

INFLUENCE OF CLOMAZONE - PENDIMETHALIN READYMIX ON WEED CONTROL, QUALITY PARAMETERS AND YIELD OF SOYBEAN [*Glycine max* (L.) MERRILL]

A.C. SURYA PRABHA, R. JAYAKUMAR AND M.SENTHIVELU

See end of article for
authors' affiliations
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Correspondence to :
A.C. SURYA PRABHA
Department of Soil Science
and Agricultural Chemistry,
Agricultural College and Research
Institute, COIMBATORE
(T.N.) INDIA

Accepted : November, 2007
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ABSTRACT

A field experiment was conducted at Agricultural College and Research Institute, Coimbatore to study the bioefficacy of clomazone - pendimethalin readymix in soybean. The treatments constituted clomazone-pendimethalin readymix at different doses compared with recommended doses of clomazone and pendimethalin as well as farmers practice of hand weeding twice and unweeded control. The weed observations viz., species wise weed count, total weed population, weed control efficiency, quality parameters and seed yield were recorded. The dominant weed flora in the field were *Cynodon dactylon*, *Cyperus rotundus*, *Digera arvensis*, *Trianthema portulacastrum*. Clomazone - pendimethalin readymix at 2.0 lit ha⁻¹ remained as an optimal dose in controlling the weeds effectively and recorded the highest plant height and resulted in highest nutrient uptake and registered the highest grain yield. The clomazone - pendimethalin readymix at 8.0 lit ha⁻¹ recorded the lowest number of individual weed species and total weed population indicating the best control of the grasses, sedges and broad leaved weeds and thus resulted in maximum WCE and lesser weed DMP than the other treatments. However, Clomazone-pendimethalin readymix at 2.0 lit ha⁻¹ registered the highest protein, oil yield and seed yield and remained as an optimal dose.

Key words : Clomazone-pendimethalin readymix, Weed control efficiency, Yield.

Soybean has been proclaimed as the miracle crop as it plays a greater role in boosting protein and oil production in India. It occupies third place among the major oil seeds crops, and Madhya Pradesh leads in area (3.5 m ha) and production (2.96 m tonnes) among the major states (Singh and Bhan, 2002). Weed infestation in soybean is one of the main constraints which limits the crop yield. A yield reduction of 20 to 77 per cent was reported in soybean due to weed competition (Kurchania *et al.*, 2001). Chemical control of weeds using herbicides appears to be the viable alternative to increase the yield of soybean. In the recent past, number of herbicides and herbicide combinations are being developed in order to achieve broader spectrum of weed control. Application of pre-emergence herbicides was found to be effective in controlling weeds in soybean (Rapparini *et al.*, 2000). Clomazone is a selective pre-emergence herbicide used for weed control in soybean. Pendimethalin, a selective dinitroaniline herbicide is a pre-emergence herbicide used for the control of grasses and annual broad leaved weeds. In view of the above the present investigation was taken up to study the weed control efficiency, quality and seed

yield of soybean as influenced by clomazone-pendimethalin readymix.

MATERIALS AND METHODS

A field experiment was conducted in Eastern Block of Agricultural College and Research Institute, Coimbatore during June-September, 2002 to study the bioefficacy of clomazone-pendimethalin readymix in soybean. The crop selected for the study was soybean, variety CO₂ under irrigated conditions. The experiment was conducted in a RBD, with the treatments replicated thrice. The treatments constituted 6 doses of clomazone-pendimethalin readymix compared with clomazone (50 EC), pendimethalin (30 EC), hand weeding twice and unweeded control. The herbicide doses up to 8.0 lit ha⁻¹ was applied to evaluate residues at 2X (double the recommended) and 4X levels.

The soil of the experimental field was clay loam in texture with a pH 7.1 and EC 0.31 dS m⁻¹. The KMnO₄-N, Olsen P and NH₄OAC-K were low (196.0 kg ha⁻¹), medium (20.0 kg ha⁻¹) and medium (237.0 kg ha⁻¹), respectively. The species wise weed count was taken on 20, 40 and 60 DAS. The observations of weeds viz., species wise weed count, total weed population, weed DMP, yield and yield parameters were observed. The oil