Choice of Planting time

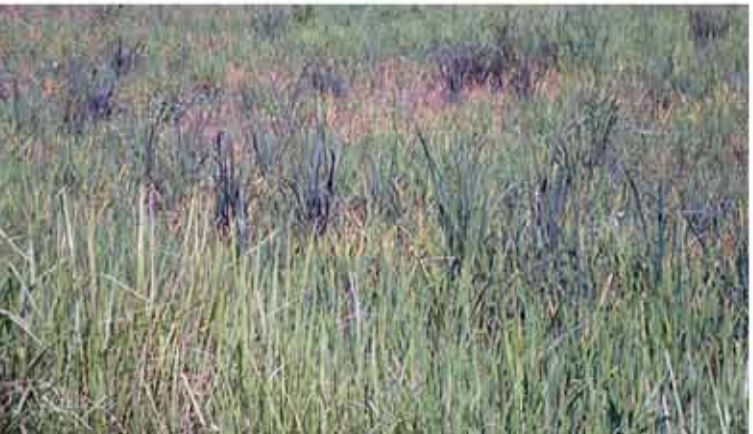
Planting of synchrony of large contiguous area reduces population of vector insects and sources of inoculum. It is also timed the insect population was at its lowest.

Frequency of Planting

Having several cropping in a year sustain the availability of food for the insects and inoculum sources. Fallow periods of at least 1 month between each cropping help reduce insects and diseased plants population.

Use of insecticides

Timing of insecticide application is the best factor that reduces the leaf hopper population. Several insecticides are able to control leafhoppers but should not be used repeatedly over long periods to maintain the population of the natural enemies. Remove infected plants at the early stage of disease development. It can be burn or buried. When done late, it helps in the spread of the disease by disturbing the insects.



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MANAGEMENT OF RICE TUNGRO VIRUS

Department of Agriculture
BUREAU OF PLANT INDUSTRY
CROP PROTECTION DIVISION

Rice Tungro Virus (RTV)

Vectored by Green Leafhoppers

It is one of the most widely distributed and most destructive rice diseases in tropical Asia. It is transmitted by leafhoppers, the most important is the green leafhopper *Nephotetix virescens*. The disease is presently associated with two distinct viruses, the rice tungro baciliform virus (RTBV and the rice spherical virus (RTSV). RTBV alone is not transmissible and needs the presence of RTSV for its transmission by the insect vector. RTSV alone is transmissible.

SYMPTOMS ON RICE PLANT

In general, the characteristic symptoms of rice tungro are the stunting of the plants and leaf discoloration to yellow and yellow orange, however, the symptoms vary according to the virus that infects the plant. RTSV infected plant do not show any discernible symptoms while those infected with RTBV alone show mild stunting and leaf yellowing. RTBV + RTSV infected plant shows severe stunting and leaf yellowing. Yield loss is high when plant are infected at young age with both viruses while RTSV-alone infection caused very minimal yield loss.

Tungro symptom on rice plant

Vector leafhoppers

DISEASE EPIDEMIOLOGY

The tungro virus is transmitted by the vector leafhoppers only. The insect must acquire the virus repeatedly from infected plants to be continuously infective. However, the viruses are loss by the insects after repeated feedings on healthy plants and by the nymphs after molting. Young plants are more susceptible to infection. Symptoms are expressed by the plants 1-2 weeks after inoculation. Primary infection is usually due to adult leafhoppers migrating to the field from neighboring fields with infection. In three weeks time, the infection spread to the surrounding rice hills by the adults and mostly by the nymphs that emerged from the eggs laid by the migrants. Within 6 weeks after the initial infection, more plants are being infected resulting to fast spread of the disease especially in susceptible varieties.

DISEASE MANAGEMENT

Plant resistant varieties:

The choice of variety starts before planting season based on the occurrence of the disease during the previous cropping. Resistant varieties delay the disease development thereby reducing yield loss and sources of infection.