

MANAGEMENT OF CHILLI LEAF CURL VIRUS DISEASE THROUGH SOIL APPLICATION OF BIO-FORMULATION AND SPRAY OF A PLANT DEFENSE INDUCER

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PROBLEM AND RESEARCH GAP

Chilli (*Capsicum* spp.) is an important commercial spice and vegetable crop. Insect pest and diseases are the major constraints in chilli production. Chilli leaf curl virus (ChiLCV) disease is the most serious among the diseases and is responsible for severe yield loss. The disease spreads very rapidly and is transmitted by many species of whitefly which makes the management difficult. Most of the ChiLCV disease management practices are based on vector control through pesticides. Indiscriminate and non-judicious use of pesticides often lead to development of resistant vectors, environment pollution and pesticide residue in the produce. These problems have necessitated the search for safer and effective methods of controlling the ChiLCV disease.



ChiLCV infected plant



Whiteflies on the chilli crop

TECHNOLOGY DEVELOPED

Studies on seed treatment and six sprays with a plant growth promoting antagonistic bacterial bio-formulation (Goa Bio-2) @ 1.0%, chitosan (a plant defense inducer) @ 50ppm, insecticide (imidacloprid @ 0.03%) and other biological components was conducted. Two years of field evaluation indicated that seed treatment and spray of Goa Bio-2, chitosan recorded reduced ChiLCV disease incidence compared to control throughout the crop period. Green chilli yield of 32 to 34t/ha was recorded in Goa Bio-2, chitosan treatments which is 24 to 32 % increase compared to control.

TECHNOLOGY DEMONSTRATION

This technology was demonstrated in a larger scale under NABARD project in the state of Goa. More than 250 farmers were provided the inputs for demonstration for two consecutive years (2019 to 2021). Based on the field evaluation and considering the ease of application, soil application of Goa Bio-2 @ 1.25g/plant and four sprays of chitosan (15, 30, 45 and 60 DAP) @ 50ppm was taken up. Disease incidence and dry chilli yield were recorded from about 50 demonstrations in each year. Results of two years demonstrations indicated that 26% reduction in ChiLCV disease incidence and 25% increase in dry chilli yield in the fields where soil application of Goa Bio-2 and chitosan spray treatment compared to control. Other benefits of this technology include lesser incidence of thrips, whiteflies, aphids and other diseases the demonstration plots.



Application of Goa Bio-2



Spraying of Chitosan



Chilli fruiting in the treated plot