

Added Insect Pest on Canola in Montana?

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The cabbage seedpod weevil, *Ceutorhynchus obstrictus* (Coleoptera: Curculionidae) is a widely distributed pest of cruciferous crops in Europe and North America. It was first reported from eastern North America in North Carolina, USA, and is now known to extend from Georgia to Quebec and Ontario, Canada. The Cabbage Seedpod weevil was first noticed in Montana during the 1999 growing season in very low levels in Fergus County. While the monitoring of the insect pests on canola was carried out by Drs. Héctor A. Cárcamo, Lethbridge, Canada and Gadi V.P. Reddy, MSU, Conrad, USA on canola crops in Kalispell and Conrad on July 11th, 2013, revealed that *C. obstrictus* is present and could be causing damage to the crop (Fig-1).

According to Dr. Cárcamo, cabbage seedpod weevils move to canola fields at the bud to early-flower stages. The recommended crop stage to spray for seedpod weevils is around 20% flower (which is about a week after you see the first flower in the field). Many weevils may be present at the bud-rosette stage but one cannot sweep at that stage and spraying is not recommended at that time because it is too early.



Fig-1: Entomologist/Ecologist collecting weevils at MSU-Western Triangle Ag Research Center, Conrad, MT



Fig-2: Adult of cabbage seedpod weevil Photo credit: Dr. Dan Johnson, University of Lethbridge, Lethbridge, Canada

Cabbage seedpod weevil nominal thresholds are based on sweep net numbers, which requires proper sweep net technique. Select 10 locations within each field and at each location, count the number of weevils from ten 180° sweeps (Fig-2). Sample both the perimeter and interior of the field to obtain an accurate estimate of weevil numbers throughout the field. The nominal economic threshold for weevil was set at 30-40 in 10 sweeps (3-4 per sweep) in 2001, and has been lowered to 2-3 per sweep based on higher canola prices. Anything below that and canola plants will generally compensate for seedpod weevil damage to the buds and flowers.

Yield loss results from larvae/grub feeding within the seedpods. In rare cases, new generation adults may cause some damage in late maturing canola fields near harvest time but due to pre-harvest intervals restrictions on insecticides, these cannot be sprayed. Current control measures for the cabbage seedpod weevil still rely on applying registered broad-spectrum insecticides.



Fig-3: Larval/grub feeding damage (exit hole) in the seedpods.
Photo credit: Agriculture & Agri-Food Canada, Lethbridge.



Fig-4: Adults of cabbage seedpod weevil Photo credit:
Agriculture & Agri-Food Canada, Lethbridge.

Now Drs. Cárcamo and Reddy are planning on developing sustainable alternative control strategies: Trap crops can be effective, so both the scientists are planning on developing a project on evaluating which trap crops would flower early and be more attractive to the weevils in Montana? In Alberta, Polish canola planted along borders of Argentine canola can be effective to attract the weevils and control them there before they move into the main crop.

Life-Cycle

The cabbage seedpod weevil takes about 80 days to develop from egg to adult. According to the published information, there is one generation per year. The adults overwinter beneath leaf litter in tree shelterbelts, roadside ditches, and woodlots. Late in the season (during the fall), they select overwintering sites and burrow beneath the soil surface where they are protected from low temperatures. In spring, they emerge from these sites over a period of several weeks and seek out host plants.

Adults occur most commonly on the buds and flowers of host plants, but during windy days, they move to sheltered areas within the plant canopy. Before canola crops enter the bud stage, adults can be found on weeds. When disturbed, the adults often drop to the ground and "play dead." After several seconds, they resume activity. Mating occurs from spring to early pod development, usually on a host plant. When small pods develop, the females can deposit an egg through the pod wall onto, or adjacent to, a developing seed. Eggs are very small, white and oval shaped. Most often, only a single egg is deposited per pod; however, two or more eggs can be laid per pod during heavy infestations. Eggs hatch in about 6-7 days, and females continue to lay eggs until they die later in the season. Larvae are white and grub-like, without pro legs. After hatching, the larvae/grub begins feeding within the pods on developing seeds (Fig-3). Larval/grub development takes approximately six weeks, and during this time, a single larva consumes about five canola seeds. There are three larval stages (instars). Mature larvae/grub chew slight, circular exit holes in the pod walls, drop to the ground, burrow in, and pupate within earthen cells. New generation adults emerge about 10 days later and feed on immature canola or other green cruciferous plants until late in the season when they enter overwintering sites (Fig-4).

Here are the suggested web links for further reading about cabbage seedpod weevil and their management.

http://www.prairiesoilsandcrops.ca/articles/volume_4_3_cabbage_seed_pod_weevil_screen.pdf

http://wiki.bugwood.org/HPIPМ:Cabbage_Seed_Pod_Weevil

<http://www.agriculture.gov.sk.ca/Default.aspx?DN=0d87e61e-d4e1-413f-96e8-81c455cff991>

[http://www1.agric.gov.ab.ca/\\$department/deptdocs.nsf/all/agdex2538](http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/agdex2538)

<http://entomology.k-state.edu/extension/insect-information/crop-pests/canola/seedpod-weevil.html>