

(E40)

CORN (SWEET): Zea mays (L.) 'Primetime'

Fall armyworm (FAW); Spodoptera frugiperda (J.E. Smith)

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INSECTICIDAL CONTROL OF FALL ARMYWORM ON SWEETCORN WITH BT, INSECT GROWTH REGULATORS AND A SYNTHETIC PYRETHROID, 1998: Six raised beds, 32 inches wide and 240 ft long on 6-ft centers, were prepared by fumigating with 67/33% methyl bromide/chloropicrin at 300 lb/acre, and fertilizing with a bottom mix of 700 lb/acre 5-16-8. A single driptape irrigation line with emitters spaced every 12 inches was laid on the surface of each bed and covered with white polyethylene mulch. Beds were divided into two, 3-row sets separated by 15 ft of fallow land with a ditch in the middle. The center row of each 3-row set was left untreated to provide pest inoculum. The remaining 4 rows were divided into 7 single-row plots in a RCB design with four replications. All beds were planted 31 Aug by direct seeding at 10 inch spacing. Additional fertilizer in liquid form with an analysis of 8-0-8 was injected through the irrigation system to provide a total of 150 lbs nitrogen/acre for the growing season. Four weekly spray applications were initiated 30 Sep using a high clearance sprayer equipped with 2 overhead nozzles fitted with ceramic Albus® yellow hollow cone nozzles/row with delivery pressure of 200 psi and rate of 22 gpa. Warrior 1 EC at 0.025 lb (AI)/acre was used in place of Match and Cry-1X on 20 Oct after tassels had formed. The rates of Intrepid were also doubled for this treatment. A pre-treatment sample on 30 Sep of 20 plants/bed indicated 50% were damaged by FAW. Foliar damage was evaluated weekly for 2 weeks on 10 randomly selected plants/plot after the initiation of the treatments. Damage of the last three leaves in the whorl was assessed on a scale of 0 to 5 where 0 = no damage, 1 = 0 to 1% damage to leaves (total for all three), 2 = 2 to 5%, 3 = 6 to 10%, 4 = 11 to 30%, and 5 is > 30% damage. Ears were harvested 30 Oct from 25 plants in the center of each plot. Ears were evaluated for marketability noting total weight of ears in each category. Categories of fancy, standard or unmarketable were used where fancy = no damage, standard = slight damage to husk or silks only, and unmarketable = damage to ear. Fancy and standard were combined as "marketable". Data was analyzed using a GLM and means separated by LSD.

Less FAW damage was seen on all treated plants compared to the control on both sample dates. The least FAW damage was seen on plants treated with Warrior at 0.025 lb (AI)/acre on both dates and over all dates although not significantly less than Intrepid at 0.05 lb (AI)/acre, Match or Cry-1X on 6 Oct or Intrepid at 0.1 lb (AI)/acre or Match on 12 Oct. All treatments resulted in significantly more marketable ears (number and weight) than the control except for Intrepid at 0.05 lb (AI)/acre. Most marketable ears were harvested from plants treated with Warrior for all 3 sprays, although not significantly less than plants treated the first 2 sprays with Match. Significantly fewer unmarketable ears were harvested from all treated plants compared to the control. Fewest unmarketable ears came from plants treated with Warrior although not significantly less than plants treated the first 2 times with Match. Thus Intrepid and the Bts tested provided significant levels of control, comparable (at least in the case of Match) with that obtained with the broad-spectrum standard.

Treatment/ formulation	Rate amt (AI) /acre	Whorl damage/plant			Marketable ears		Unmarketable ears	
		6 Oct	12 Oct	Dates Combined	No.	Wt (lb)	No.	Wt (lb)
Intrepid 80WP	0.025 lb	0.92b	0.70cb	0.81b	21.20bc	10.65bc	21.45b	10.85bc
Intrepid 80WP	0.050 lb	0.37c	0.75b	0.56cb	22.75bc	11.80bc	15.00bc	7.62cd
Intrepid 80WP	0.100 lb	0.90b	0.55cb	0.72b	17.00cd	8.57cd	22.75b	12.00b
Match L rotated	2 qt &	0.80cb	0.60cb	0.70b	30.00ab	15.30ab	11.25cd	6.15de
Warrior 1EC	0.025lb							
Cry-1X L (Bt) rotated	2 qt &	0.62cb	0.80b	0.71b	27.00b	13.67b	16.57bc	8.62bcd
Warrior 1EC	0.025lb							
Warrior 1EC	0.025 lb	0.32c	0.22c	0.27c	37.20a	19.05a	4.60d	2.20e
Untreated check		1.45a	1.80a	1.62a	9.00d	4.17d	35.47a	17.35a

Means in a column followed by the same letter are not significantly different (LSD, P < 0.05).