

EPIDEMIOLOGY AND CONTROL OF COWPEA MOSAIC IN WESTERN NIGERIA

R. M. Gilmer, W. K. Whitney and R. J. Williams

International Institute of Tropical Agriculture, Ibadan, Nigeria.

A B S T R A C T

Cowpea mosaic is a serious virus disease of cowpea in the Ibadan area. Disease incidence may reach 80% at harvest. The disease also occurs in soybean, sword bean, Mexican yam bean, and lima bean. Two well-defined disease syndromes occur in cowpea: a bright yellow fleck or mosaic (YF type) and a green mottle with leaf distortion and puckering (GB type). GB type isolates are generally more injurious than YF type isolates, but the two are closely related serologically to each other and to a CPMV isolate from Arkansas, USA.

Economic injury to cowpea depends on three factors: virus isolate, tolerance of the infected cowpea cultivar, and most important, age of the host plant at time of infection. Early infections (7 days after emergence) reduce yields by 40-60% but late infections (after flowering) cause reductions of only 5-10%.

The virus is transmitted through seeds from infected plants (about 1-5%) and such infections appear to supply inoculum for secondary spread in the field. In addition to the known vector, Oothea mutabilis several new vectors have recently been identified: two beetles, Luperodes lineata and Nematocerus acerbus, the grasshoppers Zonocerus variegatus and Catantops spissus, and the thrips Sericothrips occipitalis and Taeniothrips sjostedti.

The most feasible means of control of the disease is the use of host immunity, present in several cowpea cultivars. Preliminary data indicate that more than one recessive gene is involved. Breeding programs will be complicated, to some extent, by differences in pathogenicity of virus isolates.