

Sustainable Management of Whitefly-Mediated Yellow Vein Mosaic Virus (YVMV) of Okra Crops

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One of the most significant vegetable crops grown in tropical and subtropical climates is Okra (*Abelmoschus esculentus* L.). The most damaging of the diseases that damage okra is Yellow Vein Mosaic Virus (YVMV), which frequently results in significant output losses of 50–100% when infection starts early. Begomoviruses (Geminiviridae) cause the illness, which is spread persistently through circulation by the whitefly (*Bemisia tabaci*). An integrated strategy combining resistant cultivars, vector control, cultural practices, biological control, and selected and certified insecticide use is necessary for effective management. In order to manage Yellow Vein Mosaic Disease in okra, examines the biology of the whitefly vector, disease symptoms, epidemiology, transmission mechanism, and integrated interventions.

Keywords: Okra, Vector, *Bemisia tabaci*, Control

Introduction

Okra (*Abelmoschus esculentus* L.) family; Malvaceae is commonly known as Bhindi. A essential and popular vegetable crop globally that is prized for both its economic and nutritional benefits. India is the world's top producer, and it is extensively grown across Asia and Africa. However, Yellow Vein Mosaic Virus (YVMV), one of the most economically destructive viral diseases of the crop, drastically lowers okra yield. Commercial production is still threatened by the illness, which was first documented in India at the beginning of the 20th century. Plant viral infections have no known cure, thus limiting the whitefly vector and using integrated disease management techniques are the main ways to prevent the spread of the virus.

Management of Yellow Vein Mosaic Virus (YVMV) in Okra

The main strategy for managing Yellow Vein Mosaic Virus (YVMV). The causal agent, of this disease belongs to the family *Geminiviridae* and genus *Begomovirus* in okra is to prevent the whitefly (*Bemisia tabaci*) from spreading the virus since once plants are affected, there is no cure. So, the best method is integrated disease management (IDM). Disease incidence can be decreased by using resistant or tolerant varieties, timely sowing, field sanitation, roguing (removing sick plants), and eliminating alternative weed hosts. Effective vector control is aided by routine monitoring of whitefly populations using yellow sticky traps. Whitefly



populations can be decreased by biocontrol agents such as *Lecanicillium lecanii* and *Beauveria bassiana*. when vector populations surpass the economic threshold level (ETL) use of selective and certified insecticides like imidacloprid, thiamethoxam, acetamiprid, flonicamid, or spiromesifen should be used judiciously, recommended based dose with rotation of different modes of action By using these integrated techniques, okra yield and quality are increased, disease severity is decreased, and virus dissemination is effectively minimized.

Conclusion

The most dangerous virus that restricts the production of okra is still yellow vein mosaic Viral-disease. Since the whitefly (*Bemisia tabaci*) effectively circulate the illness, vector management is essential to disease control. Prevention through integrated disease management is crucial because once plants become infected, there is no cure. The best and most environmentally friendly way to reduce disease incidence and increase okra productivity is to combine resistant cultivars, cultural methods, biological management, frequent monitoring, and certified and recommended insecticide usage.