

MID TERM REPORT

Viral disease management in vegetable crops by chemical and non chemical methods

Introduction:

Nadia district is one of the leading vegetable producing districts in the whole country. Several types of vegetables, like solanaceous, cucurbitaceous, cruciferous, malveceous vegetables are grown though out the year in all most all parts of the district. Among these group of vegetables, solanaceous, cucurbitaceous and malveceous vegetables are badly damaged by viral diseases. These viral diseases can cause severe production losses, even up to 100% crop failure. In the last few years the severity of these diseases has increased many fold in this district.

So the experiments have been designed to find out the chemical and non chemical methods of management of viral diseases in the vegetable crops for consecutive two years.

Viral disease management in cucurbitaceous vegetables:

The diseases are called mosaics because the leaves of infected plants have a mottled or mosaic pattern of light and dark green instead of the normal dark green colour. The growth of the infected plant is reduced, and it remains stunted. Leaves of infected plants may also be bubbled, distorted or very narrow in appearance. Fruits of virus infected plants are often distorted with bubbles and are unmarketable.

This virus is spread by aphids. These virus are not spread by mites, leafhoppers, white flies or other insects, soil or fruit moved from farm to farm, or through equipment. Aphids spread the mosaic viruses in a non-persistent manner. This means that the virus can be picked up by a feeding aphid on its stylet or mouthparts in only a few seconds, and then injected into the next healthy plant it feeds on in a matter of only a few seconds. Winged aphids are responsible for the bulk of the spread of the viruses up to several kilometres if wind assisted.

Treatments:

1. Seedling raising in poly packet under 60 mesh mosquito net- transplanting after 35 days in main field- use of yellow trap in the main field.(other practices are normal cultural practices).
2. Seedling raising in poly packet under 60 mesh mosquito net- transplanting after 35 days in main field.(other practices are normal cultural practices).

3. Direct sowing in the main field - seed treatment with systemic insecticide - use of yellow trap in the main field.(other practices are normal cultural practices).
4. Direct sowing in the main field - use of yellow trap in the main field.(other practices are normal cultural practices).
5. Control (Direct sowing in the main field other practices are normal cultural practices).

Parameters for observation:

1. Time required for disease expression.
2. Percent disease infection
3. Crop growth
4. Fruit yield

Plot size:

3m X 5m

Crops under experiment:

1. Cucumber
2. Bitter gourd

Status of experiment:

Seeds of both the crops were sown in the main field on 29.03.2017. Seedlings for treatment number 1 and 2 are ready in the poly packet and yet to be sown in the main field.



Viral disease management in solanaceous vegetables:

Some solanaceous vegetables are also badly damaged by the leaf curl virus. Among the common vegetables tomato, eggplant, potato and chilli get infected by the viral disease. The infected plant show stunted appearance, the new growth of plant parts has reduced internodes, the new leaves are also greatly reduced in size and wrinkled. The leaves show yellow-green mottled appearance. Margins of the leaves curl upward, giving them a boat-like appearance. Flowers appear but usually drop before fruit is set.

The virus is primarily transmitted by the whitefly (*Bemisia tabaci*). These whiteflies can acquire the virus within 5 minutes of feeding on infected plants, and the insect remain infective for whole life. The disease can spread by movement of infected plant material or by wind dispersal of whiteflies harbouring the virus, it cannot be spread by seed, equipments or other means.

Treatments:

1. Seedling raising in plug tray under 60 mesh mosquito net- transplanting after 35 days in main field- use of yellow trap in the main field.(other practices are normal cultural practices).
2. Seedling raising in plug tray under 60 mesh mosquito net- transplanting after 35 days in main field.(other practices are normal cultural practices).
3. Sowing in the nursery bed - seed treatment with systemic insecticide - use of yellow trap in the main field.(other practices are normal cultural practices).
4. Sowing in the nursery bed - use of yellow trap in the main field. (other practices are normal cultural practices).
5. Control (Sowing in the nursery bed other practices are normal cultural practices).

Parameters for observation:

1. Time required for disease expression.
2. Percent disease infection
3. Crop growth
4. Fruit yield

Plot size:

3m X 3m

Crops under experiment:

1. Tomato

Status of experiment:

The experiment has just been completed. The results are yet to be analysed. More than 500 farmers visited the experimental plots during their exposure visit. One TV programme was telecast for the dissemination of the technology.



Mid Term Report

Prevention of Mortality of Strawberry Seedlings through modification of planting media and micro climate

Introduction:

Nadia Krishi Vigyan Kendra is designed to impart need-based and skill-oriented vocational training to the practicing farmers, in-service field level extension workers and the rural youths who wish to go in for self-employment. This KVK is vested with the responsibilities to bring forth agricultural vis-à-vis rural development in Nadia through its mandated activities on training, front line demonstrations and on farm testing etc. In a sense, this KVK has been conceived to perform as a lighthouse for the farming community of the district. Nadia KVK is having a motto to disseminate the newer technologies at the door step of stakeholders and to enrich their knowledge regarding the scientific cultivation for their socio-economic improvement. Nadia KVK has been established to identify the problems in the adopted villages through PRA and prepare its thrust area. Nadia KVK also addresses to the problems of local farming community with the Zilla Parishad, District Administration and other related line departments for integrated development of the operational area.

Nadia District, situated in New Alluvial Zone of West Bengal, is blessed with its natural resources. It has plenty of irrigation facilities (more than 80%), good soil health, progressive farmers and communication facilities, Apart from that it is very nearer to metropolis.

The farmers of this District produce all the crops possible to grow from food, fodder, fruits, fibers and flowers. The farmers of this area are very much progressive and interested to introduce new produces in the market. In this respect Strawberry cultivation may be a new introduction and it can enhance the profitability of the farmers.

Keeping the diversification and better return from agriculture in mind, popularization of fruit plants like Strawberry in rural sector, especially among the rural youths has great importance and relevance.

Objective:

1. To maintain the seedlings of Strawberry for the next year to reduce the production cost.
2. To build the capacity of the growers for strawberry seedling management.
3. To augment the area of Strawberry cultivation in the district.

Fund released: 2,98,000.00 (Rupees two lakh ninety eight thousand only)

Outcome:

Strawberry has an inherent character of producing lots of seedlings through runners, and it can be a profitable business for the rural youths. But the main problem faced by the farmers is - higher rate of seedling mortality of strawberry. This is due to use of unsuitable media and higher temperature.

Through this project namely “Prevention of Mortality of Strawberry Seedlings through modification of planting media and micro climate” we tried to reduce the mortality rate, make the nursery business profitable and also reduce the production cost.

There are eight varieties namely Sweet Charley, Winterdawn, Barak, Gili, Subrina, Subrina-I, Cristal and Hadar were planted in three different treatments

- (1) Planting with plastic mulch and drip irrigation
- (2) Planting with **ground cover** and drip irrigation
- (3) Planting without any mulch



Plastic mulch



Ground cover

In the first season, average yield per plant obtained was 450 g with average fruit weight of 35 g. 12 runners were observed per plant out of which 7 rooted saplings could be transferred into pot.

For keeping the potted saplings for the next season, three different types of shades were constructed

- (1) Roof made of Earthen Tiles
- (2) Roof made of Paddy straw
- (3) Roof made of 50% shade net



Planting materials have been transferred into three different types of shades to observe their rate of survival.

Direct Impact of the Project : Since planting of the Strawberry seedlings efforts are made to expose the farmers of the district with the newly introduced crop with micro-irrigation system. Till date, 550 farmers from Nadia and adjacent district put their foot print in the field. Apart from that a special exposure visit was organized for the 20 leading farmers of the district.

E TV Bangla gave an extensive coverage of the project in two different programmes of Annadata.



