Effect of Different Pesticides on Incidence of Mungbean Yellow Mosaic Virus Incidence

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SUMMARY

Six different insecticides namely Dimethoate (Rogor @ 2ml/l), Imidacloprid (Confidor @ 0.25ml/l) Thiomethoxam (Ektara @ 0.25ml/l), Azadarachtin (Econeem @1.5 ml/l) Monocrotophos (1.5ml/l) and Chlorpyriphos (@ 2 ml/l tried against white fly that acts as vector of the virus causing MYMV in both *Pre kharif* and *Post kharif* season of 2006. Among the insecticides Imidacloroprid reduced the disease to a maximum extent having treatment efficiency of 81% and per cent reduction in disease of 44.85% at 60 DAS. Similar result was also evident during *post kharif* season with 72.32% treatment efficiency and per cent reduction in disease of 41.97% at 60 DAS. Imidacloprid insecticide from alheomicotinamyle group was found to be most effective, thus replacing the ever used Monocrotophos facing restrictions for use in agriculture. Imidacloprid @1ml/4l of water may be used by virtue of its lower dose and ecologically safe characters. No significant difference exists between Monocrotophos and Thiomethoxam in terms of disease reaction at any stage of development and thus Thiomethoxam also has the potentiality to replace Monocrotophos. During *pre* and *post-kharif* seasons a strong correlation was found between AUDPC and yield of the crop, giving co-relation coefficient of 0.8 and 0.9, respectively during *pre* and *post kharif* seasons.

Key words : Mung bean, Insecticides, MYMV, White fly

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Pluses play an equally important role in rainfed and irrigated agriculture by improving physical, chemical and biological properties of soil and are considered excellent crops for natural resource management, environmental security, crop diversification and consequently for viable agriculture. Despite being the largest producer in the world, India is in short supply of pulse. During 2004-05, the pulse production in the country was 13.38 million tonnes from 22.47 million hectares (Ali and Kumar, 2006). This is below the domestic requirement leading to import of pulses to the tune of 1.47 millions tonnes. Among the pulse crops, mungbean [*Vigna radiata* (L.) Wilczek], commonly known as green gram, has been cultivated in India since time immemorial in almost all the states and occupies about 3.08 mha with an annual production of 1.31 mt and productivity of 4.25 q/ha (Asthana and Chaturvedi, 1999). Among several fungal, bacterial and viral diseases that attack different parts of mungbean plant, major ones are: Cercospora leaf spot, Anthracnose, Powdery mildew, Web blight, Bacterial leaf spot and yellow mosaic virus (YMV). Cercospora leaf spot disease has a devastating potential in mungbean and urdbean. About 12 viral diseases have been reported from mungbean and urdbean. Yellow mosaic disease of mungbean is the most serious disease and the main constraint in increasing the production of this crop. The disease was reported from India in 1955 on mungbean (Nariani, 1960). It has potential to inflict 100% damage to this crop (Nene, 1972). It is incited by mungbean yellow mosaic virus (MYMV), which is a whitefly transmitted geminivirus. Management of MYMV through chemical means is not possible directly. As such reduction in the white fly population would in turn, reduce MYMV infection. Ambithion, Phoxin, Malathion, non-systemic insecticides and monocrotophos, a systemic insecticide were the most effective (Singh and Bhan, 1998). There might be several spraying schedules to manage the vector with the objective to minimize the virus transmission and yield loss. Three sprays of Anthio 0.2% (Chenulu *et al.*, 1979), three sprays of monocrotophos (0.25 kg a.i./ha) at 10 days interval from 15 DAS; aldicarb alone or in combination with endosulfan or captan were effective (Yein *et al.*, 1982); a combination of aureofungin (0.003%) and phosphomidon 0.25 kg a.i./ha (Ahmed and Gane, 1982) were also reported to be effective.

Neem products were assessed for efficacy against MYMV in urdbean [*Vigna*