

Integrated Weed Management in Maize (*Zea mays* L.) and Maize+Blackgram

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Maize is one of the most important cereal crops in many parts of the world as well as in India. There are various causes of low productivity of maize and severe weed infestation is one of the major ones. The extent of losses caused by weeds depends on the nature of crop, density of weeds, type of weed species and fertility status of soil. The growth rate of maize in its early stage is rather slow which helps weeds to offer effective competition. The extent of losses due to infestation of weeds in maize crop has been found to be 29 to 74% (Mani *et al.*, 1968). Manual weeding is tedious, time consuming and expensive. However, in view of these facts, it is necessary to develop integrated weed management practices involving manual methods, intercropping and low rates of herbicides, which may provide broad spectrum weed control in maize without any residual toxicity in the succeeding crop with low cost (Pandey and Ved Prakash, 2003; Meyyappan and Kathiresan, 2005).

A field experiment was conducted during the year 2001-02 at Oilseed Research Farm of Chandra Shekhar Azad University of Agriculture & Technology, Kanpur. Experiment consisted of 10 treatments viz., weedy check (T₁), manual weeding twice (15 and 30

DAS) (T₂), intercropping of blackgram with maize (T₃), application of pendimethalin 1.0 kg/ha pre-emergence in blackgram intercropping with maize (T₄), intercropping of blackgram with maize followed by manual weeding at 15 DAS (T₅), sole maize followed by inter-cultivation at 20 DAS (T₆), sole maize followed by inter-cultivation at 20 and 30 DAS (T₇), sole maize followed by inter-cultivation and removal of weeds from intra-spaces (T₈), sole maize followed by atrazine (0.75 kg/ha) (T₉) and sole maize followed by atrazine (0.5 kg/ha)+manual weeding once (T₁₀), with three replications in a randomized block design. Maize variety 'Azad Uttam' and blackgram variety 'T-9' were used in this investigation. Maize crop was spaced with row spacing of 60 cm using a seed rate of 15 kg/ha. Observations recorded on weed control efficiency, length of cobs, test weight and grain yield were analysed statistically.

Among the 10 treatments, the highest weed control efficiency was found in T₂ (manual weeding twice i. e. 15 and 30 DAS) and it was at par with T₁₀ (sole maize followed by atrazine 0.5 kg/ha+manual weeding once at 15 DAS), while lowest weed control efficiency was associated with T₁ (weedy check) followed by T₄ (application of pendimethalin 1.0 kg/ha

Table 1. Weed control efficiency, length of cob, test weight and grain yield as influenced by integrated weed management practices

Treatment	WCE (%)	Length of cob (cm)	Test weight (g/100 grains)	Grain yield (q/ha)
T ₁	0.00	16.47	21.03	20.51
T ₂	70.90	17.29	21.09	32.30
T ₃	40.12	16.79	18.23	21.61 (6.76)
T ₄	31.30	15.50	18.76	23.26 (9.91)
T ₅	43.80	16.04	20.22	23.41 (7.39)
T ₆	40.05	15.75	19.66	24.12
T ₇	50.72	16.88	20.31	27.79
T ₈	57.37	16.84	20.46	28.75
T ₉	43.46	16.82	20.10	26.51
T ₁₀	64.14	17.03	20.62	31.46
S. Em±	3.69	0.37	0.91	1.01
LSD (P=0.05)	7.66	0.78	1.92	2.13

Grain yield of blackgram is given in parentheses.

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pre-emergence in blackgram intercropping with maize (Table 1). Significantly highest length of cob was observed in T₂ (manual weeding twice i. e. 15 and 30 DAS). The highest length of cob under T₂ treatment was probably due to higher weed control efficiency and that is why maize from such treatment took more nutrition resulting in longer cobs. Test weight (21.09 g/100 seeds) and grain yield of maize (32.30 q/ha) were also significantly higher in T₂ as compared to other treatments. This was due to highest weed control efficiency (70.90%). Among the various treatments in maize+blackgram intercropping system, significantly highest WCE, test weight and grain yield were found in T₅ (intercropping of blackgram with maize followed by manual weeding at 15 DAS). However, highest cob

length of maize and grain yield of blackgram in intercropping system were found in T₃ and T₄, respectively.

REFERENCES

- Mani, V. S., K. C. Gautam and T. K. Chakraborty, 1968. Losses in crop yield in India due to weed growth. *PANS* **14** : 142-158.
- Meyyappan, M. and R. M. Kathiresan, 2005. Integrated weed management in maize+blackgram intercropping system. *Ind. J. Weed Sci.* **37** : 209-211.
- Pandey, A. K. and Ved Prakash, 2003. Weed management in maize and soybean intercropping system. *Ind. J. Weed Sci.* **34** : 58-62.