INCREASED ROOT DEVELOPMENT IN HERBICIDE TREATED SOIL FROM EARLY HARVEST PGR SEED TREATMENTS

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Abstract

The plant growth regulator Early Harvest® PGR received federal registration in 1995 on several crops which is used to improve plant growth and yield. The use of plant growth regulators has been well researched in cotton, turfgrass and horticultural crops and the benefits have been documented, however, most of the products on the market have only 1 or 2 active ingredients. Early Harvest is a combination of 3 plant growth regulators, auxin as indole butyric acid, gibberellic acid and cytokinins. This 3 way combination is designed to provide a more balanced approach to providing exogenous plant hormones to manage growth and increase yield. This research focuses on the rate of application and timing which are critical for using plant growth regulators to manage plant growth. Preplant herbicides are widely used on cotton to control emerging weeds and dinitroanaline herbicides such as trifluralin inhibit weed growth by disrupting cell division and inhibiting root development. Under less than optimum growing conditions, cotton roots can be pruned by these herbicides and cause a reduction in early growth. Stress early in the growing season can ultimately effect season long growth yield. Early Harvest PGR applied as a seed treatment or in-furrow was found to increase the dry root weight of cotton seedlings when grown in soil treated with trifluralin, metolachlor, and prometryn. Seed treated with Early Harvest produced seedlings with a greater root mass compared to untreated seed.

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