

FACT SHEET

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Vegetable looper (*Chrysodeixis argentifera*)

These looper caterpillars are grass green, smooth and slender, and move with a characteristic looping action. They are 2.5 to 3 cm long when fully grown. They feed on the foliage. (See Figure 5).

The cabbage white butterfly, the cabbage-centre grub and the vegetable looper usually occur at low to very low larval densities in canola. At these densities their damage is not economically significant.

The spray-decision tables

These tables (Tables 1 to 3) are based on “economic thresholds” that are estimates of the density of cabbage moth larvae at which control measures should be applied to prevent the infestation from causing economic damage (ie. the level of damage at which the value of the crop loss would equal or exceed the cost of insecticidal treatment).

The quantity of canola lost through damage caused by cabbage moth depends on the stage of crop development. Generally the later the damage occurs in the crop’s development the lower the yield loss. Therefore, the economic threshold or the density of larvae requiring treatment increases as the canola crop develops.

The economic thresholds for three different stages of crop development are:

- 1 larva/plant - foliage to mid-flowering stage,
- 2 larvae/plant - mid to late flowering stage,
- 5 larvae/plant - pod maturation stage.

A spray-decision table is given for each of the three stages of crop development.

Use the table that corresponds to the crop’s stage of development to decide whether to spray or not to spray.

To use these tables carefully follow the “Sampling for larvae” guidelines provided below. A minimum of 8 canola plants must be sampled.

Table 1: Spray-decision table for canola crops during foliage growth to early to mid-flowering.

Number of plants sampled	No spray treatment required if the total number of larger larvae collected is equal to or less than:	Continue to sample if the total number of larger larvae collected is:	Treatment required if the total number of larger larvae collected is equal to or greater than:
8	7	8	9
9	7	8-10	11
10	8	9-11	12
11	9	10-12	13
12	10	11-13	14
13	11	12-14	15
14	12	13-15	16
15	13	14-16	17
16	14	15-17	18
17	15	16-18	19
18	16	17-19	20
19	17	18-20	21
20	18	19-21	22

Sampling for larvae

The following sampling method enables the farmer or crop monitor to make a decision on whether or not to control an infestation of cabbage moth in a canola crop.

- Walk through the crop in a circular pattern and stop every 20 to 25 metres to select randomly an undisturbed plant. Start about 10 to 15 m in from the crop-edge.

Plants in atypical areas of the crop should not be sampled. For example stunted plants often harbour much higher densities of cabbage moth than do the surrounding plants, and their inclusion in the sampling would give a misleading decision.

- Carefully pull out or cut each selected plant at its base, shake it into a cardboard cone* (larger plants may need to be folded in half), and collect the dislodged insects into a container such as an ice-cream container (See Figure 6). NB. This beating method is recommended because the dense canopy of canola prevents effective sweep-netting of cabbage moth larvae.

* Dimensions of cone: about 80 to 100 cm long, 45 cm wide at the top, and 10 to 15 cm wide at the base. The cone is supported over the shoulder by a string attached to the top and bottom of the cone.

- Count those cabbage moth larvae that are longer than 3 to 4 mm (See Figure 7).
- Compare the cumulative number (running total) of these larger larvae with the numbers in the spray-decision table appropriate for the stage of development of the crop.

Discontinue sampling as soon as a decision is made – regardless of the number of plants sampled.

If after 20 plants the cumulative number of larvae collected still lies between the lower (no spray) and upper (spray) limits, the crop should probably be sprayed.

- Make a decision after a minimum of 8 (in 5 to 8 minutes) or a maximum of 20 plants (in 10 to 15 minutes) are sampled.

Note the following points

- Rainfalls greater than 5 to 8 mm (20 to 30 points) in 24 hours often reduce the density of larval infestations of cabbage moth in canola crops. Larvae are either dislodged, drowned or disease epidemics are triggered by the humid conditions.

Crops with larval infestations that were approaching the economic threshold (and may soon have required insecticidal treatment) should be re-sampled after such rainfalls; the rain may have reduced the larval density to a level that does not require a costly insecticide application.

- In the absence of heavy rainfalls larval densities double in about six or seven days during late November, December and early January in the lower South East, and in about seven to nine days during late September, October and early November in other districts. These rates of increase provide a guide to the time interval that should lapse between successive monitorings of the crop.

Monitor crops each week if the larval density is well below the economic threshold, and twice a week when the density approaches the economic threshold.

Table 2: Spray-decision table for canola crops during mid to late flowering.

Number of plants sampled	No spray treatment required if the total number of larger larvae collected is equal to or less than:	Continue to sample if the total number of larger larvae collected is:	Treatment required if the total number of larger larvae collected is equal to or greater than:
8	13	14-18	19
9	15	16-20	21
10	17	18-22	23
11	19	20-24	25
12	21	22-26	27
13	23	24-28	29
14	25	26-30	31
15	27	28-32	33
16	29	30-34	35
17	31	32-36	37
18	33	34-38	39
19	35	36-40	41
20	37	38-42	43

Table 3: Spray-decision table for canola crops during maturation of the pods.

Number of plants sampled	No spray treatment required if the total number of larger larvae collected is equal to or less than:	Continue to sample if the total number of larger larvae collected is:	Treatment required if the total number of larger larvae collected is equal to or greater than:
8	33	34-46	47
9	38	39-51	52
10	43	44-56	57
11	48	49-61	62
12	53	54-66	67
13	58	59-71	72
14	63	64-76	77
15	68	69-81	82
16	73	74-86	87
17	78	79-91	92
18	83	84-96	97
19	88	89-101	102
20	93	94-106	107

Fig 1: Cabbage moth larvae.

Fig 2: The 6 larval stages of native budworm.

Fig 3: Cabbage white butterfly larvae.

Fig 4: Cabbage-centre grub.

Fig 5: Vegetable looper.

Fig 6: Beating technique using cone.

Fig 7: Count only those cabbage moth larvae longer than 3 to 4 mm.

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