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| **Activity 1.4 .Host range of TSV and Epidemiology of SND****Host range and Epidemiology:**Through sap inoculation technique several crop plants, weeds were tested and found the virus had a very wide host range .Out of 32 plants of 17 families tested 21 plants of 11 families were found infective to the TSV . The important among the crop plants are - groundnut, cowpea, soybean, ridge gourd, bitter gourd, cluster bean, tomato, amaranthus, *chrysanthemum* etc. Among the weeds, species of *Azeratum, Commelina, Achiranthus aspera Euphorbia hista,* *showed local lesions* and *on Parthenium* *hysterophorus* though no local lesions were seen but it had reacted highly positive to SFNV antisera and found as major source of inoculum in harbouring and spreading of the disease. The host range of the virus causing SND was restricted to the members of Asteraceae, Chenopodiaceae, Cucurbitaceae, Leguminaceae, Malvaceae and Solanaceae tested. The virus under study could not infect the members of Cruciferae and Pedaliaceae. The host range reaction of the virus infecting sunflower is quite similar to that of groundnut in India (Reddy *et al.*, 2002; Prasada Rao *et al.*, 2003a ;Vemana and Jain, 2010), soybean in Brazil (Almeida *et al.*, 2005) and lettuce in Iran (Abtahi and Motlagh, 2009). The plant species *C. annum*, *L. esculentum, N. benthamiana* and *S. melongena* were not infected,) who reported that sunflower necrosis virus failed to infect the members of Solanaceae. Further, *C. sativus, P. sativum* and *R. sativus* were not infected, *N. tabacum* var. Samsun produced characteristic symptom such as white ring like pattern and oak leaf pattern Out of 43 plant species tested, only 10 plant species did not show any symptom when back inoculated on assay host, cowpea cv. C-152. This is further confirmed by DAC-ELISA using polyclonal antiserum of TSV. The plant species (33) which showed visible symptoms after sap inoculation tested positive for the virus when back inoculated on assay host, cowpea cv. C-152 and in DAC-ELISA Usually the disease incidence is found to be high in *kharif* and rabi-summer crops. The vegetative crop stage followed by flowering stage was found to be more vulnerable to the disease. The weather parameters compared with occurrence of the disease and the population of thrips indicated, highest disease incidence and maximum thrips population during prolonged dry periods immediately after heavy rains. Experiments on monthly sowings recorded highest disease incidence during July-September and January- March months .Whereas, during October-December the disease incidence was very less **Overall correlation matrix of SND with weather parameters in sunflower cv. Morden**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Temp. (max)  | Temp. (min)  | RH I  (%)  | RH II (%)  | Rainfall (mm)  | Sunshine (h)  | Windspeed (km/h)  | Per cent SND  |
| Temp. (max)  | 1.0000  | 0.3401  | -0.3902  | -0.3742  | -0.0652  |  0.3766  |  0.1267  | 0.1138  |
| Temp. (min)  |  | 1.0000  |  0.2580  |  0.6119  |  0.5166  | -0.6604  |  0.4992  | 0.6031\*\*  |
| RH I (%)  |  |  |  1.0000  |  0.5985  |  0.4688  | -0.4284  | -0.2110  | 0.2442  |
| RH II (%)  |  |  |  |  1.0000  |  0.6481  | -0.7936  |  0.2289  | 0.5107\*\*  |
| Rainfall(mm)  |  |  |  |  | 1.0000  | -0.5374  |  0.0584  | 0.5726\*\*  |
| Sunshine (h)  |  |  |  |  |  | 1.0000  | -0.5063  | -0.5323\*\*  |
| Windspeed (km/h)  |  |  |  |  |  |  | 1.0000  | 0.2988\*  |
| Per cent SND  |  |  |  |  |  |  |  | 1.0000  |

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