 PM	92	85	7	75	78	Bottom and top ventilators closed.
	12 M	87	78	9	66	70	Bottom and top ventilators closed.

August, 1932 Leaf cured, color set.

in the manufacture of tobacco products. If sorting were not done on the farm, it would have to be done by the manufacturer. Because of a smaller supply or greater demand, some grades command higher prices than others. If tobacco were sold unsorted, it would be difficult to determine a price fair to both manufacturer and grower.

Proper sorting of tobacco is an art that can be learned only by experience. Club members without experience should get help from an experienced man in stripping and sorting the crop. If unable to get help from father or friends, the county agent or club leader will give the required assistance.

Three grades of dark tobacco are made: (1) *trash,* the rather

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thin, small and unsound leaves at the bottom of the plant; (2) *lugs,* fairly sound leaves of good size but deficient in body; and (3) *leaf,* the large, heavy, sound leaves that comprise, as a rule, about 80 percent of the crop. Dark trash useually brings about 30 percent as much as leaf, and lugs about 50 percent as much.

In learning to sort tobacco, the beginner fiinds greatest difficulty in deciding just where to make the grade separations. For example, it may be difficult to decide whether a leaf belongs in the lug grade, or ought to be put into the leaf grade. As a matter of fact, it often makes little difference, into which grade the leaf is put. The important point is to avoid putting together in the same grade leaves that are distinctly different in characteristics. A good plan is for the beginner to have some experienced grader make a sample of each grade from the tobacco to be sorted. These should be studied and kept at hand for comparison while sorting.

Tie the hands of tobacco neatly, because this adds to the appearance of the leaf on the sales floor. Usually 6 to 8 leaves are put into each hand of dark tobacco. Bulk the hands immediately to keep them from drying.

PROJECT RECORD

Type of tobacco grown .....

Variety ..... Acres .....

Where did you get the plants? .....

Character of the soil; rich, medium, poor .....

.....

What was on the land last year? .....

How did you prepare the land? .....

.....

.....

How much manure was applied? .....

What commercial fertilizer? .....

How applied? ..... How much? .....

When were the plants set? ..... How? .....

What cultivation was given? .....

.....

When was the tobacco topped? ..... When cut? .....

Describe moisture conditions during the growing season .....

.....

Character of the season during curing. Explain .....

.....

TIME RECORD

For all work on the project, such as making and tending the plant bed, preparation of ground, setting plants, cultivation, cutting and housing, stripping and marketing.

Date	Club member's hours	Help hours	Horse or mule hours	Kind of work

TIME RECORD (Continued)

Date	Club member's hours	Help hours	Horse or mule hours	Kind of work

BUSINESS STATEMENT

Expenses	Dollars	Cents
Use of land at $10 an acre		
Use of tools and machines at 40 cts. an acre		
Member's time at 10 cts. an hour		
Help's time at 20 cts. an hour		
Team's time at 9 cts. a horse hour		
Manure, at $2 a ton (each 2–horse wagon load is counted 1 ton)		
Cost of fertilizer		
Other items		
Total expenses		
Receipts		
Pounds of leaf produced		
Value, per pound, cents		
Value of the crop		
Deduct expenses		
Net receipts		

I hereby certify that this project has been carried out to the best of my ability and that this is a true report.

..... Club Member

Attest: .....

(Local Project Leader)

Date .....

STORY OF HOW I GREW MY TOBACCO

This story must be in the club member's own handwriting.

STORY—Continued

STORY—Continued

STORY—Continued

I hereby certify that this is a true record of my project, in my own handwriting.

Signature .....

(Member making report)

Date .....

Have your county agent or two persons outside your family sign the following:

I hereby certify that I have examined the records of .....

..... entered in this book, and to the best of my knowledge and belief they are correct.

County agent .....

Date .....

Signature .....

Address .....

Occupation .....

Date .....

Signature .....

Address .....

Occupation .....

Date .....

DARK-TOBACCO PROJECT OF

Name ..... Age .....

County ..... Date .....

Post office .....

Years in Club work ..... In this project .....

Approved .....

(County Agent)

Date .....