



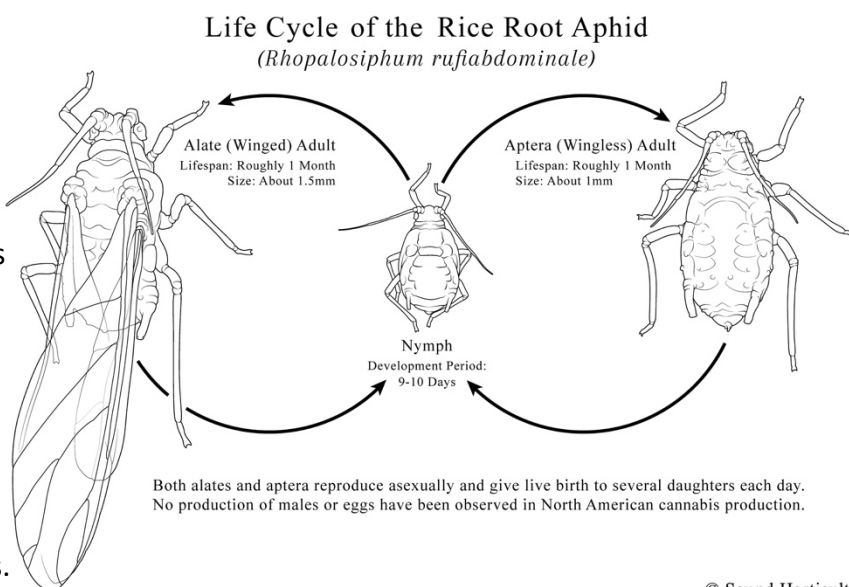
CROP PEST:

Rice Root Aphid

Rhopalosiphum rufiabdominale

DESCRIPTION:

Rice root aphids are cryptic and the symptoms are not always obvious. Damage will often look like a nutrient deficiency but can go unnoticed until populations are at a critical point. The aphids are olive-red in color and tend to be clustered around roots. These insects are polyphagous (hosted by many different plants) and have been associated with *Prunus* spp., various grasses, sedges and solanaceous crops. (Tanaka, 1961). They have been observed to be important pests in *Cannabis* in North America, particularly in indoor and greenhouse environments.



Coming from the same genus, rice root aphids (*R. rufiabdominale*) and cereal oat aphids (*R. padi*) look similar, though cereal oat aphids tend to have a hairier body and shorter setae on their antennae (Sunil and Poorani, 2018). Wingless (Fig. 1) and winged (Fig. 2) forms of root aphids are often present, but the winged forms will typically have darker coloration due to more sclerotization (hardening of exoskeleton) and will be present in the canopy. Keep a close eye on your yellow sticky cards as this can be an indication of their presence.



Figure 1: Dorsal view of Rice Root Aphid (*R. rufiabdominale*) aptera. Photograph by Alec Blume, 2019.

In a lab setting, rice root aphids were observed to produce 53-58 generations in one year (Hsieh, 1970), or one generation every 6-7 days. The nymphs mature in 9-10 days and each adult can live for about a month (Cranshaw, 2018). Reproduction can continue through winter on various crops including tobacco, wheat and grasses (Hsieh, 1970). As a result, it's best to avoid harboring pet plants in your grow rooms, and to always manage weeds and volunteer plants in the area surrounding your crop.

The winged adults migrate between May and June to colonize new hosts (Tanaka, 1961), so pay extra attention to incoming plants and ensure that your screening is adequate to prevent aphids from entering your grow rooms. Living soils with a layer of mulch provide favorable conditions for root aphids (Kindler et al, 2004), which means careful monitoring and quarantine of incoming plant material becomes even more imperative.

Due to government regulations, little if any literature has been published on the topic of rice root aphids in *Cannabis*. As such, many of the recommendations are from experience and observation. At Sound Horticulture, we have found the best way to avoid an infestation is to thoroughly inspect roots of incoming plant material and reject them if aphids are spotted. Also, make sure everyone in your facility is following good sanitation practices. Root aphids are not known to produce a persistent egg stage indoors in *Cannabis*, so a plant free period of one week between crop cycles should be sufficient to starve the aphids (Cranshaw, 2018).



Figure 2: Ventral view of Rice Root Aphid (*R. rufiabdominale*) alate. Photograph by Alec Blume, 2019.

There are currently no products that will eliminate root aphids on their own. The key is population suppression until a host-free period can be established. Suppression can be achieved using periodic drenches of azadirachtin, *Isaria fumosorosea*, *Beauveria bassiana* (Cranshaw, 2018), Grandevo and *Metarhizium anisopliae* strain F52. Follow up the drenches with sprays around the perimeter of your pots or trays, on plant material and on the flashing around your grow room. Additionally, we always recommend dipping your incoming plant material or cuttings as per the Vineland Research and Innovation Centre protocols (Buitenhuis et al. 2016).

In 2015, Dara looked at the control of rice root aphids in celery; he found that the best control was achieved with a tank mix of *Beauveria bassiana* (Mycotrol-O) and azadirachtin (AzaGuard), compared with the other products tested.

The soil mite, *Stratiolaelaps scimitus*, is generally used for control of fungus gnats and thrips but may also provide some suppression of root aphids. However, more research needs to be done on this topic and beneficial insects and nematodes should not be relied upon alone for control.

SUMMARY:

- Carefully scout incoming plant material and dip your cuttings.
- Check yellow sticky cards at least once weekly and ID what you find.
- Drench two times per week with an entomopathogenic fungi, using azadirachtin in one of the drenches.
- After drenching, spray around the base of pots, plant stems, and anywhere you see aphid crawlers with a contact insecticide.
- If possible, establish a plant-free period of one week to starve out any remaining root aphids before moving in clean plants.