

**PENTIA™ PLANT GROWTH REGULATOR: RESEARCH TO DEMONSTRATION TO FARM**  
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**Abstract**

Plant growth regulators have been an integral part of cotton production systems for over two decades. Mepiquat Chloride introduced as Pix by BASF in the late 1970's was found to alter cotton growth and development and seemingly revolutionized cotton production. Later Pix Plus and Pix Ultra were added to the arsenal of plant growth regulators. In 2002 BASF was granted a section 3 label for BAS 130W or Pentia available for launch for the 2003 use-season. The Pentia active ingredient is Mepiquat Pentaborate, a novel plant growth regulator molecule for the cotton production system. Pentia uptake has been documented at approximately 25% greater concentration compared to Mepiquat Chloride at 6 hrs after application.

Initial small plot replicated field-testing determined the benefits of Pentia compared to Mepiquat Chloride. These trials also helped to identify the best formulation of Pentia. In 2002 a commercial-sized, replicated demonstration trial was conducted at the Agricenter International in Memphis, TN to evaluate Mepiquat Pentaborate (Pentia) and Mepiquat Chloride (Mepex) for growth control, boll retention and cotton lint yield. Pentia limited vegetative growth significantly more than Mepex throughout the growing season. 1st and 2nd position boll counts were 16% greater for Pentia than Mepex. Pentia lint cotton yields were 1240 lb/acre whereas Mepex treated fields yielded 978 lb/acre.

In 2003 Pentia was launched as the next generation plant growth regulator that provides faster uptake, controls cotton growth, increases boll set and retention, enhances earliness and maximizes cotton lint yield compared to Mepiquat Chloride products. Many on-farm trials across the mid-south from the Missouri bootheel to the gulf coast of Mississippi showed these benefits and reinforced the advantages Pentia is having on cotton production. Additionally, many growers decided to use Pentia as their only plant growth regulator across their farms in 2003 and produced record yields.