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no. 397

The Culture of  
**AROMATIC**  
(Turkish)  
**TOBACCO**

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By  
H. W. Jackson



VIRGINIA POLYTECHNIC INSTITUTE  
AND THE  
UNITED STATES DEPARTMENT OF AGRICULTURE COOPERATING EXTENSION SERVICE  
L. B. DIETRICK, Director, BLACKSBURG, VIRGINIA

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COOPERATIVE EXTENSION WORK  
IN  
AGRICULTURE AND HOME ECONOMICS  
STATE OF VIRGINIA

VIRGINIA POLYTECHNIC INSTITUTE AND  
UNITED STATES DEPARTMENT OF  
AGRICULTURE COOPERATING

EXTENSION SERVICE

August 12, 1946

To Whom It May Concern:

The enclosed Extension Circular No. 397 on Aromatic Tobacco is being sent for your information. It is not in any sense an effort to encourage general widespread introduction of this crop. It is the result of the author's conviction, after a season's work with the crop, that a **condensation of the best available** cultural recommendations was badly needed. The author does not pretend to any long-standing acquaintance with the crop, since he was brought into the project only as a result of a war emergency situation at V.P.I. Any questions relative to this subject should be addressed to Mr. E. M. Mathews at the Chatham Experiment Station, Chatham, Virginia, or Dr. F. R. Darkis, Duke University, Durham, North Carolina, who were the original sources of most of the information in this circular.

The practices recommended may not in many cases agree exactly with those proposed by others, and responsibility for any errors definitely rests with the author. The views which are expressed have resulted from a season's intensive work with twelve Virginia farmers, most of whom were highly cooperative. The resulting field observations, averaged with the recommendations of authorities such as those mentioned above, have determined the nature of each statement.

It is the author's hope that this circular may prove useful to field workers in the Extension Service who are questioned about or who are asked to work with this crop. Likewise, growers themselves should find it helpful, particularly when growing their first crop.

However, too much emphasis cannot be laid on the fact that there is no substitute for personal experience. It is the strong conviction of the author that this circular should not be handed to a grower with the expectation that he will read it and grow a satisfactory crop of tobacco. It is intended only for use as an adjunct to personal instruction by a field specialist in aromatic tobacco culture.

In conclusion, the author wishes to express his appreciation to all those who have helped in the preparation of this circular, particularly Dr. Darkis and Mr. Mathews, whose tireless hours of field instruction were the original source of most of the information.

Very truly yours,

*H. W. Jackson*  
H. W. Jackson

## THE CULTURE OF AROMATIC (TURKISH) TOBACCO\*

### 1. Introduction.

Aromatic (or Turkish) tobaccos may be thought of as the spice or flavoring element which gives modern cigarettes the flavor and aroma to which we are accustomed. As they have not been grown in this country long enough to have established a market, anyone in Virginia interested in growing them should contact his county agent or the Virginia Agricultural Extension Service at Blacksburg; anyone in North or South Carolina should contact his county agent or the Duke University Aromatic Tobacco Project at Durham, N. C.

The aromatic tobaccos produced in these three states last year were purchased at a flat contract rate of 75 cents per pound, by the Aromatic Tobacco Project of Duke University, Durham, N. C. This policy will be continued in 1946.

### 2. Allotments, Area To Be Grown, Labor.

Aromatic tobaccos are not affected by the allotment system, nor do they affect a grower's allotment of any other tobacco in any way at present. It is not recommended that a farmer attempt to grow aromatic tobacco unless he will have labor available during harvest season to the extent of two people per quarter-acre planted, for three full days a week, or three people for two days. (More labor would be desirable.) This labor, however, may consist largely of women, old folks, or children over seven or eight years of age. (Remember that young or infirm people cannot be counted on for "full days" of labor.)

This high labor factor is made necessary by the high planting rate of 50,000 to 60,000 hills to the acre. It is therefore not recommended that a farmer count on growing more than one-fourth of an acre the first year unless he has an abundance of labor available. Only the harvesting labor is mentioned because that is the major factor, planting and cultivation being relatively simple.

### 3. Soil and Location.

Aromatic tobaccos seem to do best on soils which would be relatively unproductive for vegetables or small grains. They should be loose and well drained but not too sandy. Cecil and other soils with red and yellow subsoils seem to give the best results, particularly those soils which contain small pieces of flint rocks. It is desirable to have the location sheltered by woods so as to prevent wind damage.

### 4. Seed Beds.

The seedlings are grown in plant beds exactly like those for flue cured or other tobaccos, excepting that the beds need to be at least twelve times as large in order to plant the same area of field. Not less than 100 square yards of bed should be planted for a quarter-acre plot, or 175 square yards for a half-acre. This is because of the very high planting rate as mentioned above, and also because it is highly desirable to have enough seedlings to plant the entire plot within one week, thereby ob-

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\* An expansion of a paper by Dr. F. R. Darkis of Duke University in 1944.

taining a more uniform growth and ripening of the plants.

Treatment for blue mold should be carried on in the usual way, although these seedlings will be found to be slightly more resistant than those of other tobaccos. Fermate, paradichlorobenzene, or other treatment is very important because no neighbors can help you out if your plant bed fails.

#### 5. Preparation of the Soil.

The soil should be plowed deeply in the fall, or not later than March of the following spring, weather permitting, and again in late April. It is necessary to put it in as good tilth as possible before transplanting. If there is less than about 1.8 or 2.0 per cent of organic matter present (very thin or poor), from one to two tons of well-rotted stable manure per quarter-acre should be turned under at the first plowing.

Shortly before transplanting, whatever mixed fertilizer is used should be broadcast and worked in with drag or harrow.

Rows should be laid off between 20 and 22 inches apart and ridged as high as the soil will stand at this spacing. A small turn plow or a ten-inch single shovel plow will do very nicely.

#### 6. Fertilizer.

No blanket statements can be made about fertilizers. Generally speaking, about one-fourth of the amount of fertilizer necessary for a good flue cured or burley growth will be required. It is also generally considered that the addition of about 25 pounds of potash (as potassium sulphate,  $K_2SO_4$ ) per quarter-acre is beneficial. A soil analysis and consultation with an aromatic tobacco specialist is particularly desirable on this point.

#### 7. Transplanting.

The seedlings are pulled and planted in the usual way, using pegs or transplanters, depending upon the moisture content (season) of the soil. Although the seedlings may be used when somewhat smaller, they should not be allowed to grow any larger than would be suitable for other tobaccos. Seedlings should be placed  $5\frac{1}{2}$  inches apart in the rows, and in order to accustom oneself to this, one should make a marker with pegs at the proper distance. After a little practice, spacing can be done by eye. Nearly 15,000 plants should be set per quarter-acre, or 60,000 per acre! They will be found to be very hardy.

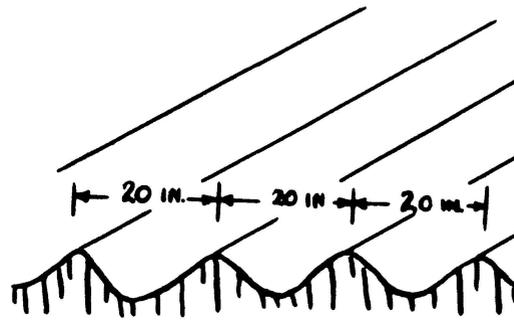
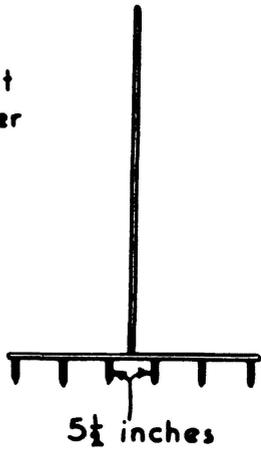
Planting is best done on the side of the ridges, halfway between top and bottom. (See Plate I).

#### 8. Cultivation.

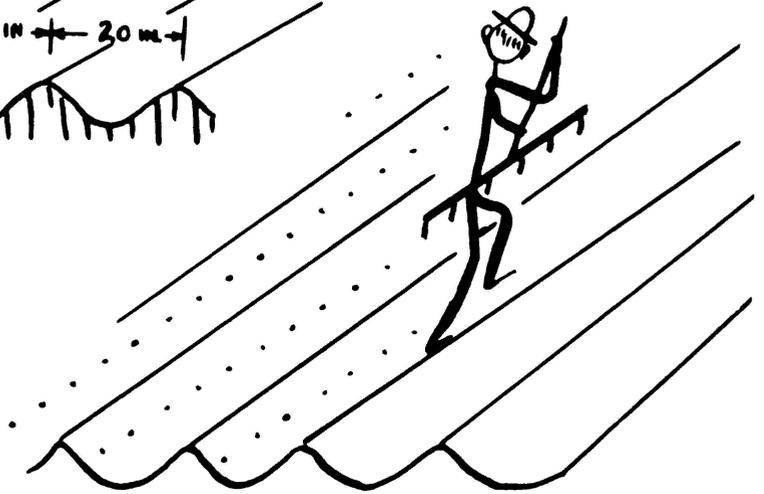
The first cultivation is usually best done by hand, shortly after the seedlings have taken root. A small hor or hoe fork is used to pull the top of each ridge away from the row of plants on its side and into the valley at the foot of the next row. (See Plate I.)

TRANSPLANTING AND CULTIVATING

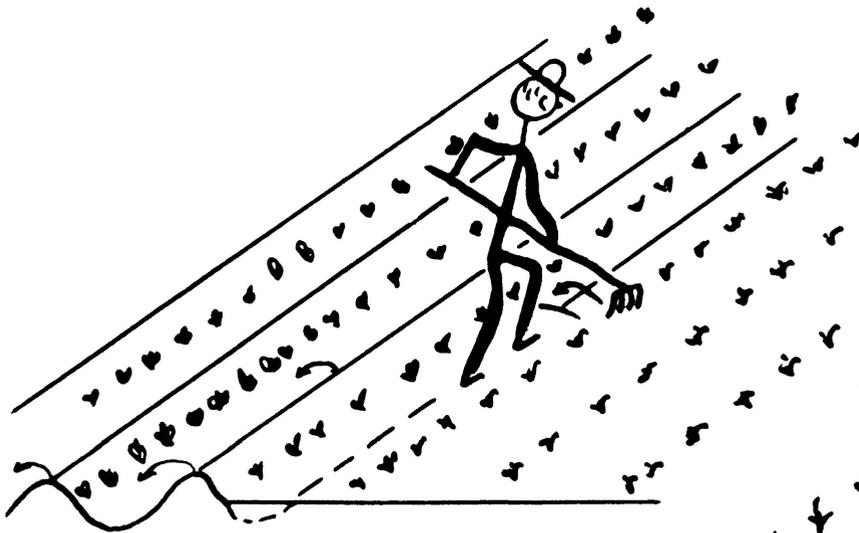
Plant  
Spacer



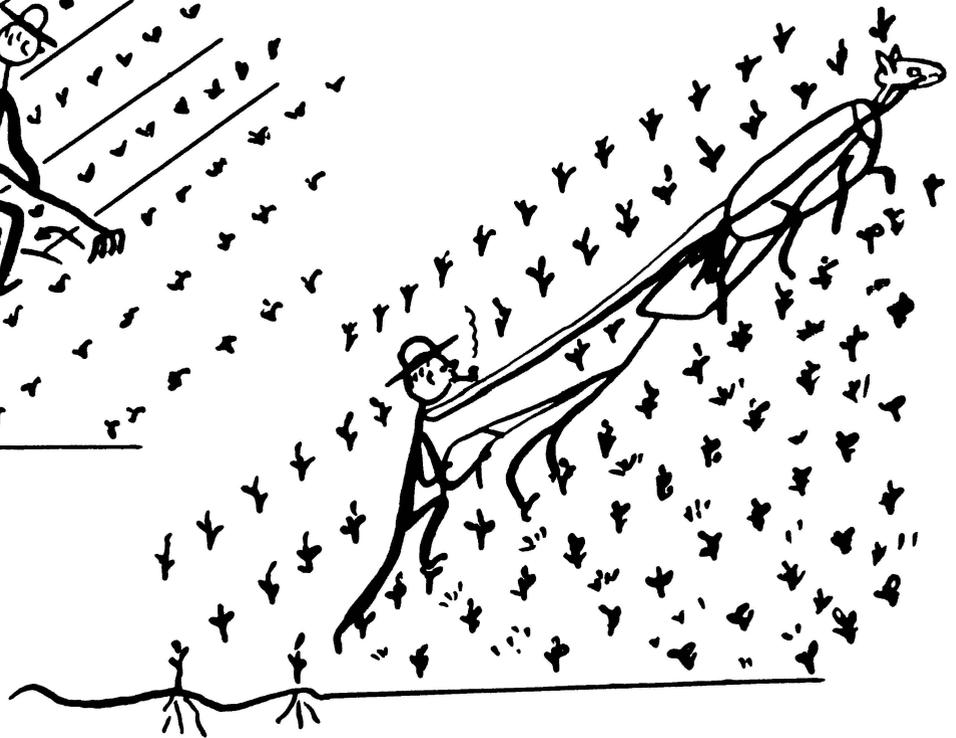
20 inch rows



Plant spacer in use



First Cultivation



Second Cultivation

The second cultivation may be made by hand or with a narrow, double-shovel plow drawn by a light-footed mule. If the growing season is normal, this will probably be all that is necessary as the young plants will soon shade out any weeds or grass. If the season should prove dry, however, keep weeds and grass down in the usual way.

#### 9. Harvesting and "Priming".

Aromatic tobacco is not usually topped or suckered, as the leaves are pulled or "primed" as fast as they ripen. By the time the seed head forms, most of the leaves have already been removed. They should be primed considerably greener than flue cured, a point with reference to which there is no substitute for experience or instruction. Priming begins at the bottom and progresses upward, a total of 6 to 8 primings being required to harvest the 35 to 40 leaves on a plant.

If the primers are careful to keep the leaves in neat packets or handfulls in the field, and lay them carefully in baskets, it saves an infinite amount of time in stringing. Priming should be completed shortly after the morning dew has dried off, or before the leaves are dry after a light shower. It should never be attempted on a hot, dry day as the large amount of gum will cause the leaves to become so sticky that they will become very much more difficult to handle. Too much emphasis cannot be placed on the desirability of priming while the leaves are moist and crisp.

#### 10. Stringing.

The leaves are strung on pieces of strong twine about  $5\frac{1}{2}$  or 6 feet long by means of a special needle 14 inches long. Two needles full, with the leaves packed tightly the full length of the needle, are run on one string. It is essential that the needle pass cleanly through the midrib near its base, otherwise the string will tear out. The ends of the string are then tied to the opposite ends of a tobacco stick and the leaves spread out and distributed as evenly as possible. This stick of tobacco is now ready for curing. The leaves may be handled in other ways, but this has been found to be the most satisfactory in the long run. Every care should be taken to avoid bruising or injuring the tobacco by careless or rough handling.

#### 11. Curing.\*

After the leaves are strung, it is essential that they be carefully distributed along the entire length of the string so that air can pass between them; otherwise, they will sweat and "pole burn". The next step is wilting (or yellowing). For this the sticks of tobacco are hung on special "wilting racks" which are built in a relatively cool and shady place. No direct sunlight should hit the tobacco for from 24 to 48 hours, or until after it is well wilted down. It bruises very easily at this time.

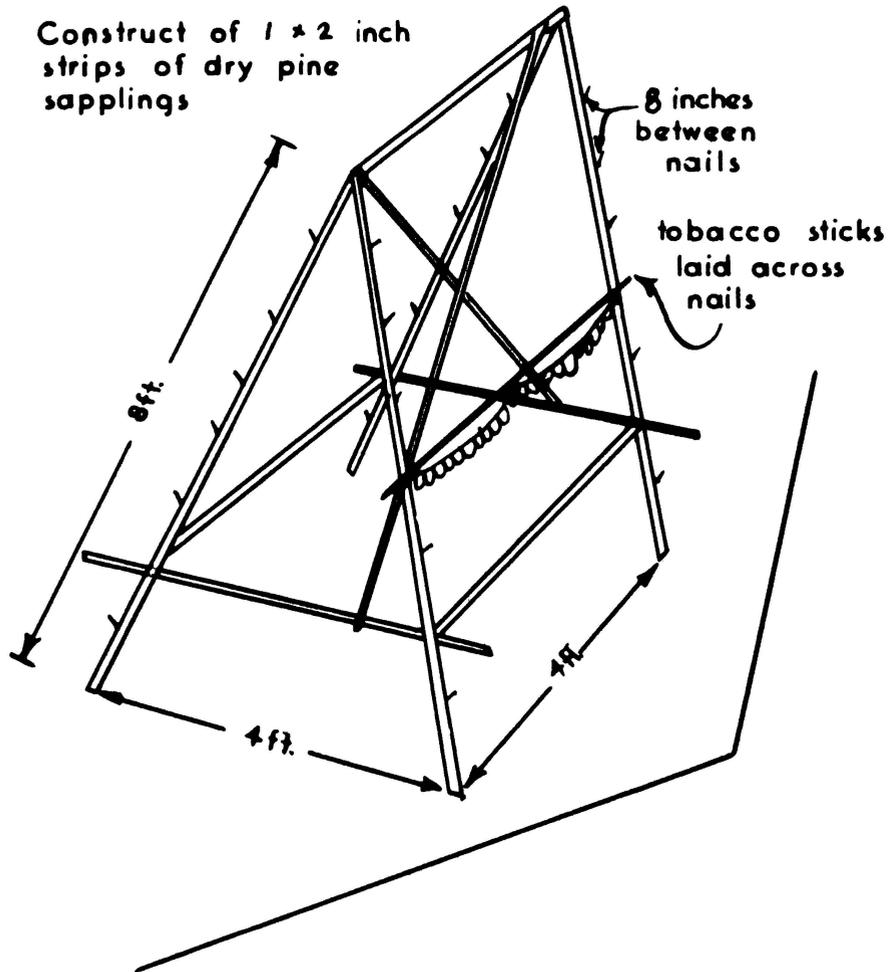
After the tobacco is wilted, it is placed on racks in the direct sunlight for from 6 to 15 days or until ready for storage. Ninety-five per cent of the leaves should be well dried out by this time, excepting for the midrib which will finish out very nicely in storage. No rain, dew, or other moisture can be tolerated on the tobacco after priming; so it is necessary either to cover the curing racks or take them inside at night and during rainy weather.

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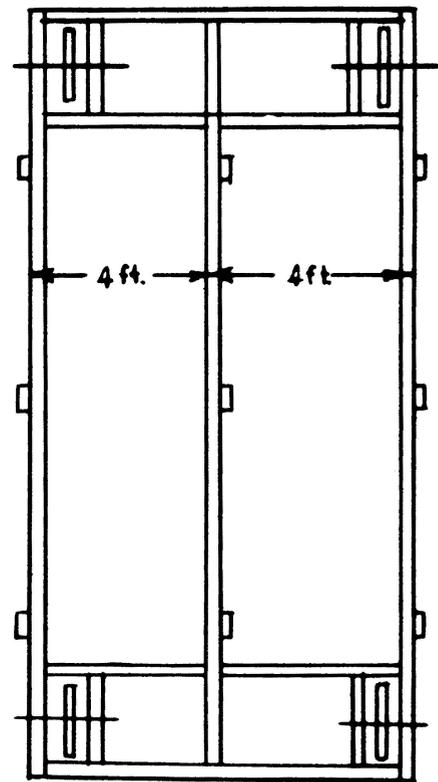
\*Plans for a small barn suitable for curing and storing aromatic tobacco may be obtained through your aromatic tobacco specialist.

Portable or one-man rack

Construct of 1 x 2 inch strips of dry pine sappings

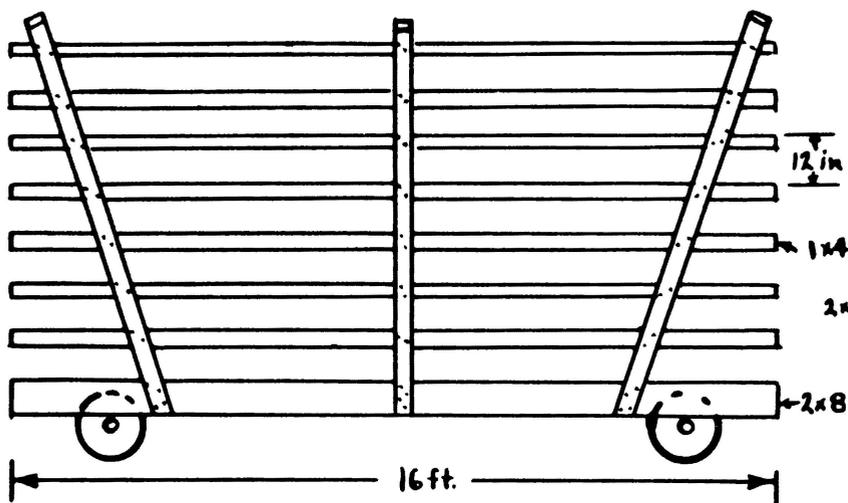


Trolley type rack to run on board tracks.

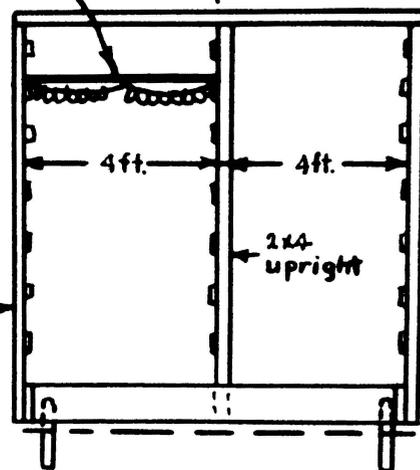


tobacco sticks laid across tier poles

TOP

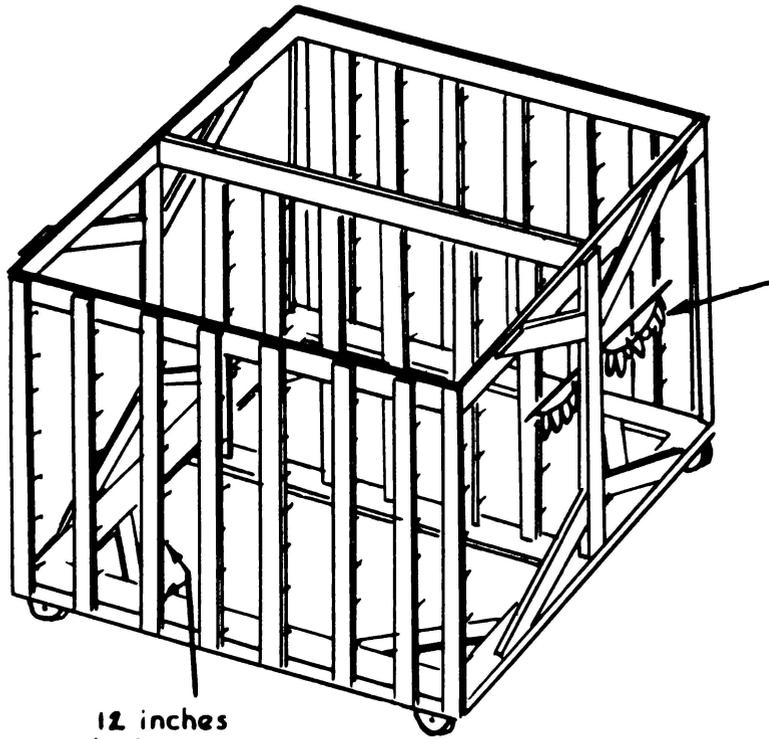


SIDE



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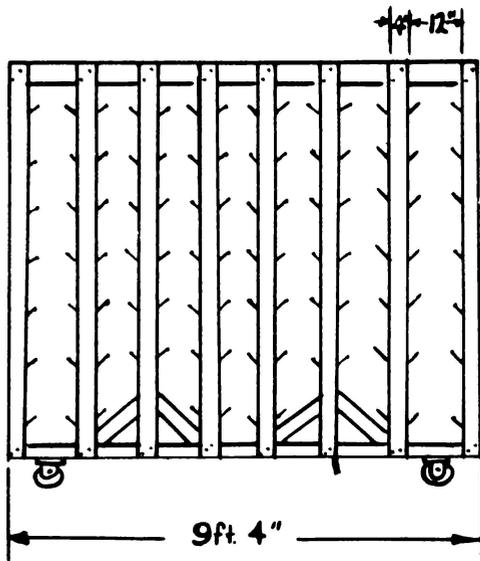
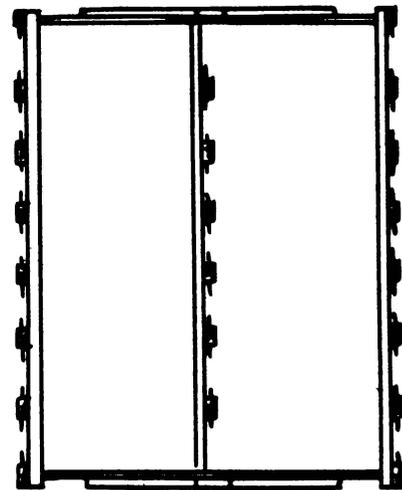
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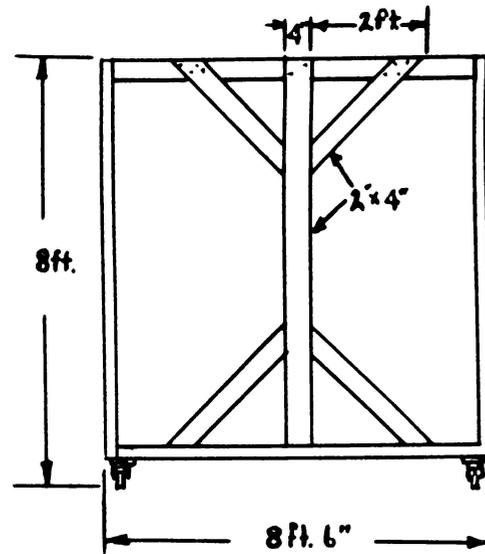
12 inches  
between  
nails

tobacco sticks  
laid across  
nails.

TOP

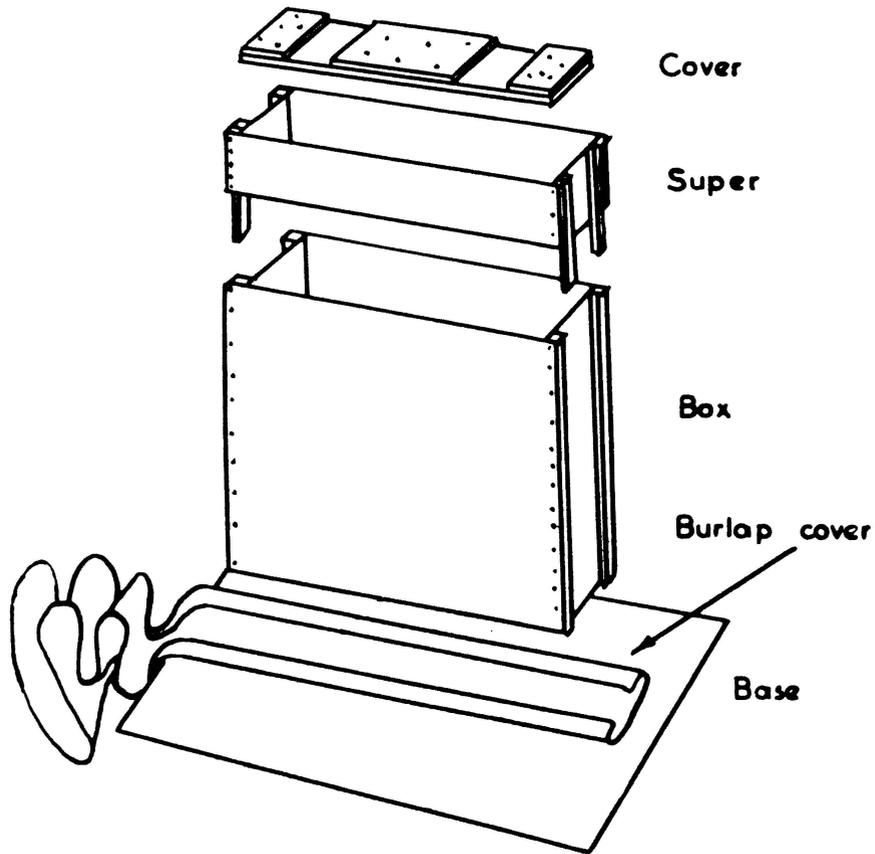


SIDE

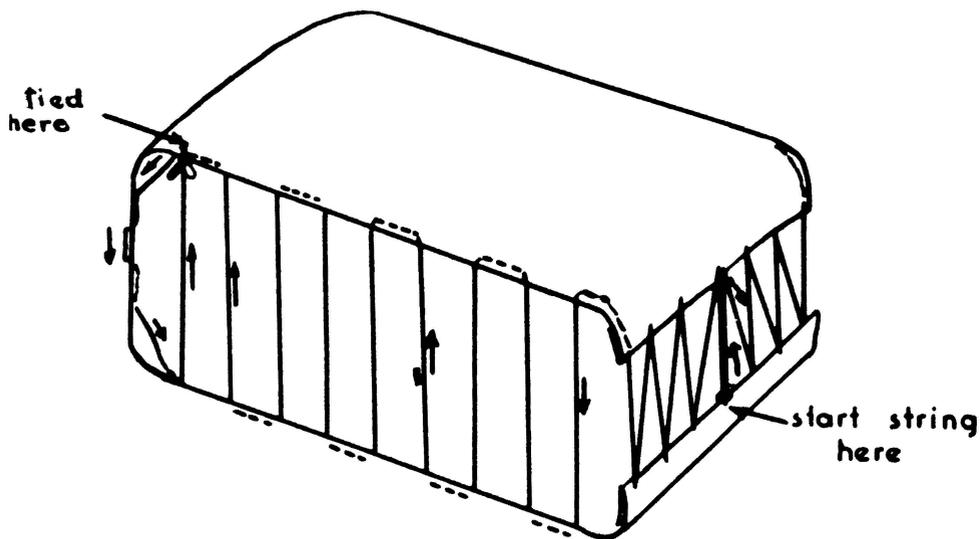
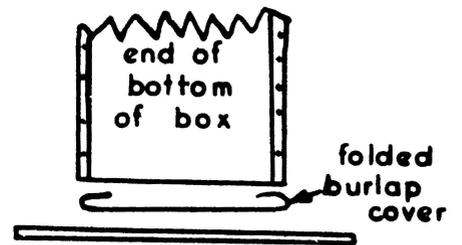
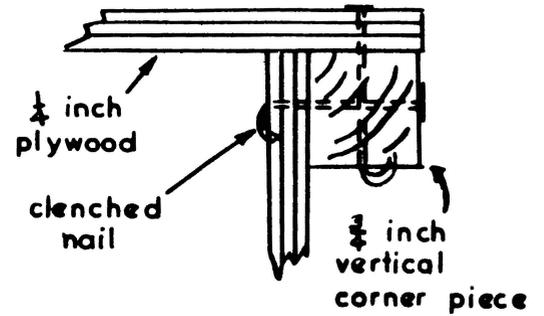


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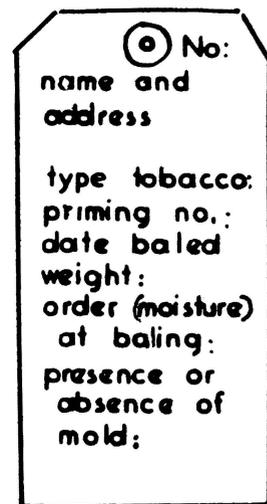
The Press



Corner Construction Detail



The Finished Bale showing stitching plan



Tag and Information on it

During prolonged rainy or wet weather, it may be desirable to apply some heat to the tobacco in order to keep it from sweating and pole burning. This may be accomplished by setting up a small wood-burning stove in the curing shed, or by running the tobacco into a flue barn and starting a small fire. The temperature should not be raised to much more than 100° Fahrenheit because the aromatic qualities of the tobacco are destroyed at higher temperatures.

Curing racks may be of two types - the one-man, portable rack (Plate II), or the roller or trolley type (Plate II, III). Of the latter, the upright type (Plate III) is probably the most desirable as individual sticks or small batches can be taken out for inspection or shifted in position from the middle of the rack. It is often desirable to do this, but it is very difficult to accomplish with the horizontal-type rack. All racks should be set out over ground from which all grass and weeds have been cleaned away, or better still, over a whitewashed wooden platform. This will secure the maximum effect of the sun's heat and hasten curing by a considerable degree.

## 12. Storage.

After curing, the tobacco should be hung in a loft or in some other dry place to await baling. Up under a tin roof is highly desirable as the hot, dry air found there on a sunny day is excellent for completing the drying of the stems. It is essential that rain and all dampness be kept away from the tobacco during this period especially, as this tobacco is very susceptible to mold and will damage if exposed to moisture for any considerable period of time.

Care should be taken to keep the various primings together and separated from one another as each must be baled separately.

## 13. Baling.

In contrast to flue cured, burley, dark fired, and other tobaccos, aromatic tobacco is baled before shipment. This is a process requiring a certain amount of skill in which it is particularly helpful to have the benefit of an experienced person when trying it for the first time. The press itself consists of a rectangular "box", 12 X 30 X 30 inches, without top or bottom (See Plate IV). Plywood is an excellent material to use for its construction. There should also be a strong wooden "base" somewhat larger than 12 X 30 inches, and a "cover" that will readily slide down inside the press. An extra frame or "super" that can be slipped on, to give added height, is very helpful.

A 12-foot pry, or other means of exerting pressure on the top, is also very helpful, as well as a supply of burlap covers 18 inches wide and 6 feet long; two 6-inch bagging needles with curved tips, and plenty of good strong twine with a rather smooth finish.

To make the bale, spread a burlap cover over the base, with one end of the cover flush with the end of the base board, and the edges folded in until the sides of the box will barely catch them and hold them down when placed so as to leave  $1\frac{1}{2}$  inches of the end exposed. The strings of tobacco are now cut from the sticks and laid lengthwise in the press, with the stems just touching the sides (not crowded against the sides). The strings are left in the bale. There should be barely enough moisture in the leaf so that it will not shatter, but no more. This is so important that it is better to lose a little by having it too dry than to bale it too wet. If the leaves

are not long enough to reach across the bale, it may be necessary to lay them in three or four overlapping rows.

When the box with the "super" added is as full as can be pressed down by hand, exert additional pressure by means of the pry (using blocks to press the cover down into the box) until the weight of a man can be suspended on the end of the pole, using about two feet of leverage (between 600 and 700 lbs. pressure). After this pressure has been held for a minute or two, the tobacco will not expand excessively and the pressure may be released. Judgment on this point is important. If 20 to 25 pounds of tobacco make a bale thinner than 14 inches, the tobacco is probably too wet and far less pressure should be used, probably no more than the weight of a man. Better still, get the tobacco slightly drier.

Slip the box up off the bale, using the cover to hold the tobacco down. Fold the edges of the rest of the burlap cover, like that on the bottom, and bring the long end up over the bale lengthwise as the press cover is removed. The bale should have expanded to 16 or 18 inches in height, and the ends of the burlap should not meet. Failure to expand at least 25 per cent when the pressure is released is an almost sure indication that the tobacco is too wet, and either far less pressure should be used, or the tobacco left until later, preferably the latter. By a steady pull on the burlap, and by one person, and by pressing with the palms of the hands, first with one hand and then the other, on the "closed" end of the bale by another person, that end should be pressed down until it is firm, or about 12 to 14 inches in height. The top end of the cover should be turned under until it overlaps the edge about two inches, at which time the ends of the cover are sewn together with the V-shaped stitch shown in the illustration.

The proper length of string is determined by estimating the final height of the bale, and allowing one yard of string for each inch of height. The string is now doubled, the loop thrust through the center of the lower end of the cover, and the long end of the string pulled through the loop. The double long end is likewise sewed through the center of the top cover. In taking the rectangular side stitches, the needle is thrust in at the edge of the folded cover and then along between the thicknesses of cloth, and out again at the fold about three inches beyond. In tightening the strings, which should not be done until all stitching is completed, be sure that no strong pull is given the string itself, but rather create slack by pressing on the sides of the bale.

A bale such as is described above should not weigh over 25 pounds. If it does, it is a good sign that the tobacco is too wet. The bale strings should be loosened up and the tobacco pulled apart slightly to allow some air to get inside the bale. Baled tobacco molds very readily if it is too wet, and too much emphasis cannot be put on having just enough moisture for baling and no more!. A grower may well lose his entire crop as a result of his misjudgment at this time. It is highly desirable that an experienced person be present at the first baling.