

Preplant

- Fertile, moderately-deep to deep, well-drained soils are ideal for cotton.
- Sub-soiling is only beneficial if tillage pan is present.
- If conventionally tilled, prepare ground:
 - Early enough for seedbed to settle, but
 - Late enough to reduce erosion potential.
- Crop rotation and/or incorporating cotton residue can encourage decomposition of infected debris and reduce inoculum.
- Cover crops can provide additional erosion control.

Variety Selection

2015 Official Variety Trials

Variety	Lint Yield (lb/ac)	Mic
PHY 333 WRF	1519	4.2
PHY 499 WRF	1519	4.6
ST 4747 GLB2	1499	4.4
DP 1614 B2XF	1483	4.6
NG 3405 B2XF	1476	4.4

2015 County Standard Test Demonstrations

Variety	Lint Yield (lb/ac)	Mic
PHY 312 WRF	1325	4.2
DP 1522 B2XF	1277	4.7
PHY 444 WRF	1276	3.7
DP 1518 B2XF	1236	4.1
DP 1321 B2RF	1231	4.6

Consult [UT Extension PB 1742](#) for additional varieties and trial results.



- Plant 4 to 5 varieties which represent a range of maturities, planting dates, and technology traits.
- Conservative adoption of new varieties is recommended.
- Early and early-mid varieties typically fit best in TN.
- Yield stability, fiber quality, maturity, disease resistance and value-added traits should be considered in selection.

Planting

- Ideal planting dates typically between Apr 20 & May 10.
 - Planting after May 20 generally results in greater input costs and lower yields.
- Ideal depth is between 0.5 to 1.5" depending upon depth to moisture, soil texture, & crusting potential.
- Best to plant when soil at 3" depth at 10AM = 65°F and the forecasted DD60 accumulation for the 5 days following planting ≥ 25 DD60s.
 - Avoid planting in wet, cool soils
- Target plant population should fall between 30,000 and 55,000 plants/ac, with:
 - higher populations in heavier-textured soils and
 - lower populations in coarser-textured soils.
- Determine seeding rate for target plant population (P#/ac) with germination test as follows:
(Target P#/ac) / (% germ) * 100 = seed/ac
Ex: (48,000 P#/ac) / (80% germ) * 100 = 60,000 sd/ac
- Check cold germ test results. >50%-60% preferred.
- Increase rates by 10% if planting in late May.
- Seed treatments of insecticides and fungicides or in-furrow applications are recommended.
- Nematicides should be applied if threshold populations are present.

Weed Control

- Most successful programs consist of:
 1. Pre-plant burndown w/ or w/o residual.
 2. At-plant burndown w/residual.
 3. Postemergence w/residual.
 4. Post-directed w/ or w/o residual.
 5. Layby.
 6. Pre-harvest herbicide applications.
- Residuals play a significant role in the resistance era. Overlap and monitor for breaks/escapes.

- Timeliness is critical to maximizing control while reducing herbicide rates and costs.
- Alternate chemistries and avoid low rates to prevent further development of resistance.

Consult [UT Extension PB 1580](#) for additional information on weed control.



Fertility

Soil Sampling

- Soil tests are critical to understanding soil nutrient status and forming fertilizer application decisions.
- Samples should be collected either on a geometrical grid or by management zones.
- Samples should be collected:
 - By proper, clean equipment
 - In a zig-zag pattern across the grid/zone
 - Consist of an adequate sample number
 - Be handled properly

Lime and pH

- Cotton yields are greatest between pHs 5.7 and 6.5.
- Lime if pH < 5.7 to prevent yield reductions.
- Base lime source on magnesium soil test, price, availability and Relative Neutralizing Value (RNV).
 - Dolomitic lime preferred for Mg deficient soils.
 - Calcitic lime preferred if soil test Mg is sufficient or high.

Nitrogen (N)

- A 60-80 lb N rate is recommended.
- Split application w/ 30-50% at planting and the remainder near first square to increase N use efficiency and reduce N loss potential.
- Beyond increasing costs, excessive rates increase need for PGRs, complicate defoliation and reduce harvest efficiencies.

Potassium (K) and Phosphorus (P)

Soil Test Level	Potash (K ₂ O) lb/ac	Phosphate (P ₂ O ₅) lb/ac
Low	120	90
Medium	90	60
High	60	30
Very High	0	0

Boron (B)

- Typically not noted in heavier textured soils, but can occur after soil is limed.
- Apply 0.5 lb B/ac when pH is greater than 6.0 or soils have been limed.

Sulfur (S)

- Deficiencies have been found in some TN fields recently.
- If deficiency has been noted in field, apply 10-20 lb S/ac of the most convenient, cheapest source.

Foliar Applications

- Only serve to supplement solid, soil-applied fertilizer programs.
- Can help under deficient conditions, but stress reduces efficiency of applications.
- Target bloom/boll fill period, as demand is greatest and leaf coverage is high.
- Foliar burn can occur at rates in excess of 5-7 lb N/ac (~10-15 lb Urea/ac).
- Slow-release has not shown benefit over standard.
- B- Most effective frequency is 3 to 5 weekly foliar applications of 0.1 lb B/ac beginning at early flower.
- S- Apply magnesium sulfate twice foliarly at 4 lb S/ac to ameliorate in-season S deficiency.

Plant Growth Regulators

- Management influenced by variety and by environment.
- No difference has been found in differing mepiquat products, given they are applied at equivalent rates.
- Single/dual application regime:
 - Apply 8-16 oz mepiquat at early bloom, varying rate based on growth potential.
 - Apply a second application 2 to 3 weeks after if conditions are favorable for excessive growth.

- Multiple, low-rate application regime:
 - Apply 2 to 4 oz. every 14 days beginning at pinhead square, or when excessive elongation occurs.
 - Increase rates as needed as plant matures.

Very Responsive	Responsive	Less Responsive
DP 1518 B2XF	DG 3385 B2XF	NG 3406 B2XF
DP 1311 B2RF	DP 1522 B2XF	PHY 339 WRF
ST 4747 GLB2	DP 0912 B2RF	PHY 495 W3RF
	DP 1321 B2RF	PHY 499 WRF
	NG 3405 B2XF	
	PHY 312 WRF	
	PHY 333 WRF	
	ST 4946 GLB2	
	ST 5032 GLT	

Insect Thresholds/Control

- **Thrips:** use recommended at-planting treatment. Consider foliar application at or before second true leaf stage under adverse growing conditions.
- **Tarnished Plant Bugs:**
 - 1st, 2nd wk of square- 8 per 100 sweeps
 - 3rd wk square to 1st bloom- 15 per 100 sweeps
 - After first bloom- ≥3 per drop cloth
 - Maintain > 80% square retention into early bloom
- **Aphids:** very numerous, honeydew present, plants appear stressed, natural control agents failing
- **Bollworm/Tobacco Budworm:**
 - Non-Bt, pre bloom- ≥ 8 per 100 plants, post bloom- ≥4 per 100 plants
 - Bt- pre bloom- ≥8 larvae (>.25") /100 plants, post bloom- ≥4 larvae (>.25") /100 plants
- **Stink Bugs:** ≥1 / 6 row ft, injury of 20% or more of thumb-sized bolls (warts/stained lint)
- **Spider Mites:** 30-50% plants affected, mites present
- **Fall Armyworm:** ≥4/100 blooms or 10-20 larvae/100 plants

Insecticide termination

NAWF5 + Heat Units (DD60s)

350-450	Bollworm, tobacco budworm, plant bugs, stink bugs
650-750	Spider mites, loopers, armyworms

Consult [UT Extension PB 1768](#) for additional information on insect control.



Defoliation

- Timing methods:
 - Node Above White Flower (NAWF) + 850 DD60s: can trigger too early- should be validated by another method
 - Percent open boll: divide open boll # by total harvestable boll #, typically trigger when 60%
 - Sharp-knife technique: Slice uppermost yield-contributing boll- trigger if mature.
 - Mature boll will be difficult to cut, seeds will have dark coats, will contain folded cotyledons and an absence of jelly.
 - Node Above Cracked Boll (NACB): Count up from uppermost, 1st position cracked boll to uppermost harvestable boll.
 - Generally safe to defoliate when NACB=4, but if uppermost harvestable boll is immature, delay til NACB=3.
- Application:
 - Two-pass system is preferred over a one pass.
 - Adequate coverage is important as many products are not translocated within the plant.

Consult the [2015 Mid-South Defoliation Guide](#) for additional information.



Additional information on these and other issues/crops can be found at:

news.utcrops.com OR
utcrops.com

ag.tennessee.edu

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