## White fly in outdoor tomatoes

*Bemisia tabaci* *Inzi weupe* in Swahili

### Prevention
- Do not plant seedlings nearby crops with whiteflies because of virus disease transfer.
- Remove weeds prior planting as weeds can host whiteflies.
- Intercrop with bean, cucumber, or maize to delay whitefly multiplication.
- Plant *Trigonella* fenugreek or coriander into the tomato field because they repel whiteflies (note that coriander attracts aphids).

### Monitoring
- White flies are 2-3 mm tiny winged insects that sit underneath of leaves, and fly off when shaken. They transmit tomato virus diseases.
- Tomato plants can tolerate few white flies per leaf. But in case of tomato virus occurrences in the area, few white flies per plant are enough to transmit the virus.
- To prevent virus infections, early control of whiteflies in seed beds or young plantings is needed. Search for whiteflies in the mornings and consider action if you see many white flies flying off shaken plants, or if you find few white flies and know about tomato virus occurrence in the area.

### Direct Control
- Spray in the morning, reaching underside leaves.
- *Beauveria bassiana* Strain GHA products (Biobassiana, and others)
- Spray Neem-based products max 3 times (2.5 - 3 litres/ha or 50-60 ml/20 litres water; or 20 – 50 g neem seed cake or seed powder or ground seeds / litre water).
- Stir 3 tablespoons liquid soap in 4 litres water. Spray every week if needed.
- Stir 4 tablespoons fine flour in 4 cups warm water, add 1 tablespoon soap, stir, filtrate, and add 10 litre water. Spray every week if needed.
- Chop 30 to 40 hot peppers into 10 litres warm water (not boiling). Let liquid steep for 24 h. Remove pepper rests, add 10 litres cold water; and 20 drops dishwashing soap. Spray every week, max 2 x.
- Grind 50g wild basil leaves; soak overnight in 2-3 litres water; strain; add 10 drops of soap. Spray every week, and max 3 x / season.
- Thiamethoxam products (Actara, and others)

### Direct Control
- Spray in the morning, reaching underside leaves. Spray only in case when tomato virus occurrence is known in the area. Otherwise no chemical sprays are advised.
- When using a pesticide, always wear protective clothing and follow the instructions on the product label.
- Farmers are not allowed to buy and use WHO toxicity class la, lb, ll products without special permits (Plant Protection Act Tanzania).
- Always consult recent list of registered pesticides (MAFC / TPRI).

<table>
<thead>
<tr>
<th>Pesticides</th>
<th>Restrictions</th>
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<tbody>
<tr>
<td>Neem-based products</td>
<td>WHO class III (slightly hazardous); biological multisite pesticide that is a stomach poison for insects, thus must be eaten by the insect p.h.i. 1 d, r.e.i. 1 d, min retreatment 7 d, max 2 sprays per season</td>
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<tr>
<td>Diethylhexyl sodium sulfosuccinate (Diocetyl Sodium Succinate) products (Bemistop, and others)</td>
<td>Not classified by the WHO; p.h.i. 14 d, r.e.i. 1d. min retreatment 7 d, max 2 sprays per season</td>
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<tr>
<td>Thiamethoxam products (Actara, and others)</td>
<td>Not WHO classified, but considered to be slightly hazardous in normal use; systemic neonicotinoid pesticide with stomach action on insects; p.h.i. 3 d, r.e.i. 1 d, min retreatment 7 d, max 2 sprays / season not in flowering period. Toxic to bees.</td>
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**Tanzania**

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