Recognize the problem
Whitefly is a serious pest of cotton that lowers yield by feeding on the underside of the leaf and spreading diseases like Cotton Leaf Curl Virus. Whiteflies feed on the sap of the leaves and release a fluid on to the leaves on which a black fungus grows. This affects photosynthesis, the food making process of the plant, and so lowers the strength of the plant.

Whiteflies lay many eggs on the undersurface of the leaves, which change colour from whitish-yellow to dark. They can be difficult to see as they are small. Young whiteflies are greenish yellow in colour, present on the underside of the lower leaves and do not have wings so cannot move. They are very small but grow in size while sucking plant sap. Adults are about the size of the tip of a pencil nib. They are yellow but are covered with white powdery material. Infested plants are shorter and turn yellowish brown with curled shiny leaves. They also cause shedding of buds and bolls, or poor boll opening.

Background
Cotton whiteflies remain active throughout the year moving from one plant to another. They are very active from June to September but are most active during the hot and humid months of August and September. Whiteflies are attracted to nitrogen rich plants. Whiteflies live on other host plants during the year, like weeds, okra, brinjal, cucurbits and cowpeas.

Management
1. Cultural control:
   - Use best time of sowing 15 April to 15 May with proper plant to plant spacing to avoid maximum whitefly population.
   - Remove crop residues, weeds and alternate host plants from sowing to harvest.
   - No more than 3–4 bags (50kg/bag) of urea per acre should be applied
   - Reduce the interval of irrigation
   - Look for whiteflies on the underside of leaves, or black and sticky leaves every week: if 5 adult or young ones per leaf, or 5 black leaves, are present then control measures are recommended
   - Spray pressurized coolwater at initial stages of attack
   - Apply yellow sticky traps or pan traps at the rate of 5 traps per acre: one in the centre and four around the field corners. You can buy these from market. Adopt crop rotation with non-preferred hosts such as sorghum, maize

2. Biological and Botanical Control:
   - Several natural enemies prey whiteflies including ladybird beetles, big-eyed bugs, and parasitic wasps. If you see these insects, do not kill them.
   - Use Chrysoperla carnea cards in the cotton field from June to September Botanical spray of Neem seed kernel extract 5% (50 kg), neem oil at 5 ml/l of water also effective against white fly

3. Chemical Control:
   - Use seed treatment (Imidacloprid 70ws @10gm/kg seed) at the time of sowing.
   - Use imidacloprid (confidor/fencidor) 200 SL @ 250ml/acre or diafenthiuron (polo/solo) 50 SC @ 250ml/acre or buprofezin (sitaras/puslin/byzin) 25 WP @ 500gm/acre when lower leaves become black and sticky.
   - Pyriproxifen 250ml per acre at the time when the pest pressure is highest

Please note, these chemicals will also have a lethal effect on natural enemies.

When using a pesticide, always wear protective clothing and follow the instructions on the product label, such as dosage, timing of application, and pre-harvest interval.

Scientific name(s) > *Bemisia tabaci*

The recommendations in this factsheet are relevant to: Pakistan

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