## Carmine spider mite in cotton

*Tetranychus cinnabarinus*

**Prevention**
- Destroy weeds around fields in fall or early spring to reduce overwintering mites.
- Avoid destroying weeds or clearing fence rows adjacent to cotton during the growing season, because they keep mites there.
- Prevent planting eggplant, sesame, beans and melons around cotton fields because these are favourites of mites.
- Select mite tolerant cotton like Bt gmo cotton if allowed in IPM schemes (var. GK-12, Lu-23, SGK-321) or better non-Bt cotton (var. Zhong-12, Shiyuan-321, Simian-3)
- Enhance water and manure to assure self-defence of cotton.

**Monitoring**
- Search for attacked leaves on top, mid and bottom of randomly selected 25 plants/half acre with naked eyes or using a hand lens. Do this weekly from May until harvest.
- Spider mites can be found on lower surface of the leaves.
- In the beginning, the leaves turn yellowish or have many tiny white spots. After severe attack, red areas appear on upper leaf sides.
- Spider mites are often a secondary pest. At a ratio of 1 predator (ladybeetles, hoverfly larvae, chrysopa larvae, predatory mites) per 10-20 infested leaves, no need to spray. Re-check after 1 and 2 weeks.
- If lack of natural enemies, and if 1-2 mites are found per leaf/plant then go for green control.
- If 4-5 mites/leaf/plant, then it is high scale damage, and chemical control is considered.

**Direct Control**
- Hemipteran predators such as minute pirate bugs (*Orius* spp.), big-eyed bugs (*Geocoris* spp.) and predaceous phytoseid mites control mites
- Beneficial fungus, such as, *Neoxygites* play a major role in the regulation of natural spider mite populations. *Neoxygites floridana* and *Neoxygites fresenii* have been found to significantly reduce carmine spider mites on cotton. Productions are under development.
- Spray neem extracts oil 800 ml/acre against mites.
- Spray mix of urea (2kg) and soap (0.5kg) with water (200kg).
- Mix crashed onion and ginger (1kg each), 10 litres water, soak for 12 hrs, after filtering add 10 L fresh water to every 1 kg mother solution and spray.

**Direct Control**
- When using a pesticide or botanical, always wear protective clothing and follow the instructions on the product label.
- Always consult recent list of registered pesticides on [http://www.chinapesticide.gov.cn/](http://www.chinapesticide.gov.cn/)

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<tr>
<th>Direct Control</th>
<th>Restrictions</th>
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<tbody>
<tr>
<td>Malathion</td>
<td>WHO III, PHI: 21 days, 3 d, min retreatment 14 d, max 2 sprays per season. May cause long-term adverse effects in aquatics. Usually at 450g/L per acre, but double check label.</td>
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<tr>
<td>Tau-Fluvalinate</td>
<td>WHO class III (slightly hazardous). PHI: 14 days, Max 2 sprays/ season with 21 days interval</td>
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<tr>
<td>Clofentezine</td>
<td>WHO class III, Max 1 spray per season. PHI: 21 days (Little residue may appear on the ground, and that dissipates after about 30-80 days). Usually at 50 micrograms per liter/acre, but double check product label.</td>
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**China**

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