EVALUATION OF AE 0172747 IN SWEET CORN. Joseph G. Masabni, Assistant Professor, Department of Horticulture, University of Kentucky, Princeton, KY 42445.

An experiment was conducted at Princeton, KY in 2007 to evaluate the performance and safety of AE 0172747 (Laudis) applied postemergence at the V3-V4 stage on four sweet corn cultivars 'Candy Corn,' 'Incredible,' 'Providence,' and Silver Queen.' Laudis was applied at 0.092 and 0.18 kg ai/ha in tank mixtures with atrazine 0.56 kg ai/ha and with MSO and UAN adjuvants. Western Kentucky experienced a long draught period in 2007 which resulted in reduced weed pressure in all treatments including the untreated controls. Sweet corn was seeded at the rate of 33 seeds per cultivar per plot. Sweet corn cultivars were harvested between 70 and 79 days after seeding for 'Candy Corn' and 'Silver Queen,' respectively. No significant differences were observed in terms of number and weight of ears per plot for 'Candy Corn' and 'Incredible.' Number of ears ranged between 27 and 35 ears/plot for 'Candy Corn' and 35 to 55 ears/plot for 'Incredible,' while weight of ears/plot ranged between 7 to 10 kg/plot and 11 to 14 kg/plot for 'Candy Corn' and 'Incredible,' respectively. Number of ears/plot for 'Providence' wasn't significantly different among all treatments and ranged from 16 to 29 ears/plot. However, harvest weight for 'Providence' was reduced from 9 kg/plot to 5 kg/plot in treatments that included atrazine in the treatment mix, for both rates of Laudis. No trend was observed with 'Silver Queen' cultivar where harvest weights was non-significant for all treatments, while number of ears/plot was highest for Laudis 0.18 kg ai/ha tank-mixed with atrazine and lowest for Laudis 0.092 kg ai/ha applied alone.

Introduction

AE 0172747 (Laudis 3.5 lb ai/gal) is an experimental herbicide being developed by Bayer CropScience. Laudis is a postemergence herbicide for potential use in popcorn and sweet corn. Bayer CropScience has evaluated Laudis and is interested in evaluating its safety and efficacy on Kentucky local sweet corn cultivars. An experiment was conducted at the Princeton research station to evaluate Laudis performance and safety when applied at the 3 to 4 leaf stage, alone or tank-mixed with atrazine.

Materials and Methods

Herbicides were applied using a CO_2-pressurized backpack sprayer with a four 11002-nozzle boom calibrated to spray a 1.8 m band at 30 psi and 5.1 kph. The nozzles were set at 20.3 cm above ground to obtain good spray overlap and complete spray coverage. Plots were 3.6 m x 7.6 m long. The experimental design consisted of a randomized complete block with 3 replications.

On 30 April 2007, plots were seeded with 4 sweet corn cultivars, namely, Candy Corn (76 d, Sh2, bi-color); Incredible (83 d, se, yellow); Providence (80 d, se, bi-color); Silver Queen (92 d, su, white). Spacing between rows was set at 76 cm and spacing within rows at 23 cm.

The preemergence (PRE) treatments were applied on 1 May 2007. The postemergence (POST) treatments were applied on 25 May 2007, when plants were 15 to 25 cm tall at the 3 to 4 leaf stage (V3-V4). All treatments were applied early in the morning when the average wind speed was 4 kph, and soil and air temperatures were 10-13C and 19.4-20C, respectively.

Visual weed control ratings were made on 1 June (7 days after treatment or 7 DAT). Ratings were on a scale of 1 to 10, where 1 = no control or no injury observed and 10 = complete kill or no weeds present. A rating of 7 (70-75% control) or more is considered a commercially acceptable value. The 2007 season was very hot and dry resulting in very low weed pressure. All plots were very clean from weeds and didn't require multiple weed control evaluations. All plots were irrigated 1 to 2 times per week. The hot and dry weather also resulted in a sweet corn harvest 6 to 12 days earlier than expected based on the varietal descriptions.

Results and Discussion

At 22 DAT, all sweet corn plots appeared healthy and vigorous, with no visible sign of herbicide injury. At 7 days after POST application, few weeds were present in all plots. This was attributed to the drought that occurred in May since all plots were weed-free, even in the untreated control (treatment 1). Yellow nutsedge, ryegrass (fall cover crop), curly dock, johnsongrass were found occasionally and randomly in some plots. Large crabgrass was found in untreated control plots. Honeyvine milkweed that were already germinated at time of POST treatment application, were bleached white and stunted. Newly emerged honeyvine milkweed appeared healthy, except in treatment 6. All 4 sweet corn cultivars appear normal.

Sweet corn yields in terms of numbers of ears per plot and total ear weigh per plot didn't differ for 'Candy Corn' and Incredible' cultivars (Table 1). Some differences in total yields were observed for numbers of ears/plot for 'Providence' and weight of ears/plot for 'Silver Queen' (Table 2).

It appears that the non-labeled herbicide Laudis has a great potential for use on sweet corn as a postemergence herbicide for use at the V3-V4 stage. Additionally, a split application of atrazine, 0.56 kg/ha preemergence and 1.12 kg/ha at the V3-V4 stage, appears to be safe and very effective on controlling weed escapes and difficult weeds such as honeyvine milkweed.