

# DuPont™ Asana® XL

insecticide

## *Control of grasshoppers*

Grasshoppers can be one of the most destructive insect pests of crops and rangeland in the United States. Grasshoppers are a threat every year, but can be very destructive in outbreak years. The voracious feeding habits of grasshoppers are legendary. In proportion to their body weight, they consume grasses eight times faster than beef cattle.

Populations of these devastating pests fluctuate widely from year to year due to environmental conditions and other variables. Severe outbreaks are often associated with a series of dry years. Hot and dry weather in early spring is frequently correlated with severe infestations. Ranchers and growers should be aware of grasshopper potentials early in the season, so that control measures may be applied while the hoppers are in their early stages of development and are most susceptible to insecticides.

Under severe infestations, grasshoppers migrate from the rangelands and attack cultivated crops. Some species of grasshoppers will breed in cultivated crops and confine their feeding to cropland.

### **Advantages of DuPont™ Asana® XL for grasshopper control**

Certain physical and biological properties of Asana® XL make it the insecticide of choice for grasshopper control:

- Economically controls grasshoppers at very low doses.
- Will not injure crops at recommended use rates.
- Controls grasshoppers by contact with the spray droplets or with sprayed residues on plants or by ingestion.
- Asana® XL is registered for control of pests in over 45 important crops.
- Has long residual activity.
- Effective over a wide range of temperatures.
- Compatible with a wide range of pesticides.
- Can be used through certain overhead sprinkler systems, as described on the label.

### **Use directions**

The key to effective use is in timing, coverage and correct use of Asana® XL.

**Timing** of application is critical. Applications should be made when grasshopper nymphs are small. Lower label doses are recommended for young nymphs, but more mature hoppers require the higher dose.



**Good coverage** is essential. Asana® XL may be applied by conventional ground rig, aircraft or through certain overhead irrigation systems. Many applicators use an emulsible oil with the spray solution to enhance deposition and coverage. When applying Asana® XL through sprinkler systems, be sure to observe all the label precautions pertaining to this method of application.

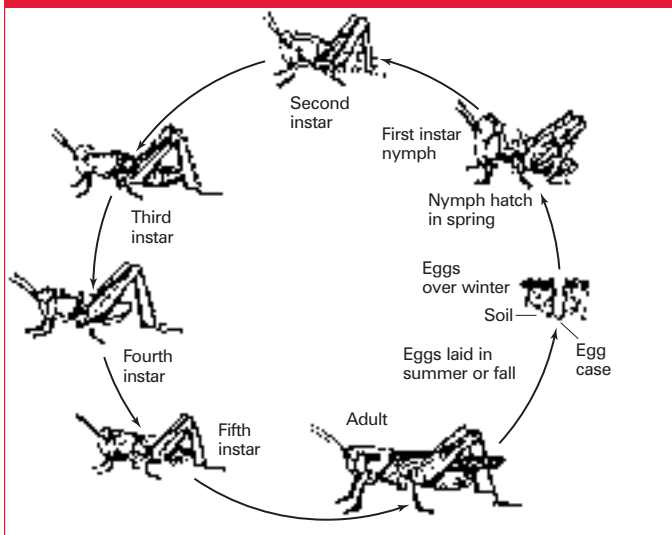
### **Typical life cycle**

Some knowledge of the life history of grasshoppers will help in predicting the severity of outbreaks. In most species, eggs are deposited in egg pods in the soil by the female grasshopper in the fall. A number of factors will determine how many eggs are laid. A long, open, warm fall will favor production of a greater number of eggs in comparison to a short fall with the onset of an early frost. The egg storage pod is the overwintering form for most of our destructive grasshopper species. The egg pods are able to withstand the most drastic winter weather.

**DuPont™ Asana® XL insecticide: Grasshopper crop registrations and rates**  
(See label for specific use instructions)

	Lb ai/A	Fl oz/A	Acres Treated Per Gallon	Days to Harvest
Field corn*	0.02-0.05	3.9-9.6	33-13	21
Popcorn, seed corn	0.03-0.05	5.8-9.6	22-13	1
Cotton	0.03-0.05	5.8-9.6	22-13	21
Soybean*	0.02-0.05	3.9-9.6	33-13	21
Peanuts	0.03-0.05	5.8-9.6	22-13	21
Sunflower*	0.02-0.05	3.9-9.6	33-13	28
Broccoli, cabbage, cauliflower, Chinese cabbage (tight-headed varieties)	0.03-0.05	5.8-9.6	22-13	3
Cucumber, melons (cantaloupe, honeydew melons, watermelon, muskmelon), pumpkin, squash (summer, winter)	0.03-0.05	5.8-9.6	22-13	3
Collards	0.03-0.05	5.8-9.6	22-13	7
Dry beans*	0.02-0.05	3.9-9.6	33-13	21
Dry peas, lentils	0.03-0.05	5.8-9.6	22-13	21
Snap beans	0.03-0.05	5.8-9.6	22-13	3
Potato*	0.02-0.05	3.9-9.6	33-13	7
Sweet corn	0.03-0.05	5.8-9.6	22-13	1
Tomato	0.03-0.05	5.8-9.6	22-13	1
Sugarbeets*	0.02-0.05	3.9-9.6	33-13	21
Blueberries (except California)	0.025-0.05	4.8-9.6	26-13	14
Non-cropland (excluding public land)	0.015-0.03	2.9-5.8	44-22	—

**Grasshopper life cycle**



**Partial metamorphosis of *Melanoplus femur-rubrum*, showing the five nymph stages and the partial growth of the wings.**

Adapted from *Grasshoppers in Colorado*, a Colorado Cooperative Extension Bulletin.

**Typical life cycle (cont'd)**

Eggs hatch in the spring. Hatching is triggered when soil temperatures reach a critical level for certain duration-day degree development units.

Most nymphs hatch from overwintering eggs in May or June. Hatching extends over a prolonged period and usually corresponds to late or early fall oviposition. The nymphs go through five stages, or instars, in their growth to adults. The nymphs are wingless and rely on their well-muscled legs to migrate in their quest for food. The adults are strong fliers and can move considerable distances in short periods of time.

There is only a single generation per year for most species.

**For more information**

Contact your local DuPont crop protection retailer or DuPont representative to learn more about Asana® XL. And visit us on the Web at [asanaxl.dupont.com](http://asanaxl.dupont.com).

\* 2(ee) Recommendation: Reduced rates for control of first and second instar grasshopper nymphs in corn, soybeans, sunflowers, sugar beets, dry beans and potatoes in the states of CO, IA, ID, KS, MN, MO, MT, ND, NE, OK, OR, SD, WA and WY.

*Asana® XL is a restricted-use pesticide.*

***This reference guide is not intended as a substitute for the product label for the products referenced herein. Product labels for the above products contain important precautions, directions for use and product warranty and liability limitations that must be read before using the product. Applicators must be in possession of the product label(s) at the time of application. Always read and follow all label directions and precautions for use when using any pesticide alone or in tank mix combinations.***

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