DEVELOPMENT OF CASSAVA BROWN STREAK DISEASE AMONG SELECTED CASSAVA GENOTYPES AS INFLUENCED BY AMOUNT OF STARTING INOCULA AND LEVEL OF HOST TOLERANCE

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ABSTRACT

Cassava brown streak disease (CBSD) is a major threat to cassava production in Uganda and the coastal areas of eastern Africa. The disease is caused by two *ipomovirus* species; *Cassava brown streak virus* (CBSV) and *Ugandan cassava brown streak virus* (UCBSV) that are transmitted by the whitefly vector (*Bemisia tabaci*) and disseminated by man through the use of infected cuttings. To understand the effect of the prevailing disease pressure, genotype and within-field inoculum level on the incidence and development of CBSD, studies were conducted in three locations (Namulonge, Kamuli and Lira) of apparently varying CBSD pressure. Five commonly grown cassava genotypes were planted at three locations in Uganda.

The genotypes used were: TME 204 (susceptible), I92/0067, MH 97/2961 and MH 96/0686 (moderately tolerant), NASE 3 (tolerant). Significant differences were observed in CBSD spread among the locations and genotype. In Lira, where CBSD pressure is low, there was no noticeable spread while in Namulonge and Kamuli where disease pressure is high and moderate respectively, final disease incidence was maximum (100%) in I92/0067, TME 204 and MH 97/2961. CBSD incidence on the tolerant variety was significantly lower (≤ 5%) than on the susceptible and moderately tolerant varieties.

Whitefly populations differed with crop age with peak populations occurring at 2 – 4 months after planting and declined thereafter. Whitefly populations significantly varied with location (P=0.001).

Four levels of CBSD within-field inoculum (0%, 5%, 15% and 30%) for three genotypes were used to assess the significance of inoculum level on the development of CBSD. Initial inoculum levels affected subsequent development of CBSD. In the first season, infection from outside xiii

sources was very high in Kamuli and low in Lira. In the second season however, infection from outside sources was generally high across all locations.

It is deduced that for areas with low CBSD pressure (Lira), it is practically possible to check the spread of disease through judicious use of sanitary measures, while in the hot spot areas deployment of resistance is the best option in reducing spread hence losses due to CBSD.