

Hemp Russet Mite

Hemp russet mite (*Aculops cannibicola*) feeds on the surface layer of plant cells, piercing them with their minute mouthparts and feeding on the cell fluids. No visible symptoms are produced when russet mites are in low populations, but a range of subtle symptoms develop during outbreaks.

In heavy infestations plants leaves often are duller in color, appearing slightly grayish or bronze (russeting). Leaf size may be reduced and foliage becomes more brittle. In some cultivars a slight upward rolling of the leaf edge is produced, but this symptom is not consistently produced by hemp russet mite and also can be produced by other causes. Russet mites also develop on stems, which may cause stems to have a slight bronze/golden color.



Figure 1. Hemp russet mites developing on the upper surface of leaves. These mites are normally found in highest population on the leaf underside.



Figure 2. Heavy infestation of hemp russet mite can cause leaves to have a duller color and leaf size is reduced. Growth of developing buds also can be suppressed.

Most damage occurs to developing buds. Heavy infestations can seriously suppress bud growth and size (Fig. 2).

The hemp russet mite is extremely small – much smaller than the twospotted spider mite - and individual mites cannot be observed without substantial magnification (15-20X) (Fig. 1). They have an elongate body and pale color, typical of most eriophyid mites (the mite family Eriophyidae). (An excellent photograph of hemp russet mite on a very heavily infested leaf petiole can be viewed [here](#).)

The most serious damage reported to hemp in Colorado involves the maturing buds/flowers of all-female clones grown for CBD production. Extremely high populations of mites may build in

late summer which damage these tissues and reduce yield and quality. During heavy infestations flowering structures may take on a beige appearance, the combined result of leaf injuries and the color of the mites observed when as the mass on the heads.



Figure 3. A slight curling along the leaf edge is a symptom produced by hemp russet mite in some cultivars. However, this symptom is not consistently produced and it does not develop in all plants. Also, leaf curl symptoms can be present from other causes that have nothing to do with hemp russet mite, notably genetics.

producing the adults. Both males and females are produced. The entire life cycle (initially laid egg through first egg laying by the adult) is reportedly completed within about two weeks at temperatures of 77°F. Egg production by tomato russet mite is reported to typically average between 1-2 dozen per female.

Adults of tomato russet mite will normally live about 3 weeks. No special stages are produced that would allow extended survival, such as an egg that can remain dormant for an extended period. However, tomato russet mites are capable of surviving for an extended time between growing seasons on various nightshade plants and on bindweed. During winter, reproduction ceases, and they are semi-dormant.

Hemp russet mite appears capable of surviving and reproducing year round on *Cannabis* crops grown indoors in continuous culture. However, significant questions remain about how hemp russet mites may survive outdoors between seasons. In June 2018 hemp russet mites were found on leaves of volunteer hemp growing adjacent to a shed used to dry the crop of the previous season. This suggests that some hemp russet mites may survive outdoors in Colorado under certain conditions, although it is not clear on what kinds of plants they would be sustained in the absence of live hemp.

Biology Notes. *Cannabis* is the only reported host for hemp russet mite and attempts to establish it on related plants in the Cannabaceae family (hops, hackberry) have so far been unsuccessful.

The biology of hemp russet mite is very little studied but is likely similar in general outline to related species of eriophyid mites (e.g., tomato russet mite *Aculops lycopersici*) that feed on the surface of herbaceous plants. In the case of the tomato russet mite, eggs are produced that hatch within two days. A minute immature stage (larva) emerges from the egg and a couple of days later it will molt to the larger second stage (nymph). A few days later there is a final molt,

On their own, hemp russet mites can crawl only very short distances and immature stages are particularly immobile. However, adults are capable of some crawling and may move to the edge of leaves where they can then be picked up and carried on air currents; in enclosed areas, fans can quickly spread mites. Outdoors small breezes can distribute mites through fields.

Elsewhere in this website is a sheet on [*Pest Management of Hemp in Enclosed Production: Hemp Russet Mite*](#), which discusses management options in greenhouses.

Acari: Eriophyidae