

PLANT NUTRITION OPTIMALIZATION FOR STABILITY OF RED PEPPER PRODUCTIVITY IN PEPPER YELLOW LEAF CURL VIRUS ENDEMIC AREA

A. Nur Aeni Ariyanti¹, B. Endang Sulistyarningsih², C. Sedyo Hartono²

¹State University of Yogyakarta, Colombo street, Sleman, Indonesia, aeni_pranowo@yahoo.com, +6281578077549, (0274)542185.

²Gadjah Mada University, Kaliurang, Sleman, Indonesia, endangsih@yahoo.com, sedyo@faperta.ugm.ac.id, +6285878548282, +628121593873.

Production of red pepper in Indonesia decreased from 12-13 t/ha to 5-6 t/ha because of Pepper yellow leaf curl disease. The disease is caused by virus which is called Pepper yellow leaf curl virus (PYLCV). This virus belongs to Geminivirus group and is transmitted by an insect vector called *Bemisia tabaci*. One of possibility methods in stabilizing and increasing of red pepper production is increment of plant body defend to the virus infection. Developing plant body defend can be supported by nutrition management optimally. The aims of this research are to study the effect of foliar and inorganic fertilizer on percentage of plant infected by PYLCV and the effect of infection this disease on productivity of red pepper plants. The research was conducted in red pepper plantation in Magelang district, Central Java province from April to September 2006. The experimental design was split plot which foliar fertilizer treatment as a main plot (with and without foliar fertilizer) and dosages of inorganic fertilizers treatments as a sub plot (105 N : 124,5 P : 202,5K kg/ha, 142,5 N : 159 P : 279 K kg/ha, and 180 N : 193,5 P : 355,5 K kg/ha). These treatments were replicated in three blocks.

The results showed that infection by PYLCV could reduce lamina length, chlorophyll b content and increased chlorophyll a/b ratio. Application of inorganic fertilizer recommended by Agriculture Department of Magelang District and dosage used by farmers could not reduce percentage of plants infected by PYLCV. At eight weeks after planting, 50% plant on all treatment showing the symptoms of PYLCV. The highest dosage of inorganic fertilizer could not stabilize pepper plants productivity in the endemic area (5.5 t/ha) because the yield on each treatment only 3,56 t/ha, 4,91 t/ha and 5,5 t/ha. Pepper plants infected in generative phase could reduce productivity up to 50%. Application of inorganic fertilizers used by farmers could not hinder plants from virus infection and could not stabilize productivity of red pepper fruit in endemic area. Moreover, the infection of PYLCV increased chlorophyll a/b ratio of pepper plants.

Key Words : *virus, plant nutrition, productivity*

