

PULSE CROP INSECTS

FIELD PEA

In North Dakota, there have been few insects that have been of economic importance in field pea.

PEA APHID

The most common insect pest found in field pea is the pea aphid. They are small, about 1/8+ inch long, and pale green. In North Dakota, aphids usually do not reach economic levels in field pea. Aphid populations are usually kept low by heavy rains or by beneficial insects such as parasitic wasps and predators such as lady bird beetle and lacewings.

Threshold:

Canadian entomologists suggest the following guideline. An insecticide application may be needed if there are more than 10 aphids found on a plant during the period between formation of the 10th node and appearance of the first flower. Population estimates should be calculated by averaging the counts taken from at least five separate areas of the field. To avoid reoccurrence of the problem after spraying, delay application of insecticide until late flowering. One application per season should give satisfactory control.

LYGUS BUG

The lygus bug or "tarnished plant bug" has been documented as a serious pest of many fruit and vegetable crops, but has not yet been demonstrated to cause significant problems in North Dakota field pea. Lygus bugs feed preferentially on meristematic tissue or developing reproductive tissue. Damage to flower buds or developing seeds occurs in other legume crops. It was suspected that Lygus feeding caused a problem referred to as "chalk spot". It is a chalky white spot which may appear on the cotyledons of some legumes. It affects the appearance of the seed, lowering the grade and marketability. In 1996, chalk spot was a major concern in the North Dakota pea crop; however, no evidence was found that lygus bug caused the damage. The probable cause was pea being harvested at too high a moisture content. Peas harvested at high moisture levels are susceptible to bruising when harvested or handled roughly, resulting in damage similar to chalk spot.

Threshold:

None has been determined for the region.

GRASSHOPPERS

Grasshoppers are usually not a major problem in pea. Pea is not typically a preferred host, but grasshoppers can cause damage to field pea, especially during the flower to pod-filling stages.

Threshold:

As with many crops, grasshopper control is advised whenever 20 or more adults per square yard are found in field margins or 8 to 14 adults per square yard are occurring in the crop.

Insecticides approved for use in Field Pea

INSECTICIDE	DOSAGE IN LB AI/ACRE	PRODUCT PER ACRE	RESTRICTIONS ON USE
Asana XL	0.03 - 0.05	5.8 - 9.6 fl oz	Do not apply within 21 days of harvest.
carbaryl (Sevin)	0.5 - 1.5	rate varies by formulation	Do not apply within 21 days of harvest. Do not apply within 14 days of graze or harvest for forage.
dimethoate (Digon 400, Dimethoate 400)	0.125 - 0.5	0.33 - 1 pt	Labeled for aphid control. Peas may be harvested mechanically on day of application. Do not feed or graze hay within 21 days of last application. Do not make more than one application per season.
Lannate LV Lannate SP <i>RUP</i>	0.45 - 0.9	1.5 - 3 pts 0.5 - 1 lb	Do not apply within 1 day of harvest. Of the three insects listed above, the label only includes pea aphid.
Mustang <i>RUP</i>	0.04 - 0.05	3.4 - 4.3 fl oz	Do not apply within 21 days of harvest. Label includes aphid, grasshopper, and plant bugs.

RUP - Restricted use pesticide

LENTIL

In North Dakota, lentil generally has not suffered enough damage by insects to warrant insecticide application. Some insects that have potential to damage lentil include aphids, grasshoppers, lygus bugs, thrips, seedcorn maggots, and wireworms.

PEA APHID

The most common insect pest found in lentil is the pea aphid. They are small, about 1/8+ inch long, and pale green. In North Dakota, aphids usually do not reach economic levels in field pea. Aphids have many natural enemies, including lady bird beetles, parasitic wasps, lacewings, and syrphid flies, but chemical control may be necessary if these insects do not keep aphids at subeconomic levels. Insecticide treatment for pea aphid control should be considered (1) when an economic threshold of 30–40 aphids are collected per 180/sweep of a 38 cm (15 inch) diameter insect net, (2) when few natural enemies are present, and (3) when aphid numbers do not decline over a 2-day period (Homan et al. 1991).

LYGUS BUG / TARNISHED PLANT BUG

Lygus bug feeding on the immature reproductive structures of lentils causes seed and pod abortion, as well as a serious seed-quality problem known as "chalk spot". This problem has been reported for lentil in the Pacific Northwest production areas, but has not been seen as a significant problem in North Dakota. Lygus bugs feed with piercing, sucking mouthparts and inject toxic saliva into the immature seed. This forms a depression around the feeding area and leaves a chalky blemish. Monitor adult lygus bug populations during blooming and podding by using a sweep net, making 25 180/sweeps in at least 5 randomly selected places in a field.

Threshold:

Insecticide treatment is recommended when 7 - 10 adults are collected per 25 sweeps.

GRASSHOPPERS

Grasshoppers are a potential problem in lentil. Lentil crops are less tolerant to grasshopper feeding than some other pulse crops. In lentils, grasshoppers pose the greatest threat from the bud stage through early pod development. Damage on lentil plants is often not highly visible because grasshoppers do not normally prefer lentil foliage. However, grasshoppers will consume flower buds and especially early pods of lentil plants. This can result in yield loss and a delay in maturity due to delayed pod set.

Threshold:

Scout fields from the early bud stage through pod development. Research conducted by Agriculture and Agri-Food Canada at Saskatoon found that 2 grasshoppers per square yard, feeding on lentil flowers or pods, can reduce yields enough to warrant insecticide treatment.

Insecticides approved for use in Lentil

INSECTICIDE	DOSAGE IN LB AI/ACRE	PRODUCT PER ACRE	RESTRICTIONS ON USE
Asana XL <i>RUP</i>	0.03 - 0.05	5.8 - 9.6 fl oz	Label includes aphid, grasshopper, and other insects. Do not apply within 21 days of harvest. Do not feed or graze livestock on treated crop.
Baythroid <i>RUP</i>	0.038 - 0.05	2.4 - 3.2 fl oz	Label includes lygus bug, cutworms, and others. Do not apply within 7 days of harvest. Do not feed or graze livestock on treated crop.
carbaryl (Sevin)	0.5 - 1.5	rate varies by formulation	Labeled for grasshoppers, lygus suppression, and other insects. Do not apply within 21 days of harvest. Do not apply within 14 days of graze or harvest for forage.
dimethoate (Digon 400, Dimethoate 400)	0.125 - 0.5	0.33 - 1 pt	Labeled for aphid control. Peas may be harvested mechanically on day of application. Do not feed or graze hay within 21 days of last application. Do not make more than one application per season.
Malathion 57 EC	0.625 - 1.25	1 - 2 pts	Labeled for aphid control. Do not apply within 3 days of harvest. Do not graze or feed treated crop foliage to livestock.
Mustang <i>RUP</i>	0.04 - 0.05	3.4 - 4.3 fl oz	Do not apply within 21 days of harvest. Label includes aphid, grasshopper, and plant bugs.

RUP - Restricted use pesticide

CHICKPEA / GARBANZO BEAN

Chickpea stems, leaves and seed pods are covered with small, hair-like glandular structures that secrete malic and oxalic acids. The secretions discourage insects from feeding on the plants. Therefore, insect problems on chickpeas have been minimal and insecticide applications generally have not been necessary. Several viral diseases that are transmitted by aphids have occasionally been reported in chickpea fields from the states of Washington and Idaho. Potential insect pests of chickpea include seedcorn maggots, cutworms, lygus bugs, and wireworms.

Insecticides approved for use in Chickpea

INSECTICIDE	DOSAGE IN LB AI/ACRE	PRODUCT PER ACRE	RESTRICTIONS ON USE
Asana XL <i>RUP</i>	0.03 - 0.05	5.8 - 9.6 fl oz	Label includes aphid, grasshopper, and other insects. Do not apply within 21 days of harvest. Do not feed or graze livestock on treated crop.
Baythroid <i>RUP</i>	0.038 - 0.05	2.4 - 3.2 fl oz	Label includes lygus bug, cutworms, and others. Do not apply within 7 days of harvest. Do not feed or graze livestock on treated crop.
dimethoate (Digon 400, Dimethoate 400)	0.25 - 0.5	0.5 - 1 pt	Labeled for aphid control. Peas may be harvested mechanically on day of application. Do not feed treated plants to livestock. Label includes aphids, grasshoppers, leafhoppers, and lygus bugs.
Lannate LV Lannate SP <i>RUP</i>	0.45 - 0.9	1.5 - 3 pts 0.5 - 1 lb	Do not apply within 1 day of harvest. Of the three insects mentioned above, the label only includes cutworms.
Mustang <i>RUP</i>	0.035 - 0.05	3.0 - 4.3 fl oz	Do not apply within 21 days of harvest. Label includes aphids, cutworms, armyworms, grasshoppers, and plant bugs.
Spintor 2SC	0.062 - 0.094	4 - 6 fl oz	Do not apply within 28 days of harvest. Do not feed forage or hay to meat or dairy animals. Label includes armyworms, and European corn borer.

RUP - Restricted use pesticide