

## Performance of Weed Control Treatments in Mungbean Under Different Sowing Methods

R. S. Malik, Ashok Yadav, R. K. Malik and Sher Singh

Department of Agronomy

CCS Haryana Agricultural University, Hisar-125 004 (Haryana), India

Carpetweed (*Trianthema portulacastrum* Linn.) and barnyard grass (*Echinochloa colona* Link.) are important weeds infesting mungbean besides few other **kharif** season weeds like Makra (*Dactyloctenium aegyptium*), Kondra (*Digera arvensis*) and *Cyperus rotundus*. Season long weed competition in mungbean and urdbean [*Vigna radiata* (L.) Hepper] culminates yield reduction to an extent of 40-71% (Balyan, 1985; Jaglan and Pahuja, 1992). Difference in sowing methods may be expected to provide different growing micro-environment reflecting difference in weed competition and crop growth. Keeping these views in mind, the present investigation was planned to compare the performance of weed control treatments under furrow irrigated raised bed system (FIRBS) and conventional sowing.

A field experiment was conducted at Research Farm of Chaudhary Charan Singh Haryana Agricultural University, Hisar, India, during **kharif** seasons of 2002 and 2003. The soil of the experimental field was sandy loam in texture, medium in fertility with slightly alkaline in reaction (pH 7.9). Treatments included two sowing methods and five weed control treatments (Table 1). Experiment was laid out in two factorial randomized block design with four replications. Mungbean variety Asha with seed rate of 15 kg ha<sup>-1</sup> was sown on June 26 during 2002 and June 23 during 2003. Under FIRBS, two rows of mungbean (30 cm apart) were raised on the top of beds and 30 cm row-to-row spacing was maintained under CT. Pendimethalin was applied pre-emergence (just after sowing) with a knapsack sprayer fitted with flat fan nozzle using 650 l of water ha<sup>-1</sup>.

*Trianthema portulacastrum* (70%) and *Echinochloa colona* (20%) with miscellaneous weeds (10%) infested the experimental field. Density

and dry weight of weeds were not affected due to sowing methods (Table 1). The maximum reduction in density and dry weight of weeds was achieved due to two hand weeding (25 and 45 DAS), which was significantly better than pendimethalin fb one hoeing during 2002 but at par during 2003. Two mechanical hoeings though reduced the density and dry weight of weeds significantly compared to weedy check but it was inferior to all other weed control treatments during both the years of investigation (Table 1).

Sowing methods did not affect the crop performance. Pendimethalin 1.5 kg ha<sup>-1</sup> with one hand hoeing proved superior in producing dry matter accumulation by crop at 60 DAS compared to two mechanical hoeings and two hand weeding. Dry matter accumulation at 60 DAS and number of pods/plant being similar between the treatments of two mechanical hoeings and two hand weeding were statistically lower than pendimethalin fb one hoeing and weed-free check; however, pendimethalin fb one hand hoeing was similar to weed-free check in these respects. Plant height was statistically similar under different weed control practices (Table 1). Maximum seed yield of mungbean (1947 and 1870 kg ha<sup>-1</sup>) was attained under weed-free treatment, which was statistically at par with pendimethalin fb one hand hoeing (1779 and 1727 kg ha<sup>-1</sup>) and two HW (1785 and 1561 kg ha<sup>-1</sup>) during respective years.

### REFERENCES

- Balyan, R. S. 1985. Studies on the biology and competitive behaviour of carpetweed (*T. portulacastrum*). Ph. D. thesis, CCS Haryana Agricultural University, Hisar.
- Jaglan, R. K. and S. S. Pahuja, 1992. Effect of weed control and crop geometry on yield and yield attributing characters of blackgram (*V. mungo* L.) cultivars. Abstracts Annual Meeting of ISWS held at H. A. U., Hisar (1992). pp. 76.

Table 1. Effect of weed control treatments on weeds and crop

Treatment	Weed population (No. m <sup>-2</sup> ) 60 DAS		Dry weight of weeds (g m <sup>-2</sup> ) 60 DAS		Dry matter production/ plant 60 DAS		No. of pods/ plant		Seed yield (kg ha <sup>-1</sup> )	
	2002	2003	2002	2003	2002	2003	2002	2003	2002	2003
<b>Sowing methods</b>										
Conventional tillage	23.2	28.7	33.7	40.8	22.3	20.9	22.2	24.4	1611	1461
Furrow irrigated raised bed system	22.1	27.6	32.8	40.0	22.2	22.1	23.6	22.0	1579	1459
LSD (P=0.05)	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
<b>Weed control</b>										
Pendimethalin 1.5 kg h <sup>-1</sup> +hoeing 45 DAS	5.5	6.9	10.5	12.4	24.3	23.5	25.0	24.8	1779	1727
Hoeings 25 and 45 DAS	18.3	23.1	20.9	26.8	21.5	20.8	22.8	22.4	1542	1323
Two hand weedings 25 and 45 DAS	4.9	6.0	8.0	9.5	22.3	21.6	23.7	24.8	1785	1561
Weedy	84.5	104.8	126.9	153.1	18.8	17.5	16.0	17.6	920	821
Weed-free	0.0	0.0	0.0	0.0	24.6	24.8	26.6	26.5	1947	1870
LSD (P=0.05)	2.7	3.2	4.3	6.7	1.9	1.6	1.9	2.4	166	359