HARVEST AID MATERIALS, PERFORMANCE AND ULTRA NARROW ROW OPTIONS FOR THE MID-SOUTH

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Abstract

Termination and preparation of the crop for harvest in the Mid-South presents numerous challenges, mostly associated with the weather. It is either too hot, too cold, too wet, or too dry. Hurricanes from the Gulf of Mexico or an early freeze are potential threats to success. The objectives of harvest preparation are to remove leaves, open bolls, and prevent regrowth, and desiccate in the case of 'stripper' cotton. Proper timing of applications, selection of materials, and weather conditions after application and during harvest all contribute to conserving the yield and quality of the crop.

Timing of application is best achieved through the utilization of several methods of determining crop maturity. Most product labels refer to 60% open bolls as a minimum. Another guide is when the uppermost harvestable boll is difficult to cut with a sharp knife and seeds are mature (dark seed coat and seed not jellylike), three to four nodes above cracked boll (NACB). More recently, research on timing termination based on 650, 750, 850 or 950 DD60s after nodes above white flower ('cutout') equal to five (NAWF=5) clearly reveals that premature termination (650 DD60's) causes poor defoliation and loss in yield potential. The later the application, the higher the yield potential, with 850 DD60s appearing to strike a balance between optimizing lint quality and yield.

Materials can be loosely categorized as defoliants (Def, Folex, Harvade, Dropp), boll openers (Prep, Superboll, Finish, CottonQuik), regrowth inhibitors (Dropp, Freefall) and desiccants (Gramoxone Max, Cyclone, Sodium Chlorate). New products being evaluated as harvest aids in the Mid-South are Leafless, (a dimethipin and thiadiazuron-the active ingredients in Harvade and Dropp/Freefall, respectively), Aim (carfentrazone), Action (fluthiacet-methyl) and ET 751. Defoliation and regrowth control with Leafless equals that of standards, but it does little to enhance boll opening. Both Action and ET-751 are promising, very low use rate contact-type defoliants that work through membrane disruption, sometimes causing desiccation. In a limited number of trials in 2000, Aim was inferior to other competitive products. Individual products seldom accomplish the multiple objectives of harvest aid preparation. Consequently, pre-mixes tank mixtures of two or more products are commonly used. For example, Def/Folex plus Prep + Dropp provides defoliation, boll opening, and regrowth control. Finish (ethephon and cyclanilide) provides defoliation, boll opening and regrowth suppression.

Environmental conditions at and following application determines the speed of defoliation, boll opening, regrowth and deterioration of lint in open bolls. Warm, sunny weather speeds defoliation and boll opening. Research has demonstrated that a minimum of 50 DD60s are necessary for ethephon to enhance boll opening, but preferably >100 DD60 should be accumulated after application and before harvest to achieve optimum defoliation and boll opening for once over harvest.

For ultra narrow row (UNR) cotton, harvest preparation begins with having a crop that is short, slender, and mature. The goal is similar to wide-row cotton except the crop must be dry and near 100% open to be harvested with a 'finger-type stripper'. Defoliation, boll opening, desiccation and regrowth control can be accomplished with tank mixtures of defoliants (Def, Folex, Dropp, Freefall, Harvade, Leafless) and boll openers (Finish, Prep, Superboll, CottonQuik, etc.) followed by a desiccant such as Gramoxone Max. Typical successful treatments are Def/Folex 6 to 8 oz/ac + Dropp/Freefall 0.1 lb/ac + Prep 2 to 2.5 pt/ac followed by Gramoxone Max 1 to 1.5 pt/ac or alternatively, Finish 6 at 2 to 2.5 pt/ac + Def/Folex at 6 to 8 oz/ac followed by Gramoxone Max 1 to 1.5 pt/ac. The need for near 100% boll opening often requires high rates of ethephon and >10 days for crop response prior to desiccation. Sodium chlorate, has not proven as fast or as effective as Gramoxone for desiccating the entire plant. Generally seven or more days are required to achieve sufficient drying to stripper-harvest UNR cotton.

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