

Bulb Mites in Garlic

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Two genera of mites are known to infect species of *Allium*. The dry bulb mite (*Aceria tulipae*) is an eriophyid mite that survives on cultivated *Allium* species. It is often confused with the wheat curl mite (*A. tosichella*), though it is believed that the host range of the latter species may also include Alliums. Bulb mite species in the genus *Rhizoglyphus* can also be troublesome on Alliums.

These mites can overwinter in soil and also survive in stored garlic. They can damage garlic in the field, but are particularly troublesome in storage. Their feeding can cause desiccation and creates wounds that provide an ingress for soft rot bacteria and pathogenic fungi such as *Fusarium* and *Penicillium*. In addition, dry bulb mites can transmit garlic allelixiviruses. Infected seed is the most common way dry bulb mites are introduced into a field.



Mite damage on garlic
Note brown spots on left side



Adult *Rhizoglyphus* mite
Magnification 10x

Symptoms: Infected seed may fail to germinate. Plants grown from infected seed may lack vigor and produce stunted, deformed leaves. Plants may outgrow the damage if the infestation is not heavy, but mites may increase in number over the growing season and will remain in the harvested garlic. Viral symptoms may be seen. In the field, mites feed mainly on the roots and basal plate. In storage, the mites move into the garlic bulb, where their feeding activity causes sunken tan to brown spots to form on cloves. Desiccation may occur. Soft rot bacteria or fungi may also be present.

Adult *Rhizoglyphus* mites are 0.5-1.0 mm long, have four pairs of legs, and are bulb shaped. Their legs are brown. Eriophyid mites like the dry bulb mite are usually less than 0.3 mm long, have two pairs of legs near the front of their bodies, and are somewhat more conical or cigar-shaped. The bodies of both species are off-white to pale yellow in color and may be visible with a hand lens.

Management options:

- Plant clean seed. Hot water treatment of seed garlic is effective, but can decrease germination. Put seed in water heated to 130°F 10-20 minutes, or 140°F for 10-15 minutes.
- Soak seed for 24 hours in 2% soap (not detergent) and 2% mineral oil prior to planting.
- Dust bulbs with sulfur.
- Mild mite infestations are often mitigated by the process of drying bulbs before storage.
- Rotate out of Alliums for at least four years. Control wild *Allium* species in the vicinity.
- Mites can survive on the residues of a number of crops. Plant only in fields where crop residue is thoroughly decomposed.
- Avoid planting Alliums directly after Brassicas, corn, grain, or grass cover crops.
- There is some evidence that predatory mites of the genus *Stratiolaelaps* (formerly *Hypoaspis*) may be effective for control of *Rhizoglyphus* species.