

Performance of Chickpea Varieties under Sub-optimal and Optimal Weed Management Conditions

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Growing of a variety which can compete with weeds and also produce reasonably good yields despite the presence of weeds is considered to be an important component of integrated weed management. Hence, the available varieties need to be tested under sub-optimal and optimal weed management practices to find out promising ones for different socio-economic groups of farmers.

A field experiment was conducted during winter seasons of 2001-02 and 2002-03 at NRCWS, Jabalpur farm. Ten promising chickpea varieties (JG 1, JG 7, JG 11, JG 16, JG 63, JG 130, JG 218, JG 315, JG 322 and JKG 92337) were evaluated under three weed management practices viz., unweeded, hand weeding once and weed-free. Weed management practices and varieties were allocated to main plots and sub-plots, respectively. The treatments were replicated thrice in a split plot design. The crop was sown on 12 November in the first year and on 21 October during 2002-03. A spacing of 30 x 10 cm was adopted and all the package of practices were followed to raise the

crop. In the year 2002-03, the crop suffered a very short spell of frost during the month of January.

The major weed flora observed in the weedy plots were *Chenopodium album* (35%), *Cichorium intybus* (30%), *Vicia sativa* (12%), *Physalis minima* (6%), *Medicago hispida* (6%), *Lathyrus aphaca* (3%), *Rumex dentatus* (2%), *Phalaris minor* (2%) and *Avena ludoviciana* (2%).

Dry weight of weeds was significantly affected by the growth of different chickpea varieties during both the years of study. Varieties JG 11 (1.20 and 3.10 t ha⁻¹) and JG 315 (1.44 and 3.25 t ha⁻¹) were better competitors with weeds and allowed comparatively lesser weed growth.

Interaction effects of variety x weed management on grain yield were non-significant during 2001-02 and significant during 2002-03. Under weedy treatment, variety JG 130 showed better yield potential (2.04 t ha⁻¹), whereas with one hand weeding JG 11 (3.17 t ha⁻¹) and JG 315 (3.12 t ha⁻¹) were better yielder. Varieties JG 1, JG 11 and JG 30 performed well under ideal weed-

Table 1. Effect of chickpea varieties on weed dry matter production and their grain yields under different weed management situations

| Varieties | Weed dry weight | | Grain yield (t ha ⁻¹) | | | | |
|--------------|-----------------------|---------|-----------------------------------|------------------|-----------|---------|---------|
| | (t ha ⁻¹) | | Weedy | One hand weeding | Weed-free | Mean | |
| | 2001-02 | 2002-03 | 2002-03 | 2002-03 | 2002-03 | 2001-02 | 2002-03 |
| JG 1 | 3.51 | 4.16 | 1.34 | 2.47 | 3.59 | 1.34 | 2.46 |
| JG 7 | 1.93 | 4.76 | 1.29 | 2.88 | 2.99 | 1.90 | 2.39 |
| JG 11 | 1.20 | 3.10 | 1.00 | 3.17 | 3.39 | 1.70 | 2.52 |
| JG 16 | 1.16 | 3.98 | 1.38 | 1.90 | 3.19 | 2.01 | 2.15 |
| JG 63 | 2.38 | 5.08 | 1.02 | 2.70 | 2.82 | 1.86 | 2.00 |
| JG 130 | 1.97 | 3.36 | 2.04 | 2.55 | 3.28 | 2.16 | 2.62 |
| JG 218 | 1.38 | 5.56 | 1.42 | 2.60 | 2.93 | 1.82 | 2.32 |
| JG 315 | 1.44 | 3.25 | 0.83 | 3.12 | 2.99 | 1.75 | 2.31 |
| JKG 322 | 2.22 | 4.02 | 1.34 | 2.81 | 2.80 | 1.69 | 2.32 |
| JKG 92337 | 1.66 | 3.91 | 0.77 | 1.80 | 1.56 | 1.39 | 0.43 |
| Mean | 1.88 | 4.12 | 1.24 | 2.60 | 2.95 | - | - |
| LSD (P=0.05) | 0.16 | 0.84 | W =0.21, V= 0.33, W x V=0.58 | | | | |

free situations. Differences in competitive ability of chickpea varieties against weeds were also reported earlier by Gautam (1999).

Based on the present two years' study, it was concluded that chickpea varieties viz., JG 130 and JG 11 are promising for cultivation under sub-optimal and optimal weed management conditions.

REFERENCE

- Gautam, K. C. 1999. Influence of cultivars, sowing dates and weed management practices on weed growth and chickpea yield. In : *Abstracts*. The Eighth Biennial Conference of the Indian Society of Weed Science, Feb. 5-7, BHU, Varanasi, p. 59.