

Battling with *Bemisia*

Controlling whitefly vectored virus diseases of tomato

In the past decade, whiteflies and the plant viruses they transmit have become an increasingly important global agricultural problem. In India, the whitefly *Bemisia tabaci* is currently the most important pest of tomatoes, causing direct damage, as well as transmitting tomato leaf curl virus disease (ToLCVD). Crop losses experienced by resource poor farmers frequently reach 100%, affecting both household food security and income from tomato sales.



Bemisia tabaci, vector of tomato leaf curl virus

The pest management practice favoured by farmers in South India has been to spray cocktails of insecticides, in an attempt to kill the whitefly vector of the disease, with deleterious effects on human health, the environment and farmers' purses. Women are involved in weeding and harvesting the crop and they in particular are exposed to high levels of insecticides.



Women farmers in Karnataka

This situation has been exacerbated by the recent discovery in India of an insecticide-resistant strain of *B. tabaci*, the B-biotype, by scientists from the Natural Resources Institute, University of Greenwich, and the University of Agricultural Sciences, Bangalore. The B-biotype has already caused failure of the tomato crop in an important vegetable growing area near Bangalore.

In order to combat this threat to the livelihoods of poor people in South India, scientists funded by the DFID CPP and the Asian Vegetable Research and Development Center (AVRDC) have developed high yielding tomato varieties with strong resistance to ToLCVD. These varieties performed extremely well in trials without insecticides.

There is enormous demand for these tomato varieties, particularly by the poorest farmers, because, unlike hybrids, they breed true and so farmers can produce their own seed for the next season's crop.

The varieties are being tested at other locations in Karnataka State, both on-station and on-farm, and – provided they continue to perform strongly – will be promoted officially through the extension network of the University of Agriculture at Bangalore and local NGOs. It is also likely that the varieties will be suitable for cultivation in other parts of India.



High yielding virus resistant variety TLB 130

Ultimately, there will be benefits for other regions where *B. tabaci* and ToLCV cause serious losses: North Africa, the Middle East, the Caribbean and Central/South America.

R6627: Sustainable management of the whitefly, *Bemisia tabaci*, and ToLCV on tomato in India, Dr J. Colvin, NRI