



Tobacco Curing Considerations

DR. ANDY BAILEY

PRINCETON, KY.

Now that all tobacco has been harvested, growers should be thinking about barn management to achieve the best possible cured leaf quality they can. Although the dry season of 2007 severely limited the quality potential of many tobacco crops in western Kentucky and Tennessee last year, improved growing and curing conditions in 2008 give us more potential to deliver a high quality tobacco crop. For burley and dark air-cured crops, dry air with low relative humidity during the curing season are the most likely causes of bright colored or green tobacco that is generally undesirable for buyers. Although curing involves drying of the crop, the most important aspect of air curing is slow chemical processes that lead to gradual color changes from green to yellow to brown leaf. Drying down too early in the cure or too fast results in bright cured leaf at best, and casty green cured leaf as a worst case scenario.

Normal air-curing practices are to provide the crop with as much ventilation as possible for the first 2 to 3 weeks after housing, so that freshly harvested green tobacco that is full of moisture can yellow completely and begin the processes that bring brown colors to the leaf. This is the case with air-cured tobacco harvested at normal times, in late August and September. The major consideration during these early stages of curing is usually to provide as much natural air flow as possible through the tobacco while protecting the tobacco from wind and rain damage. Maximizing ventilation includes opening barn doors and all ventilators available and also providing as much opportunity as possible for air to move through the tobacco within the barn, between sticks of tobacco and between plants of tobacco on the stick. Burley tobacco should be housed about 8-inches between sticks, with 9- to 12-inch stick spacing for dark air-cured tobacco. Tobacco plants on sticks should be regulated when picking up in the field or at housing so that there is equal spacing between plants without plants being bunched together. Lack of air flow early in curing can result in houseburn and leaf drop from bacterial growth. Tobacco subjected to even low levels of houseburn can have unfavorable leaf chemistry properties in the cured leaf.

Unless there are severe storms, barn doors and vents should remain open at all times during the first 2 to 3 weeks after housing. Once tobacco coloring is completed to solid brown and temperatures get cold and on windy days, barns doors can be closed to provide wind protection to tobacco that will be dry, fragile and susceptible

to wind damage. Remember that color is improved in air-cured tobacco when the tobacco is allowed 'come in and out of order' by absorbing and releasing moisture as much as possible. This can occur on a daily basis without rainfall if there is sufficient dew at night, but may not occur if doors and vents are closed. Vents should be opened even during later stages of curing to allow moisture to enter and escape from the barn. Once curing is complete and tobacco is ready to be taken down for stripping, open all vents and doors at night to allow moisture to enter and close during the day to keep moisture in the barn.

Many of these air-curing considerations hold true in most years but may need to be adjusted in a dry year like 2007 when tobacco sustained extreme drought in the field that continued into the early part of the curing season. In seasons like 2007, tobacco has lower moisture going into the barn and then tries to dry too fast, setting undesirable leaf colors. Under these unusual circumstances, it may necessary to try to increase the relative humidity in the barn by closing doors and vents earlier in the cure. Doors and vents should still be closed during at least the first week to allow yellowing to begin but can then be closed in an attempt to slow drying and allow slower chemical reactions and color changes. Some growers may even go as far as adding moisture to the floor of the barn to increase humidity. Closer stick spacing during these conditions can also be acceptable to slow down drying. Remember that 2007 weather conditions are rare and in most years we want to increase ventilation rather than reduce ventilation.

Similarly, growers harvesting tobacco late in the season, in mid- to late-October, also have to consider different principles for tobacco that will be exposed to cooler temperatures during curing than tobacco harvested in late August and September. Air-curing is totally dependent on temperature and humidity, with ideal conditions being temperatures ranging from 70 to 90 degrees Fahrenheit and relative humidity ranging from 65 to 70 percent. Late-cut tobacco exposed to "cold weather curing" will see limited exposure to either of these ideal ranges. Although we have little control of temperature in air-cured tobacco, we can slow the speed of drying by increasing relative humidity for short periods.

Both dry weather curing and cold weather curing are fairly unusual for most burley and dark air-cured crops, and special attention should usually be given to increasing ventilation and air flow in curing barns. Δ

Dr. Andy Bailey is Tobacco Specialist, with the University of Kentucky at Princeton.