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Grasshoppers and insecticides

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Abstract
Each year, I hear the statement that grasshoppers must be sprayed when they are small because adult grasshoppers are notoriously hard to kill. I was not certain that this statement was true, so last year I sprayed adult differential grasshoppers in a laboratory experiment. Ten adult grasshoppers were singly caged in paper cups and covered with nylon mesh for each treatment. Cups containing the grasshoppers were then sprayed in a mechanical spray chamber with an insecticide at a rate of 19.6 gallons of water per acre and 25 psi by using an 80005-E nozzle.

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Each year, I hear the statement that grasshoppers must be sprayed when they are small because adult grasshoppers are notoriously hard to kill. I was not certain that this statement was true, so last year I sprayed adult differential grasshoppers in a laboratory experiment. Ten adult grasshoppers were singly caged in paper cups and covered with nylon mesh for each treatment. Cups containing the grasshoppers were then sprayed in a mechanical spray chamber with an insecticide at a rate of 19.6 gallons of water per acre and 25 psi by using an 80005-E nozzle. The results (Table 1) strongly indicate that adult grasshoppers can be killed with several insecticides, although it took more than 24 hours to achieve maximum mortality. Therefore, small grasshoppers do not have to be sprayed now if they are not causing significant injury to either corn or soybean. You can wait until injury reaches the economic threshold before applying an insecticide. Economic thresholds for grasshoppers in corn and soybean are printed in the June 23 Integrated Crop Management newsletter, page 98. A number of insecticides are labeled for grasshoppers in corn and soybean (Table 2).

Large populations of young grasshoppers moving into soybean.

Enlarge [1]

Adult differential grasshoppers killed with an insecticide.

Enlarge [2]

Table 1. Mortality of adult differential grasshoppers with selected insecticides (Iowa State University, 2002).

		% Mortality	
Treatment	**Rate/Acre**	**24 hours**	**48 hours**
Asana XL	5.8 oz	60	80
Asana XL	9.6 oz	80	100
dimethoate	8.0 oz	80	100

Furadan 4F	8.0 oz	90	100
Mustang	3.0 oz	60	90
Mustang	4.3 oz	90	90
Warrior	1.92 oz	90	90
Untreated check	--	0	0

Table 2. Insecticides and product rate per acre for grasshopper control in field corn and soybean. Read and follow all label directions.

Product	Rate/Acre	Preharvest Interval (days)
Asana XL*	5.8-9.6 ounces	21 (corn) 21 (soybean)
Capture 2EC*	2.1-6.4 ounces (corn only)	30 (corn)
Dimethoate 4EC*	1 pint	14 (corn) 21 (soybean)
Furadan 4F*	0.25-0.5 pint	30 (corn) 21 (soybean)
Lorsban 4E*	0.5-1 pint	35 (corn) 28 (soybean)
Mustang Max	2.9-4.3 ounces (corn)	30 (corn)
	3.4-4.3 ounces (soybean)	21 (soybean)
Penncap-M*	2-3 pints	12 (corn) 20 (soybean)
Sevin XLR Plus	1-3 pints	48 (corn) 21 (soybean)
Warrior*	2.56-3.84 ounces (corn)	21 (corn)
	3.20-3.84 ounces (soybean)	45 (soybean)

*Restricted-use insecticide.

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http://www.ipm.iastate.edu/ipm/icm//ipm/icm/2003/7-21-2003/grasshoppersize.html

Links:
[1] http://www.ent.iastate.edu/imagegal/orthoptera/grasshopper_soybean.html
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