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Crop Management Newsletter

News about Crop Management for producers in Dawson and Lynn Counties.

Thanks to the sponsors and the gins who support the Dawson/Lynn IPM Program
(found on page 2)

When to Defoliate

Timing defoliation is usually a difficult decision, because we are balancing potential yield and quality loss in the bottom bolls versus additional weight gain in the top bolls. There are several techniques to determine when we can apply harvest aids and still retain maximum yield. These include percent open boll, sharp knife and Nodes-Above-Cracked-Boll (NACB).

Distinguishing which green bolls will be harvestable is an important skill needed to use these techniques. Not all unopened bolls on a plant will be harvestable at defoliation. Characteristics of mature harvestable bolls include: 1) they are too hard to depress between thumb and forefinger, 2) they are too hard to slice easily with a sharp knife, 3) they have lint that strings out when bolls are sliced with a sharp knife, 4) they have seed coats that are dark yellow to tan in color and 5) they have seed cavity filling with no jelly material present.

Crop maturity determination is critical for a successful harvest-aid program. Premature

crop termination has been shown to reduce lint yield, seed quality, micronaire, and fiber strength. Harvest-aid chemicals cannot increase the rate of fiber development. Only additional good growing weather including open skies and adequate heat units combined with functional leaves can mature cotton bolls.

Percent Open Boll

Long term approaches have been to apply a defoliant when 60% to 75% of bolls are open, and a desiccant application when 80% or more of bolls are open and remaining green bolls can be cracked when squeezed. Although this is a useful gauge, more accurate techniques are available. When the crop has a “fruiting gap” the percent open boll technique can give erroneous recommendations.

To calculate, count the number of open bolls and total harvestable bolls per plant on 3 row feet from four randomly selected areas of a field. Divide the number of open bolls by the number of total harvestable bolls, then multiply by 100.

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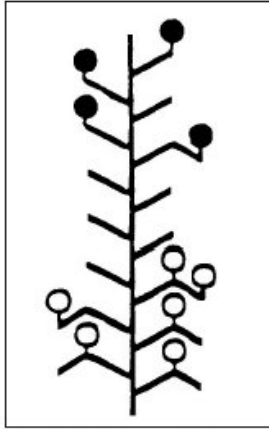


Figure 1. At 60 percent open boll, this crop would not be fully mature and safe to defoliate.

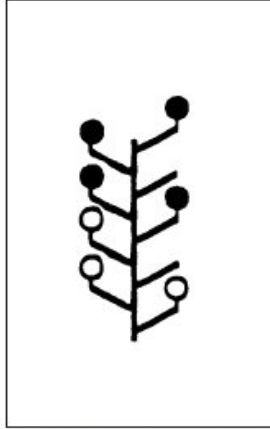


Figure 2. Even at 45 percent open boll, this crop would be mature enough for safe defoliation.

Sharp Knife Technique

Cutting into green bolls is a highly accurate method. Inspect the cross section of the seeds looking for signs of immaturity: jelly surrounding the seed, glistening water in the boll, cotyledons white and not yellow-green, and white seed coat instead of tan or black.



Immature

Requires more heat units - boll opener will probably open but will not fluff.



Towards maturity

Ready for boll opener.



Mature

Fully mature - should open with a desiccant (paraquat)

Special THANKS to those who support
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Many Thanks to the Gins who participate and support the Lynn/Dawson IPM Program

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Tommy Doederlein

Tommy Doederlein
Extension Agent - IPM
(806)872-3444 (office)
(806)759-7030 (cell)
t-doederlein@tamu.edu

Nodes Above Cracked Boll (NACB)

NACB helps determine when a field is safe to treat with harvest aids and still obtain 98% to 100% of the yield potential. Defoliating cotton at NACB less than or equal to 4 results in less than a 1% total yield loss. Defoliating at this stage does not reduce fiber quality. However, defoliating when NACB is greater than 4 introduces immature fibers from some of the younger bolls.

The average number of nodes above the cracked boll (NACB) helps determine the proper time to apply defoliant, taking into account the potential yield loss and the quality loss from immature bolls. Ideal timing for defoliation is when unopened harvestable bolls are an average of four or less nodes (including missing branches) above the highest first position cracked boll.

How to monitor NACB:

Select random plants from representative areas of the field.

Choose plants that have a cracked boll on a first position fruiting branch.

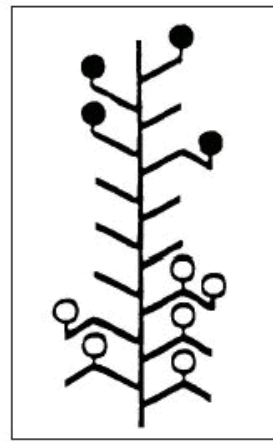
Find the uppermost cracked first-position boll and count this as fruiting branch zero.

Count the number of nodes, including nodes with no boll, above fruiting branch zero until you reach the **uppermost harvestable** boll on the plant.

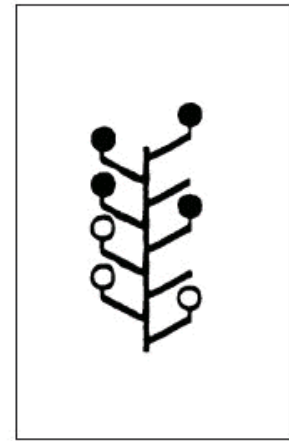
This is a boll that is large enough and mature enough in development that it will open before the scheduled harvest date.

The number of nodes counted above fruiting branch zero is the NACB for that plant.

Take the average across the plants sampled to obtain the NACB for the field.



10 NACB



5 NACB

