

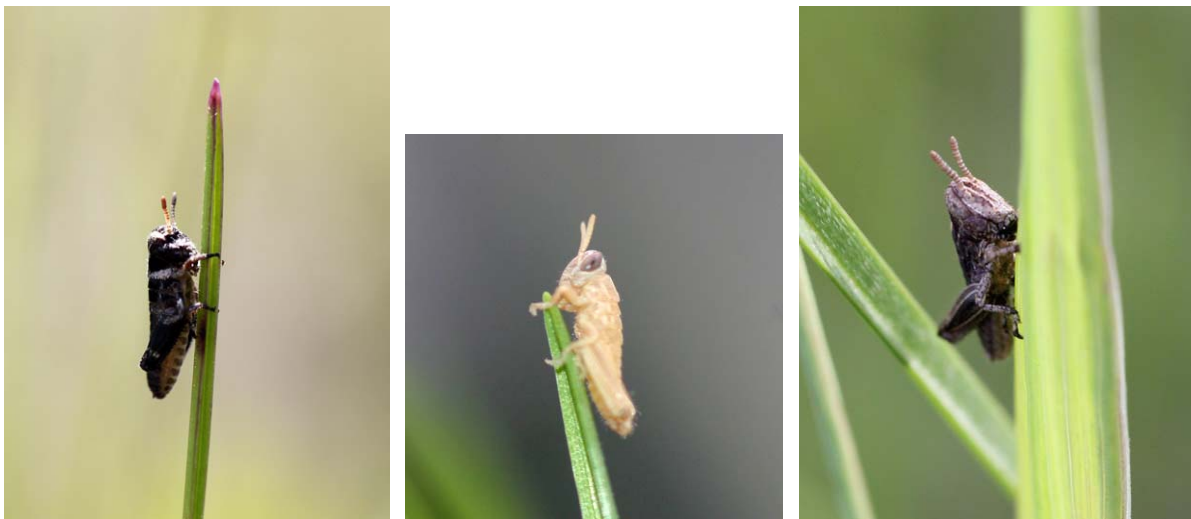
Recognizing immature stages of key grasshoppers that threaten crops.



The rain in 2010 has reduced the grasshopper risk to crops, pastures and grazing, and moved it to later in June and July. There have been some questions about how to recognize the immature stages when they return later in June and July, on the Canadian Prairies. I took the photographs below for those who want to be able to recognize the major pests, especially the clear-winged grasshopper (pest of cereal crops, pasture and range) and the two-striped grasshopper (risk to cereals, lentils, and pasture). Larger grasshoppers found early in the spring, those with wings before mid-June, or any which make sounds, are not pests.

You can find eggs of the pest types by digging in the top 2 inches of soil. The eggs look like brown rice. Soaking them in one part bleach, 2 parts water for 10 minutes will clear them. If you see dark eyes (middle photo above), they will hatch after a few days of warmth. If the egg and the embryo visible inside are white or clear (above right), they have weeks to go before hatching.

Hoppers in the immature stages are called "instars": first, second, third, fourth and fifth. We call the newly hatched hopper "a first instar", or "a first-instar grasshopper". The first instar has no wing bud (still growing) or ridge on the back. The second and third instars have a small ridge. The first-instar clear-winged grasshopper is black with a white, vertical stripe. The first instar of the two-striped grasshopper is light tan at first, and then darker brown by the second day (below middle and right). These are all about 1/8th inch in length.



The first-instar clear-winged grasshopper (below left) molts after a few days of heat, and moves through instars 2, 3, 4 and 5, all of which are brown, not black-and-white like the first instar. The black-and-white appearance is a signal that the hatch is recent and/or in progress. The photos below show the relative sizes of immature instars. Below right: third and fourth instar.



Immatures of the clear-winged grasshopper are angular in appearance, and have three ridges on the back. The two-striped grasshopper is more rounded, has a spine on the throat area under the mouth, and has two strong stripes on the back. It can be green or brown.

Note that the fourth instar has small triangular wing buds.

Below: fourth instar clear-winged grasshopper; fourth instar clear-winged; fourth instar two-striped



Fifth-instar grasshoppers have larger wing buds, as shown below, in all species.

Left: Dawson's grasshopper (non-pest).

Right: two-striped grasshopper (may be green, brown, tan, rose or yellow, but always with stripes on back)



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