

ASSESSMENT OF YIELD LOSS DUE TO YELLOW MOSAIC OF MOTHBEAN

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Moth bean [*Vigna aconitifolia* (Jacq.) Marechal] grown extensively in the arid and semi-arid areas of Rajasthan, has been observed to be severely affected by yellow mosaic transmitted by the whitefly (*Bemisia tabaci* Genn.) (Rathore 1982). The present study was undertaken to estimate loss in yield due to yellow mosaic at the research farm, SKN College of Agriculture, Jobner. A system of rating the disease severity based on number of infected leaves of a plant was used. For this, total number of leaves and number of infected leaves of a plant were counted and from this, percentage of infected leaves were calculated. Based on this, 11 categories were formed having 0% (completely healthy plant), 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90% and 100% severity respectively. Ninety days after sowing, three plants in each category were tagged and harvested on maturity. Yield contributing characters such as number of pods per plant and yield of grain per plant were recorded and subjected to standard statistical analysis.

The per cent loss in yield was calculated by the following formula :

$$Q = \frac{a-b}{a} \times 100$$

Where, Q = per cent yield loss

a = Average yield from a healthy plant

b = Average yield from a diseased plant

The mean number of pods per plant (Table 1) reduced progressively from 70.3 in zero per cent disease severity to 10.6 pods/plant at 100 per cent disease severity. Similarly the significant differences were noted in yields/plant at different disease intensity percentages. The mean yield progressively reduced from 7.4 g/plant at zero per cent disease severity to 1.2 g/plant at 100 per cent disease severity. The correlation coefficient ($r = -0.9$) between disease severity and mean number of pods was highly significant. Similarly the correlation coefficient ($r = -0.95$) value between disease severity and mean yields/plant was highly significant.

The per cent loss in yield/plant increased progressively from 36.3 at 10 per cent disease severity to 83.3 at 100 per cent disease severity based upon no loss at zero per cent disease intensity. Singh et al. (1971) observed a reduction in yield due to yellow

Table 1. Assessment of losses in yield of moth at different severity levels due to yellow mosaic

Disease severity percentage	Average number of pods/plant	Average yield g/plant	Yield loss %
9	70.3	7.4	0.0
10	48.6	4.7	36.3
20	43.3	4.5	38.6
30	38.3	4.1	44.1
40	35.0	3.6	50.7
50	30.3	3.3	55.2
60	27.6	3.0	59.2
70	22.0	2.6	64.0
80	18.0	2.1	70.5
90	13.3	1.5	79.0
100	10.6	1.2	83.5

mosaic in soybean from 21 to 61 per cent. Nair and Nene (1974) found complete loss of seed yield in yellow mosaic *Urd* bean plants infected upto three weeks old stage and observed that the extent of loss depended upon the stage of infection. In systemically infected plants of *Phaseolus mungo* var. UPU-2 83% loss in yield was observed by Agarwal et al. (1977). In the present studies also it has been observed that plant infected in early stages showed high disease severity and correspondingly low yield.

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