

HARVESTING, CURING, STRIPPING, AND MARKETING

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Harvesting

Growers should only harvest mature, ripe tobacco. Burley tobacco usually matures and is ready for harvest three to five weeks after topping, at which time the upper one-third of the plant should have a distinct pale green to yellow appearance, and the bottom of the plant should be completely yellow. The midribs of the leaves should fade from a green color to a pale yellow color as the plant ripens. The amount of nitrogen fertilizer applied will have some influence on the time of maturity and, more directly, the quality of the tobacco at maturity. There are also differences among varieties in time of maturing or ripening. Ms KY 14 x L8 is the earliest maturing variety available and NC 2000 is the latest maturing variety. Growers are often hesitant to allow the upper leaves to ripen for fear of losing some of the lower leaves. However, the added growth and weight of the upper leaves will usually more than make up for the loss of downstalk leaves. Generally, growers in the southwest portion of Virginia gain a tremendous amount of yield by waiting at least four to five weeks after topping before harvesting (Figure 1.). However, this may be different for burley growers in the piedmont area of Virginia. Yields are generally maximized at four weeks after topping and can start to decrease between four and five weeks after topping (Figure 2.). Thus, growers in the piedmont area should look at how long it will take to harvest their crop. If it can be harvested in week they should let the tobacco stand 4 weeks after topping. However, if it's going to take longer they should start at three weeks after topping. Burley tobacco should not be cut sooner than three weeks after topping.

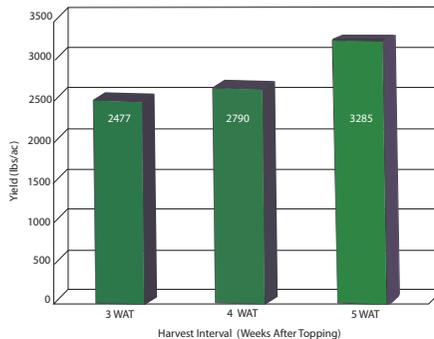


Figure 1. Burley tobacco yields averaged across ten varieties harvested three, four, and five weeks after topping. Glade Spring, 2006

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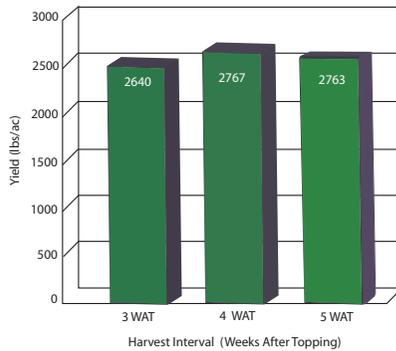


Figure 2. Burley tobacco yields averaged across ten varieties harvested three, four, and five weeks after topping, Blackstone, 2007

Currently there are several methods of cutting burley tobacco. Some growers allow the tobacco to be cut and placed in piles of five to six stalks, and then return to place this tobacco on a stick. Others use a two-person team, one cuts the plants and hands it back to the other person to spear the plant on the stick. The most efficient method is for one person to cut and spear the tobacco as he or she goes through the field. Tobacco should be cut and speared onto a stick so that the butts of the plants are towards the sun to minimize sunburn damage. Sunburned tobacco can result in a cured leaf with an undesirable green color. Immature tobacco is much more likely to sunburn than mature tobacco.

Tobacco should not be left in the field longer than three to five days unless it is scaffolded. It is especially important that the tobacco not be allowed to get muddy. Tobacco placed on scaffolds may be left in the field for up to 12 days with little or no damage from the weather and will lose about 40 percent in weight.

Curing

Curing burley is not a simple drying process but involves a series of physical and chemical changes that begin when the plant is cut and ends when the plant is dry. The major steps include wilting, yellowing, browning or coloring, and drying. The entire process requires six to eight weeks.

Optimum curing conditions occur when the temperature is in the general range of 60° to 90°F and the relative humidity is 65 percent to 70 percent. In the early stages of curing, it is impractical to attempt to maintain these optimum ranges through a 24-hour period. In normal weather, the humidity within a barn filled with green tobacco will approach 100 percent each night. A good cure can still be obtained if ventilation is provided to dry out the barn the next day.

Houseburn may be a problem in curing burley. It may be called many other names such as barn rot, pole sweat, stem mold, leaf rot, and others; but it is a partial decay of tobacco tissue during the curing process. It is caused by several species of fungi and bacteria that are present on tobacco leaves. Injury occurs when these microorganisms attack leaves that become moist during periods of high humidity that last longer than 24 hours. Damage can be measured in weight loss and lowered leaf quality and can range from mild to severe. Symptoms include a white or gray mold and an odor of rotting tobacco. Injury is worse on the lower tiers and on the leeward side of the barn.

Supplemental heat can be an advantage during rainy weather or prolonged periods of high humidity. The objective in using heat is to raise the temperature within the barn only 6° to 8°F or just enough to dry the leaf surface and thereby prevent the proliferation of organisms that cause houseburn. Use some type of heat spreader on burners to prevent hot spots that can set undesirable colors in the curing leaf. Maximum temperature increases should not exceed 10° to 15°F. Heat can also be used to prevent setting green color by freezing on freshly harvested, late-cut tobacco. Few growers have the capability of adding heat and must rely on managing air flow.

Many curing problems can be relieved or prevented by properly manipulating the barn equipment. Generally, ventilators and doors should be open during fair weather and closed during rainy weather and at night. This process can be reversed during extremely dry weather when tobacco is curing too fast. New barns should be located on high ground with good air circulation and with the long side exposed to prevailing winds.

Much tobacco in Virginia is cured on some type of field-curing structure. The curing environment is managed primarily by stick spacing and cover management. Stick spacing should be much closer in this type of structure, approximately 4 inches. **All curing structures should be covered and managed.** Curing burley tobacco on curing structures without covering and management reduces quality and yield of cured leaf. A general recommendation would be to leave the sides of the cover up during the yellowing stage of curing and then lower the sides for the rest of the curing process. An exception would be during hot, dry conditions when the sides should be lowered during the day to slow down the curing process. Tobacco should be removed from the field-curing structure as soon as possible after the curing process is completed. This will minimize damage due to weather, primarily wind.

Stripping and Marketing

Stripping the leaves from the stalk and sorting into groups enables leaf buyers to obtain the specific grades needed by the manufacturer. The one-price market in the early 1990s resulted in much of our burley being graded into one or two grades. The biggest advantage we have in U.S. burley production is quality. If not properly separated by stalk position, quality is sacrificed and the overall sustainability of burley production in Virginia is weakened.

Generally there are four distinguishable grades of tobacco on a stalk. These grades include Flyings (X), Lugs (C), Leaf (B), and Tips (T). The flyings group (X) consists of leaves grown at the bottom of the stalk. These leaves are flat and have a blunt or oblate tip. They are relatively thin bodied and show a certain amount of injury. The lug group (C) consists of leaves that grow above the flyings and up to about mid portion of the stalk. These leaves have a rounded tip and when cured, have a tendency to fold and conceal the midrib. They are thin to medium bodied. The leaf group (B) is made up of leaves grown above the lugs. The cured leaves, especially from the upper stalk position, have a tendency to fold and conceal the face of the leaf. These leaves are medium to heavy bodied. The tips (T) are those top three or four leaves at the top of the stalk. They have same general characteristics of the leaf group. The practice of mixing grades may offer a slight labor savings, but it does not meet the needs of most buyers. With an over-supply situation and a weak market, mixed tobacco generally sells for less than properly sorted good-quality leaf. Use no fewer than three groups when preparing any burley crop for market. Currently much of the burley purchased in Virginia is purchased through a contract rather than the auction system. Some manufactures will now require that tobacco be separated into four grades. Frequently, there will be no leaves in a crop short enough to grade in the tip (T) group. Buyers complained about a shortage of tip grades available from recently marketed crops. Generally there will be enough difference in color and body in upstalk tobacco to warrant a separation into bright leaf and red leaf, especially if tobacco is topped at 22 to 24 leaves. For pictures of burley grades and more information on grading burley tobacco go to the Southern Piedmont website, arecs.vaes.vt.edu/arec.cfm?webname=blackstone

Tobacco should not be stripped or baled in too high or too low moisture content. Dry leaf lamina is easily shattered and ruins the usability of the leaf. High moisture tobacco will easily overheat and mold and will damage in handling. It has also been proven that tobacco stored at a high moisture level results in higher levels of tobacco specific nitrosamines (TSNAs). Moisture content should be between 18 percent and 22 percent for proper handling and storage. Many tobacco manufactures and leaf dealers will reject tobacco if above a moisture content of 23.9 percent.