

# Whitefly on tomato

*Bemisia tabaci*



1 to 2 mm long adult whiteflies feeding on the underside of leaves (David Riley, University of Georgia, Bugwood.org)



Yellowing is a severe late damage symptom caused by many whiteflies (David Riley, University of Georgia, Bugwood.org)



Wilting of upper leaves where many whiteflies suck plant sap (Stefan Toepfer)

Prevention	Monitoring	Direct Control	Direct Control	Restrictions
<ul style="list-style-type: none"> <li>Remove barnyard grass weed (<i>Echinochola crus-galli</i>) and Bermuda grass (<i>Cynodon dactylon</i>) because they host whiteflies.</li> <li>Transplant after or during rainy season as whiteflies prefer warm, dry seasons.</li> <li>Plant at least 0.5-2 feet apart with at least 3 feet between rows for good aeration.</li> <li>Place 1 to 3 inches of neem leaf mulch or with white or black plastic sheets 1 week after transplanting.</li> <li>Reduce nitrogen fertilization to below 15 g per acre once per cropping season as too succulent tomato growth would attract whiteflies.</li> <li>Plant black gram as a trap crop around crops to pull the whiteflies, or barrier crops such as sorghum or maize.</li> <li>Intercrop with peppermint as an insect repellent.</li> <li>Avoid planting tomato for more than two seasons. Rotate with summer rice. This activity is only effective if other farmers in the area do the same.</li> <li>Plant flowering plants such as wild sunflower to conserve natural enemies such as wasps, lacewings and spiders.</li> <li>Remove infested tomato residues after harvest.</li> </ul>	<ul style="list-style-type: none"> <li>Start to monitor when plants are 2 weeks old.</li> <li>Inspect weekly until fruiting during early mornings or evenings.</li> <li>Check the whole plant and underside of leaves.</li> <li>Consider action when several whiteflies are found per plant at young plant stages, and 10 to 20 per plant at the flowering stage.</li> <li>Action is too late when finding severe infestations causing wilting, curling and yellowing of leaves.</li> <li>Hang 2 to 4 yellow containers with water or yellow sticky traps per acre to attract whiteflies, consider action at 20-40 whiteflies/trap/week.</li> <li>If yellow leaf curl virus in tomato is known to be in your area, earlier actioned is needed as whiteflies transmit the disease.</li> </ul>	<ul style="list-style-type: none"> <li>Place 50 yellow sticky traps per acre, 30 feet apart in the field to mass trap whiteflies. Change traps 2-3 times per cropping season.</li> <li>Spray on and below leaves in the morning starting 2 weeks after transplanting:</li> <li>Azadirachtin (neem) 0.03% (50 ml/20 L water).</li> <li>Liquid soap at 25 ml per litre water.</li> <li>Hot pepper spray at rate of 30 chopped peppers in warm water. Soak for 1 day, dilute in 10 L water. Do not spray too much as it may be phytotoxic.</li> </ul>	<ul style="list-style-type: none"> <li>Spray pesticides on the underside of the leaves, in the early morning or after sunset when whiteflies are most active.</li> <li>Apply a maximum of 3 times depending on infestation. Don't apply in the flowering stage as sprays are toxic to bees.</li> <li>Apply contact and systemic pesticides alternately because whiteflies become resistant to pesticides quickly.</li> <li>When using a pesticide or botanical, always wear protective clothing and follow the instructions on the product label.</li> <li>Always consult recent list of registered pesticides.</li> <li>Permethrin - contact pesticide. Usually at 30 g per 4 gallons of water per backpack sprayer, check product label. Use 5 backpack sprayer fillings per acre.</li> <li>Dimethoate - systemic pesticide. Usually at 50 g per 4 gallons of water per backpack sprayer and apply 5 backpack sprayers per acre. Double-check product label.</li> <li>Imidacloprid - systemic pesticide. Usually at 30 g per 4 gallons of water per backpack sprayer but check label. Use 5 backpack sprayers per acre.</li> </ul>	<ul style="list-style-type: none"> <li>Pyrethroid group, WHO toxicity class II (moderately acute hazardous). Harmful to fish, predatory mites, flower bugs and parasitoids. Pre-harvest interval (PHI) of 21 days.</li> <li>Organophosphates group, WHO class II (Moderately acute hazardous), Apply a maximum of twice per season. Toxic to pollinators. PHI 14 days.</li> <li>Neonicotinoid group, WHO class II moderately hazardous). Toxic to bees. PHI 21 days.</li> </ul>



## Myanmar

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