

STORED GRAIN INSECT CONTROL

Type Treatment	Insect	Insecticide	Rate	Application/Comments
Preventive treatments for bins (empty bins, walls, ceilings, beams, outside storage, foundations and grain-handling equipment)	Beetles and Moths	Centynal 0.42 Malathion 5 EC Suspend 0.42 SC	(Rate/1,000 sq ft) 0.25-1.5 oz/ gal water 5.12 oz/gal water 0.25-1.5 oz/ gal water	Clean bins before application. Storcide II may be applied using automated spray equipment. DO NOT enter bin until spray has dried. Use malathion for wooden or metal bins. Malathion will not control Indian meal moth. Malathion is NOT labeled for rice storage facilities. DO NOT APPLY DIRECTLY TO GRAIN.
Preventive treatment sprays for grain	Beetles and Moths	Actellic 5 E	9.2-12.3 oz/30 tons grain (1,071 bushels)	Shelled corn and grain sorghum only.
		Centynal 0.41 EC	(Rate/1,000 bushels) Barley – 7.75-15.5 fl oz Corn, Popcorn, Rye, Sorghum – 9-18 fl oz Oats – 5.15-10.3 fl oz Rice – 7.2-14.4 fl oz Wheat – 9.6-19.2 fl oz	Use higher rates if grain will be in storage for longer than 6 months.
		Sensat	(Rate/1,000 bushels) Barley – 8.2 fl oz Corn, Sorghum – 9.8 fl oz Oats – 5.9 fl oz Rice – 7.8 fl oz Wheat – 10.5 fl oz	Effective against all grain-infesting moths as well as confused flour beetle and flat grain beetle. Provides suppression only of other weevils and beetles.
		Diacon-D Diacon IGR 2.5	8-10 lb/1,000 bushels (Rate/1,000 bushels) Barley, Rice – 3-6 fl oz Corn, Sorghum, Wheat – 3.5-7 fl oz Oats, Peanut, Sunflower – 2-4 fl oz	Diacon is a growth regulator and does not control adults but is effective against larvae.
		Malathion 6% Dust Silicon dioxide (Insecto, Dryacide)	10 lb/1,000 bushels (wheat, corn, oats, rye or barley) 1-2 lbs per ton of grain	Malathion is not labeled for rice. Apply as grain is being loaded or moved into final storage for protection from beetles and moths. OMRI certified for organic production. Excessive use may lower grain grade and may reduce test weight.
Surface treatment (inside bins and grain treatment)	Beetles and Moths	Malathion 6% Dust	5 lb/1,000 sq ft	Apply as top-dress on grain bin surface for protection against moths and beetles. Malathion is not labeled for rice.
		Sensat	2.6 fl oz/1,000 sq ft	Effective against all grain-infesting moths as well as confused flour beetle and flat grain beetle. Provides suppression only for other weevils and beetles.
		Diacon-D Diacon IGR 2.5	8 lb/1,000 sq ft 1/30 fl oz (1 mL)/1,000 sq ft	Diacon is a growth regulator and does not control adults but is effective against larvae.
		Silicon dioxide (Insecto, Dryacide)	2-3 lbs/1,000 sq ft	OMRI certified for organic production. Excessive use may use may lower grain grade and may reduce test weight.
	Moths only	<i>Bacillus thuringiensis</i> (Dipel, SOK-Bt, etc.)	Follow label directions.	Apply as top-dress for protection against moths only. Incorporate into top 4 inches.

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Grain fumigation	Beetles and Moths	Aluminum Phosphide (R) (Phostoxin, Fumitoxin, Gastoxin, Fumex, Killz-All, Phosfume, Weevil-Cide)	Silos and Concrete Bins 200-900 pellets/1,000 bu 40-180 tablets/1,000 bu 10 pellets/ton 6 tablets/ton (check label also)	Grain surface should be level. Apply in gas-tight bins when grain temperature is 60°F or higher. Leave for at least 3 days, preferably 5 days. DO NOT fumigate when temperatures are below 40°F. Use higher rates when infestations are high and/or temperatures are low. Always use a gas mask and never fumigate alone. Fumigated grain should be aerated thoroughly before feeding.
			Butler-Type Bins 450-900 pellets/1,000 bu 90-180 tablets/1,000 bu	
			Space Treatments pellets: 100-725/1,000 cubic ft tablets: 20-145/1,000 cubic ft	Be careful under hot, humid conditions when using aluminum phosphide because phosphine gas may be released quickly under these conditions. Phosphine needs at least 72 hours to kill some immature insects.
			Bagged Grain or Feed 150-450 pellets/1,000 cubic ft 30-90 tablets/1,000 cubic ft	Special training and precautions are needed before using aluminum phosphide. For more information on treatment using aluminum phosphide: http://www.degeschamerica.com/ .
HOME STORAGE				
Protection of small quantities of grain for home storage to be eaten	Beetles and Moths	Heat oven until center of grain is 120 degrees F.	30 minutes	Place in a tight container. Temperature should be checked with meat thermometer. DO NOT use heat on seed to be planted.
		Cold or freezer treatment at 0 degrees F.	4 days	Place container in deep freeze.