

# LUPINE

Lupine has been grown as a grain legume. One of the primary insect pests of lupine in North Dakota has been blister beetles. Most species of blister beetles have one generation per year. Adults emerge from the soil throughout the growing season (May through September), though periods of peak activity vary with the species. Most species are more abundant in July and August. Common blister beetle species that feed on lupine are the ash gray and black blister beetles. The larvae of most blister beetle species infesting legumes prey on grasshopper egg pods. Therefore, large populations of blister beetles are frequently associated with grasshopper outbreaks. Consequently, legumes grown near rangeland have a greater likelihood of blister beetle infestation.

## Insecticides approved for control of insect pests of Lupine.

INSECTICIDE	DOSAGE IN LB AI/ACRE	PRODUCT PER ACRE	RESTRICTIONS ON USE
<b>beta-cyfluthrin</b> Baythroid XL <i>RUP</i>	0.0125 - 0.025	1.6 - 3.2 fl oz	PHI = 7 days. Maximum of 6.4 fl oz per acre per season. Maximum of 3.2 fl oz per acre between 14-day interval. Minimum application volume is 10 GPA by ground and 2 GPA by air. Do not feed treated vines or hay to livestock. Label include blister beetles, plant bugs, grasshoppers, and other insect pests. For pea aphid, use high rate of 3.2 fl oz/acre for pest suppression only.
<b>bifenthrin + zeta-cypermethrin</b> Hero <i>RUP</i>	0.04 - 0.10	4.0 - 10.3 fl oz	PHI = 3 days. Do not apply more than 0.266 lb ai per acre per season. Do not make applications less than 5 days apart.
<b>cyfluthrin</b> Tombstone Tombstone Helios <i>RUP</i>	0.025 - 0.050	1.6 - 3.2 fl oz	PHI = 7 days. Maximum of 6.4 fl oz per acre per season. Maximum of 3.2 fl oz per acre between 14-day interval. Minimum application volume is 10 GPA by ground and 2 GPA by air. Do not feed treated vines or hay to livestock.
<b>gamma-cyhalothrin</b> Proaxis <i>RUP</i>	0.01 - 0.015	2.56 - 3.84 fl oz	PHI = 21 days. Label includes aphid, blister beetle, grasshopper, cutworm and others. Proaxis may be used to control grasshoppers in bordering, non-crop areas that are not hayed or grazed.
<b>lambda-cyhalothrin</b> Lambda-Cy Silencer Grizzly Z <i>RUP</i>	0.02 - 0.03	2.56 - 3.84 fl oz	PHI = 21 days. Label includes aphid, grasshopper, cutworm and others. Warrior may be used to control grasshoppers in bordering, non-crop areas that are not hayed or grazed. Do not apply more than 0.12 lb ai per acre per season.
<b>imidacloprid</b> Attendant 600 Senator 600	refer to recommended label rate	1.6 - 3.2 fl oz per cwt of seed	Apply as a commercial seed treatment. Follow all applicable directions, restrictions and precautions on the EPA registered label. For control of early season aphids and wireworms.
<b>imidacloprid</b> Enhance AW	refer to recommended label rate	5 oz per 100 lbs of seed	Apply as an on-farm seed treatment at planting time. Do not graze or feed livestock on treated area for 60 days after planting. Follow all applicable directions, restrictions and precautions on the EPA registered label. For early season control of aphids and wireworms.
<b>spinosad (microbial)</b> Success	0.047 - 0.094	3 - 6 fl oz	PHI = 28 days. Do not apply more than a total of 12 fl oz per acre per season.. <b>For control of armyworms, corn borer, loopers, leafminers and thrips only.</b> Treat when pests appear, targeting eggs at hatch or small larvae. Use a higher rate in the rate range for larger larvae or moderate to severe infestations.
<b>zeta-cypermethrin</b> Mustang Max Mustang Max EC <i>RUP</i>	0.017 - 0.025	2.72 - 4 fl oz	PHI = 21 days. Label includes aphid, blister beetle, grasshopper, cutworm and others.

*RUP* - Restricted use pesticide