

Harvesting, Curing, and Preparing Dark Air-Cured Tobacco for Market

Andy Bailey, Department of Plant and Soil Sciences

Harvesting

Harvesting practices are similar for dark air-cured and dark fire-cured tobacco (see Kentucky Cooperative Extension publication AGR-152, *Harvesting, Curing, and Preparing Dark Fire-Cured Tobacco for Market* for information on dark fire-cured tobacco). Dark air-cured tobacco is ready for harvest when leaves are mature but not overripe. For most varieties, this is typically between five and seven weeks after topping. Mature leaves will be thick with a leathery texture and a somewhat oily sheen. They may show faint yellowing or “ripe” spots and will crack readily when folded in the heat of the day.

Tobacco harvested immature or “green” will be thin and difficult to cure, and both yield and quality will be reduced compared to mature tobacco. Overripe tobacco is brittle and difficult to handle and is more prone to yield and quality losses due to leaf breakage.

Leaf breakage can be minimized if cutting does not begin until after all dew has evaporated from the leaves. Large, heavy-bodied tobacco should be cut and allowed to wilt to facilitate handling before placing plants on sticks (“spiking”). The amount of time between cutting and spiking depends on weather conditions.

Care must be taken to avoid sunburn, which will result in a crude green color being set in the cured leaf (Figures 1 and 2). Under clear, hot conditions, tobacco will wilt quickly and may need to be spiked within 30 minutes to an hour after cutting

to prevent sunburn. Under cool, overcast conditions, tobacco may require three to four hours to wilt with little chance of sunburn. Tobacco that is field wilted in piles should be watched closely to prevent heating and scalding. Cutting tobacco late in the afternoon and allowing it to lie overnight before spiking can also work well, provided rain does not occur during the night to splash mud onto leaves.

Unless tobacco is unusually small, do not place more than five to six plants on each stick in order to make handling easier and promote airflow through the tobacco following housing. After spiking, tobacco can be allowed to wilt further in the field before loading. Placing sticks so that the butts point into the afternoon sun will minimize the potential for sunburn on exposed leaves.

Tobacco loaded on scaffold wagons should be placed in the shade or covered with a loose fabric material or shade cloth to prevent sunburn prior to housing. Tobacco loaded on scaffold wagons can be left for as long as 48 hours for additional wilting before housing. Tobacco loaded on flat bed wagons should be housed as soon as possible to prevent heat accumulation in the tobacco.

UF Extension

This is a joint publication of the Cooperative Extension Services of the University of Kentucky and the University of Tennessee.



Figure 1. Sunburn in the field.



Figure 2. Sunburn effect on cured leaf.

Housing

Sweating and house burn as a result of overcrowding tobacco in the barn are two of the most common curing problems in dark air-cured tobacco. Sweating and house burn can cause substantial reductions in cured leaf quality and weight and are also associated with poor leaf chemistry. As yields have increased in recent years, growers should be aware that larger tobacco requires more space in the barn to cure properly, and older barns may not accommodate the same number of sticks as they once did when yields were lower.

Allowing tobacco to wilt as much as possible will make housing easier and allow for more efficient use of barn space. In addition to being easier to handle, fully wilted tobacco will be less likely to house burn, sweat, and mold and will yellow and cure better.

Plants should be spaced evenly on sticks while housing to promote air movement through the tobacco. Depending on the degree of wilt, sticks should be spaced 8 inches apart in newer barns with wider tier spacing where tobacco does not normally overlap between tiers. In older barns with narrower tier spacing, sticks should be placed 12 inches apart without overlap between tiers. To avoid curing problems with larger tobacco, especially in older barns, sticks may be hung on every other tier. If hanging tobacco on every tier, the placement of sticks should be regulated when housing so that tobacco from an upper tier does not lie directly on tobacco from a lower tier.

Outdoor curing structures used by some burley growers are not currently recommended for dark air-cured tobacco due to increased potential for weather damage.

Curing

Curing is a structured process that requires time and management. Dark air-cured tobacco is cured essentially the same as burley, but because of the heavier body of dark tobacco, it is more prone to sweat, house burn, and mold. Under warm conditions (mean daytime temperatures $>80^{\circ}\text{F}$ and mean nighttime temperatures $>60^{\circ}\text{F}$), barn doors and ventilators should be open during the early stages of curing to promote airflow through the tobacco. If warm, moist weather conditions prevail after housing, it may be necessary to use some type of heat to aid the curing process. Heat may also be necessary following late harvests if cool (mean daytime temperatures $<65^{\circ}\text{F}$), dry conditions persist after housing. Heat sources that can be used include gas burners, coke stoves, or even wood fires using dry sycamore wood. For dark air-cured tobacco, it is extremely important that these heat sources be virtually smoke-free so as not to leave any, or very little, smoke residue on leaves. Barn temperatures during heating should be kept low (not exceeding 90°F), as too much heat can cause excessive drying or bluing.

Mold growth in later curing stages is a common problem in dark air-cured tobacco and is due to excessive moisture in the curing barn (Figures 3a and b). High nitrogen rates can also contribute to slow stem drying and potential mold growth. Covering the barn floor with plastic or even straw can aid in reducing moisture levels in the barn. Barn ventilators should be opened during conditions of low humidity and closed during conditions of high humidity to help drive off moisture. The use of low heat will also aid in reducing moisture levels in the tobacco.



Figure 3a. Mold growth on leaf lamina.



Figure 3b. Mold growth on leaf midrib.

Under no circumstances should compounds such as alcohol or bleach be used to remove mold on tobacco. Where mold growth is severe, it may be necessary to take down some tobacco onto scaffold wagons to promote additional airflow. Forced air ventilation is also very useful in managing humidity and reducing moisture levels in the barn.

Barn ventilators should be managed to control curing throughout the entire curing process. Leaving barns open for two weeks and then closing them until stripping time is not the type of management that will produce the highest quality tobacco.

Preparation for Delivery

The curing process is complete when leaf midribs are drawn down and firm all the way to the stalk (Figure 4). Tobacco should be taken down onto scaffold wagons or bulked as soon as possible after curing. However, tobacco that is in too high order should remain hanging in the barn until moisture levels are reduced. Dark air-cured tobacco will take on moisture much more readily than dark fire-cured tobacco and will usually come in order naturally (i.e., have enough moisture to be somewhat pliable) without the use of water. If tobacco is taken down and bulked while stalks are still green, it will only keep for a short period of time and should be stripped as soon as possible.

If there is no green remaining in stalks and tobacco is properly bulked, quality can improve and tobacco will remain in order so that it can be stripped at any time. Bulked tobacco should be placed off the floor with tips slightly lapping in the middle of the bulk. Avoid bulking tobacco in high order as it will be more likely to “heat” and spoil.

Only breathable fabric should be used to cover bulked tobacco since covering with plastic can cause condensation that will stain the tobacco.

Care should be taken in stripping and handling the crop following takedown. Tobacco should be stripped into three distinct stalk positions (lug, second, and leaf), and any green tobacco should be kept separate. Lugs can be further classed



Figure 4. Dark air-cured tobacco (upper) ready for takedown.

into good lugs and trash lugs based on dirt and ground injury. A separate grade should also be made if there is excessive mud or dirt on the leaf or seconds. Any mud caked on the tails of leaves should be removed during stripping. Each stalk position and grade should remain segregated through delivery.

Care should also be taken before and after stripping to ensure that tobacco is not placed near contaminants such as pesticides or other chemicals. Tobacco should remain clean and free of trash and other non-tobacco-related material during market preparation.

Between stripping and delivery, tobacco should be stored in a clean, dry, and well-ventilated location where it will be protected from contamination or other damage. Only tobacco from the current crop year should be delivered, and tobacco should be protected from weather damage during hauling and delivery.

