Late Season Management

• Coast to a finish

• Efficient irrigation use and timely with nutrients – don’t want to end up with excess water or nitrogen

• Cotton wants to defoliate, let it do the heavy lifting and use harvest aids to nudge it along

• Much easier to defoliate when it’s naturally matured rather than trying to force it
Categories of Harvest Aids

• Defoliants – herbicidal (tribufos or PPOs); tribufos effective on mature leaves; PPOs better for removing regrowth

• Boll Openers – hormonal (ethephon); defoliation activity depending on weather and crop condition

• Regrowth Inhibitors – hormonal and herbicidal (thidiazuron + diuron); some defoliation activity

• Desiccants – herbicidal (paraquat); condition crop for stripper harvest, minimal boll opening and defoliation activity
What Harvest Aid Mix Do I Need?

• What is the crop condition/primary need?
  • Defoliation; boll opening; regrowth inhibition?
  • Field to field decision

• What does the 5 – 10 day forecast look like?
  • High and low temperatures (freeze?)
  • Precipitation?

• What is my budget?
Impact of Temperature vs DD60s

• Applying defoliant and boll opener in favorable weather 4 days prior to killing freeze (21°) resulted in successful boll opening and leaf drop
  • Daytime highs of 72°, 81°, 89°, and 64° preceding freeze event
How Harvest Aids Work

• Defoliation and boll opening is a natural process, similar to trees in the fall

• Objective: speed up this process to preserve quality and allow for optimal harvest timing

• Harvest aids can’t enhance fiber maturity, so timing is key.
Cotton Leaf Abscission

- Auxin
- Ethylene
- Abscission Zone
- Hormone production slows
- Chlorophyll degradation

Jones
Cotton Defoliation - basic process

Why don’t we want to kill leaves rapidly or completely??
- Leaf moisture
- Ethylene response

Auxin accumulation
- Promotes cell growth

Ethylene accumulation
- Weakens / loosens membranes, releasing degradative enzymes
- Stress signals for more ethylene production

Jones
Leaf Removal in 2016

Defol 8 DAA
Defol 16 DAA
Defol 24 DAA

- 32oz Ethenphon + 8oz Folex
- 32oz Ethenphon + 8oz TDZ
- 32oz Ethenphon + 8oz Folex + 2oz TDZ
- 32oz Ethenphon + CYC + 8oz TDZ
- 32oz Ethenphon + TDZ + Diuron
- 32oz Ethenphon + CYC + 8oz TDZ + Diuron (no GMX)
- 32oz Ethenphon + CYC + 8oz TDZ + Diuron
- 32oz Ethenphon + CYC + 16oz Folex
- 32oz Ethenphon + 16oz Folex
- 32oz Ethenphon + 16oz Folex + 1.25oz ETX
- 32oz Ethenphon + 1.25oz ETX
- 32oz Ethenphon + 1oz Aim
- 32oz Ethenphon + 0.7oz Display
- 32oz Ethenphon + 1oz Sharpen
- 32oz Ethenphon + 0.75oz Sharpen
- 32oz Ethenphon + 0.75oz Sharpen + 8oz Folex
- 32oz Ethenphon + 1oz Sharpen (w/MVO)
- 32oz Ethenphon + 16oz GMX
- 16oz GMX
Carrier Volume is Key!

5 GPA

10 GPA
Cotton Defoliation Timing

- 3 Methods:
  - Open Boll Percentage (60 – 75%)
  - Nodes Above Cracked Boll (3-4)
  - Cutting/Slicing Bolls

- These are all based off the proportion of harvestable bolls
Defoliation Timing

60 % open bolls - 4 NACB
Defoliation Timing

45% open bolls - 4 NACB
Defoliation Timing: Open Boll Percentage and NACB

- Depending on plant growth and development

- These can be largely influenced by:
  - environmental conditions (square/boll shed, fruiting gaps)
  - water situation (irrigated, limited water, dryland)
  - temperature (DDs) and
  - variety maturity class (early vs. late)

- These will effect boll distribution
Timing for Harvest-Aids

• Use the product timing and your own schedule to best determine when to apply

• Harvest schedule - rather wait a little past 4 NACB or 70% open than have defoliated cotton exposed to weathering

• Defoliated cotton with 100% open bolls is prime for regrowth

• While tempting, it’s often not financially feasible to try to open every boll on the plant
  • Desiccated small bolls will be handled by field cleaner, green bolls can be passed over by picker
Thank You

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