

**Effect of Varying Density of *Cyperus rotundus*, *Echinochloa colona* and *Trianthema portulacastrum* on Mungbean**

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Depending upon growth behaviour, various crops differ in their competitiveness against weeds. In general, short statured crops including mungbean are poor competitor with weeds because of simultaneous emergence of weeds with crop seedlings. However, for making sound weed management decisions, it is very important to generate data regarding impact of weeds at different population levels on the yield reduction of a crop. This will help to avoid the use of herbicides and decrease environmental pollution. This can be achieved by studying the relationship between weed density and mungbean yield. Such studies have earlier been conducted by Poole and Gill (1987) in wheat. Keeping this in view, present investigation was undertaken to assess the yield loss of mungbean at varying population density of

three important weeds viz., *Trianthema portulacastrum*, *Echinochloa colona* and *Cyperus rotundus*.

A field experiment was conducted during **kharif** 2002 at Agronomy Research Area of CCS Haryana Agricultural University, Hisar. The soil was sandy loam in texture, low in organic matter and nitrogen, medium in phosphorus and high in potash content. Population of 10, 20, 40, 80 and 160 plants m<sup>-2</sup> of each of the three weeds were maintained in separate plots. One treatment of weed-free was kept for comparison and weeds in weed-free check were removed as and when emerged. The experiment was laid out in randomized block design with 16 treatments replicated thrice. Mungbean cv. Asha was drilled on July 10, 2002 at a row spacing of 30 cm and

Table 1. Shoot dry weight and seed yield of mungbean as influenced by density of different weeds

Weed density (No. m <sup>-2</sup> )	Shoot dry weight (g plant <sup>-1</sup> )	Seed yield (kg ha <sup>-1</sup> )	Yield loss (%)
<b><i>Cyperus rotundus</i></b>			
10	23.4	1902	9.8
20	20.1	1812	14.1
40	18.8	1712	18.8
80	17.7	1619	23.2
160	16.8	1488	29.5
<b><i>Echinochloa colona</i></b>			
10	23.6	1994	5.5
20	21.1	1849	12.2
40	19.0	1752	16.9
80	18.0	1637	22.4
160	16.2	1614	23.5
<b><i>Trianthema portulacastrum</i></b>			
10	20.8	1798	14.8
20	16.4	1501	28.8
40	15.9	1420	32.7
80	13.9	1332	36.9
160	12.7	1144	45.8
Weed-free	26.3	2108	-
LSD (P=0.05)	2.2	179	-

harvested on September 28, 2002. Data on shoot dry weight and seed yield of mungbean were recorded at harvest.

*T. portulacastrum* was found most competitive closely followed by *C. rotundus* and then *E. colona*. At 10, 20, 40, 80 and 160 plants m<sup>-2</sup> of *T. portulacastrum*, shoot dry weight of mungbean was found to be reduced to the extent of 20.7, 37.5, 39.5, 47.1 and 51.8%, respectively (Table 1). Compared to weed-free plots, the relative seed yield of mungbean was 85% at 10 plants m<sup>-2</sup> and 54% at 160 plants m<sup>-2</sup> of *T. portulacastrum*. The corresponding figures were 94 and 77% in case of *E. colona* and 90 and 70% for *C. rotundus*. Maximum reduction in seed yield of mungbean

(45.8%) was recorded in presence of *T. portulacastrum* with only 54.2% of seed yield in comparison to weed-free at 160 plants m<sup>-2</sup>. Seed yield decreased with the corresponding increase in population of all the three weeds. Seed yield in weed-free plot was significantly more than all the weed infested plots except that it was at par with 10 plants m<sup>-2</sup> of *E. colona*.

#### REFERENCE

- Poole, M. L. and G. S. Gill, 1987. Competition between crops and weeds in southern Australia. *Plant Protection Quarterly* **2**: 86-89.