

Early Maturity and Physiological Leaf Breakdown in Dark Tobacco

By Andy Bailey



Dark tobacco can show moderate to severe spotting as it begins to approach maturity. In some cases, this problem is associated with early maturity and is not associated with a disease pathogen. Dark tobacco may appear to be “cutting out early” in that it begins to show symptoms of a condition known as physiological leaf breakdown that is very similar to the “ripe spotting” that we see on over-mature tobacco. However, this problem can occur on tobacco that has only been topped for 3 to 4 weeks. Much of this tobacco is obviously immature but is showing physiological or “ripe” spotting as if it had been topped for 8 weeks or more.

All dark tobacco varieties will eventually show this condition if they are left in the field long enough. Narrowleaf Madole, one of our latest maturing varieties, typically will not reach maturity until at least 6 weeks after topping and can often stand for as long as 8 to 9 weeks without showing over-ripeness or signs of physiological leaf breakdown. KT D4LC is at least as late as Narrowleaf Madole, showing physiological maturity as much as 7 days later than Narrowleaf Madole. In several cases, physiological leaf breakdown appears to be more severe in KT D4LC than in Narrowleaf Madole.

Spotting that occurs from physiological leaf breakdown usually occurs in irregular shapes in the lamina between secondary veins and is unlike the circular patterns that we see from late-season spotting diseases such as target spot, frog-eye leafspot, or brown spot; or the jagged-edged rectangular patterns we see from angular leafspot. The size of these areas associated with physiological leaf breakdown can range from the size of a nickel to the size of the palm of your hand. Unlike spotting diseases, there are no chemical controls for physiological leaf breakdown (i.e. application of Quadris or other fungicides does not appear to control or suppress this condition since it is not associated with a disease pathogen).

Although little is known about the direct causes of this problem, physiological leaf breakdown seems to be associated with unstable growing seasons. Sudden changes in moisture levels or drought may cause hormonal and nutrient imbalances in the plant that may be related to physiological leaf breakdown. Additionally, unusually high late-season temperatures may also be involved in physiological leaf breakdown.

Many growers that see this problem will be tempted to harvest the tobacco immediately before the condition worsens. However, dark tobacco should stand for a minimum of 5 weeks after topping, assuming physiological leaf breakdown has not consumed more than 25% of the total

leaf surface area in the field. Research has shown that most dark tobacco varieties (with the exception of TN D950, an extremely early variety) needs to stay in the field a minimum of 5 weeks after topping, and late maturing varieties such as Narrowleaf Madole will continue to gain weight on the order of 120 lbs/acre/week up through 9 weeks after topping. Although most dark tobacco crops experiencing problems with early maturity and physiological leaf breakdown will not stay in the field nearly this long, they should stand a minimum of 5 weeks. Most growers experiencing problems with physiological leaf breakdown will likely end up harvesting their crop 1 to 2 weeks earlier than expected.