

Bean flower thrips

Megalurothrips sjostedti



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Adult bean flower thrips, greatly enlarged.



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The tiny adults on a bean flower.

SUMMARY: Bean flower thrips are a major pest of cowpea and other leguminous crops throughout sub-Saharan Africa. The pest feeds on the buds and flowers of the crop, which can cause the flowers to be distorted and fall from the plant, resulting in crop losses. Control of the pest can be achieved through a combination of cultural practices, such as ploughing to destroy pupae, intercropping and crop rotation with maize, planting early, and use of chemical pesticides, including home-made remedies based on black pepper.

KEY SIGNS

Bean flower thrips affect many crops, particularly cowpeas. Thrips breed in the flowers of beans (legumes) and feed on the buds and flowers. The adults are tiny, slim, elongated, shiny black and are distinguished from other species of thrips by pale bands across the top of the forewings. They are also the largest of the flower thrips present in Africa.

Symptoms of bean flower thrips infestation include distortion, discolouration and shedding of flowers. Severe infestations – that is 20 or more thrips per flower – cause the flowers to fall from the plant, which prevents the pods from developing.

Thrips start attacking the plant before the flowers open, which causes the flowers to dry and become brown.

Monitoring for thrips should begin about 30 days after planting. Look for silver streaks on the leaves, fruit and pods. Open the flower buds to look for larvae or adult thrips, or shake the flowers onto a white piece of paper and count the thrips that fall out.

MANAGEMENT

Prevention – what to do before signs are seen

Cultural approaches: Prior to planting, plough and harrow the field to destroy pupae.

Plant early to ensure the crop is well established and better able to withstand an infestation.

Intercrop with maize or sorghum to reduce populations.

Rotate cowpea with non-leguminous crops, such as maize.

Control – what to do after signs are seen

Cultural approaches: Provide adequate water to plants, as water-stressed plants are more susceptible to attacks. In infested fields, destroy crop residues after harvest.

Chemical approaches: There are biological control options for the bean flower thrips.

Bio-pesticides can control and reduce populations. The fungi *Beauveria bassiana* and *Metarhizium anisopliae* have been found to be effective against bean flower thrips. Neem-based pesticides (azadirachtin) are effective against nymphs and can reduce the number of eggs laid by adults. Spinosad is also an effective microbial insecticide.

Pepper extracts are also effective in controlling and reducing the populations of the bean flower thrips. Dry the pods of West African black pepper (*Piper guineense*) and grind into a powder. Mix 500-100 grams with 3 litres of water and let it sit for 12 hours. Filter the water to remove the solid parts and mix with an additional 1.5 litres tap water to make the concentrate. Add some soap to make it stickier. Spray 4-6 times a week.

Chemical pesticides, such as cypermethrin, dimethoate and lambda-cyhalothrin, are effective control options. All three chemicals are considered to be moderately hazardous and should be used carefully. These pesticides should not be applied more than twice per planting season. Farmers should follow label recommendations for dosage and safe use.

CAUSE

Megalurothrips sjostedti was formerly known as *Taeniothrips sjostedti*. Other common names include legume thrips, flower bud thrips and African bean thrips.

Adults lay eggs into the leafstalks (petioles). Development from egg to adult takes about 20 days.

IMPACT

Cowpea is an important protein source in sub-Saharan Africa. Bean flower thrips cause 20-70% yield losses in cowpeas in many parts of Africa. A heavy infestation can cause total crop loss.

DISTRIBUTION

Bean flower thrips can be found throughout sub-Saharan Africa, both in regions with heavy rainfall and semi-arid regions. They are, however, most commonly found in the dry savannah regions where cowpeas are produced. Infestation can occur when adults fly from other host plants.

FURTHER READING

Plantwise Knowledge Bank www.plantwise.org/knowledgebank

Infonet Biovision <http://www.infonet-biovision.org/default/ct/78/pests>

Ekesi, S., Maniania, N.K., Onu, I. and B. Lohr. 2009. Pathogenicity of entomopathogenic fungi (Hyphomycetes) to the legume flower thrips, *Megalurothrips sjostedti* (Trybom) (Thysan., Thripidae). *Journal of Applied Entomology*, 122 (1-5):629 - 634.

Oparaeke A.M., 2006. The Sensitivity of Flower Bud Thrips, *Megalurothrips sjostedti* Trybom (Thysanoptera: Thripidae), on Cowpea to Three Concentrations and Spraying Schedules of *Piper guineense* Schum. & Thonn. Extracts. *Plant Protect. Sci.*, 42: 106–111