

Report of Team of ICAR Scientists from IARI & NCIPM on the Visit of chilli growing areas affected with leaf curl disease in Yavatmal District, Maharashtra

In response to a request by the farmers of from Yavatmal, Maharashtra, a team of scientists comprising of Dr V K Baranawal, In-Charge, Plant virology unit, IARI, New Delhi; Dr. Bikash Mandal, Principal Scientist, IARI, New Delhi; Dr. Amalendu Ghosh, Scientist, IARI, New Delhi; Dr . Savarni Tripathi, Senior Scientist, IARI, RS, Pune; Dr. (Mrs.) Swati Saha, Scientist, IARI, RS, Pune; Dr M Narayana Bhat, Principal Scientist, NCIPM, New Delhi visited farmers fields in Yavatmal District, Maharashtra from 6-1-2016 to 7-1-2016. A meeting was held with about 75 farmers growing chilli in Maregaon and adjacent areas on 6th January 2016. District agriculture officer also attended the meeting. Mr. Bhaskar Mahakulkar played a lead role in conducting the meeting. Many farmers spoke about their problems with chilli and other crops and they highlighted the widespread occurrence of leaf curl disease that has caused failure of chilli crop in the current growing season.

Chilli is an important commercial crop in Yavatmal district of Maharashtra and is grown mainly for dry/red chilli in about 5000 acres during June to March both under rainfed and irrigated conditions. The farmers informed that leaf curl appeared in the fields 10-15 days after transplanting during August and the disease spread throughout the fields affecting almost all the plants by October-November. Many of the farmers were forced to abandon the crop midway and many uprooted chilli and sown wheat. They also informed abundance of whitefly in the chilli fields. Farmers were critical of the quality of the F1 hybrid seeds supplied by private firms and informed that all the different cultivars used by the farmers from different seed companies [Akshi (Univeg Seed Technology), HPH-1048 (Syngenta), Indam-5 (Indo-American Hybrid Seed), US-720 (US Agri Seeds), Devanur Deluxe & Preeti F1 Hybrid (Nunhems India)] were highly susceptible to leaf curl disease.

All the scientists addressed the queries raised by the farmers during the interactive meeting. Dr VK Barnawal, while addressing the farmers highlighted that the changing climate scenario specially temperature and rainfall pattern influenced emergence vectors and viruses in many crops including chilli. He also cautioned farmers on the misuse and abuse of chemical pesticides that trigger the upsurge of insect vectors. Dr Amalendu Ghosh explained that the whitefly is responsible for the spread of leaf curl in chilli. He also emphasised to use botanicals, bio-agents, barrier crops, yellow sticky traps in the successful management of whitefly. He explained at length on the selection pressure and development of resistance due to faulty application/misuse/abuse of chemical pesticides leading to resurgence of whitefly. Dr (Mrs.) Swati Saha informed the farmers about the lack of resistance in chilli varieties against leaf curl disease. Dr Narayn Bhat outlined IPM in chilli and Dr Tripathy discussed management approaches against chilli leafcurl. Dr Bikash Mandal informed the farmers that the disease is caused by begomovirus and testing of the chilli samples brought to Delhi previously by farmers showed the presence of chilli leaf curl virus. He also informed based on

the recently published research work that some begomoviruses are seed transmitted. He also clarified many queries raised by the farmers and officials during the interface.

During the survey, it was observed that at Wani, the leaf curl incidence was as high as cent percent and plants became unproductive in majority of the surveyed fields. The region received intermittent rain during July-October which may favour whitefly. The farmers mentioned that the whitefly population was high during the last two years.

Some of the pesticides used in the region included fipronil, deltamethrin + triazophos, acetamiprid, profenphos + cypermethrin, sulphur (thionutrin), pyroproxifen, botanical plant extract, neem oil, hexaconazole, axoxystrobin (amistar), acephate, betacyfluthrin, fenezaqin, chlorantraniliprole, spinosad, diafenthiuron, imidacloprid, thiamethoxam, ethion, no-virus, chlorothalonil, biozyes, humic acid, neemazal, multicon, GA etc. These products were mixed in various and multiple combinations at the guidance of pesticide dealers and were used indiscriminately many a times once in 3-5 days without caring for the actual requirement. This may lead to the resurgence of sucking pests including whitefly undermining the fate of beneficial insects. Some of the farmers had expressed ineffectiveness of chemical pesticides against the sucking pests. Many of the fungicides used so far were unwarranted which also added to the cost of production. Population of *Chrysoperla* and *Encarsia* were negligible possibly due to over use of pesticides. We also observed high incidence of whitefly (~50-100 whiteflies/plant) in some fields. Use of nitrogen-fertiliser was found very high to promote more vegetative growth which may lead to higher population of whitefly. the farmers admitted the uses of growth hormones which created the plants more succulent and green led to attraction of whitefly towards the crop field and multiplication at a higher rate.

Samples of leaves, fruits and whiteflies were collected from the different fields and brought to IARI, Delhi for the identification of the virus and whitefly types.

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