

**OVERVIEW OF BIOLOGY OF THRIPS SPECIES INFESTING COTTON IN THE U.S.**

**D. R. Cook**  
**Mississippi State University**  
**Stoneville, MS**

**Abstract**

Thrips are one of the first insect pests that infest cotton after plant emergence and constitute one of the most common insect pest challenges for growers. Several species of thrips are known to infest cotton seedlings in the U.S. These include western flower thrips, *Frankliniella occidentalis* (Pergande); flower thrips, *Frankliniella tritici* (Fitch); soybean thrips, *Neohydatothrips variabilis* (Beach); onion thrips, *Thrips tabaci* (Lindeman); and tobacco thrips, *Frankliniella fusca* (Hinds). Tobacco thrips tend to be the most common species in many areas. However species complex, species abundance, extent of crop injury, and impact on lint yield varies widely across the cotton states. These species of thrips have six life stages that include the egg, larva 1, larva 2, pre-pupa, pupa, and adult stages. Duration of the life stages varies somewhat between species, but is highly influenced by temperature. The eggs of these species are inserted into plant tissue. During the larval stages the insects feed and are mobile. The pre-pupal stage insects are mobile, but do not feed. During this stage, the insects leave the plant to pupate in the soil. The pupal stage is non-feeding and non-mobile, which is similar to other insects. The adults of these species are macropterous (fully developed wings), except for tobacco thrips which may be macropterous or brachypterous (short winged). All of these species are known to reproduce sexually, and tobacco thrips, western flower thrips, flower thrips, and onion thrips can also reproduce through parthenogenesis. Thrips have piercing rasping mouth parts. They puncture epidermal cells of plants and consume the contents. On cotton plants, these damaged cells fill with air and take on a silvery appearance, especially on cotyledons and leaves. Thrips feeding results in distortion, malformation and tearing of seedling leaves, reduced leaf area and plant height, and reduced root growth. Thrips feeding can injury or destroy the apical meristem of seedlings, which leads to excessive vegetative branching. Crop maturity can be delayed and in extreme cases, substantial yield losses have been reported. Cotton seedlings are most susceptible to thrips injury during the first four to five weeks after plant emergence.