

GROWTH, QUALITY PARAMETERS AND YIELD OF SOYBEAN [*Glycine max* (L.) MERRILL] AS INFLUENCED BY CLOMAZONE - PENDIMETHALIN READYMIX

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ABSTRACT

A field experiment was conducted at Agricultural College and Research Institute, Coimbatore during Jan-April, 2002 to study the growth, quality parameters and yield of soybean as influenced by clomazone - pendimethalin ready mix. The treatments constituted clomazone - pendimethalin ready mix at different doses compared with recommended doses of clomazone and pendimethalin as well as farmers practice of hand weeding twice and unweeded control. The results revealed that clomazone-pendimethalin ready mix at 2.0 lit ha⁻¹ recorded the highest plant height and crop DMP and thus resulted in the highest grain yield of soybean. Clomazone-pendimethalin ready mix at 2.0 lit ha⁻¹ registered the highest protein and oil yield.

Key words : Clomazone-pendimethalin ready mix, Quality parameters, Yield.

Soybean [*Glycine max* (L.) Merrill] a potentially high yielding crop, plays a great role in boosting oil seed production in our country. It occupies third place among the nine oil seed crops of India. Soybean represents nearly 50 per cent of global oil seed production, 28 per cent of global vegetable and marine oil supply and 58 per cent of global protein meal supply (Singh and Bhan, 2002). Soybean contains 40 per cent protein and 20 per cent oil. It has got world wide acceptance because of the protein rice nature and termed as "Global bean" by the agricultural scientists (Xavier Paul Raj, 2002). The initial slow growth of soybean with lateral spread, offers severe infestation of a large number of weeds which reduces the yield to an extent of 40 to 60 per cent (Bhan *et al.*, 1999). The effective control of weeds can help in improving the productivity of soybean. In the recent past, number of herbicides and herbicide combinations are being developed in order to achieve broader spectrum of weed control. Clomazone, a new pre-emergence herbicide introduced for soybean crop, control annual and broad leaved weeds effectively (Singh *et al.*, 2001). Pendimethalin is a selective pre-emergence dinitroaniline herbicide used for the control of grasses and annual broad leaved weeds. In view of the above the present study was conducted to study the growth, quality parameters and yield of soybean as influenced by clomazone-pendimethalin ready mix.

MATERIALS AND METHODS

A field experiment was conducted in Eastern Block of Agricultural College and Research Institute, Tamil Nadu Agricultural University, Coimbatore, during January - April, 2002. The crop selected for the study was soybean and the variety was CO 2 under irrigated conditions. A ready mix formulation of Clomazone and Pendimethalin supplied by FMC India Pvt. Ltd, Bangalore was used for the study. The experiment was carried out in a Randomized Block Design with three replications. The treatments included nine doses of clomazone-pendimethalin ready mix compared with clomazone (50 EC), pendimethalin (30 EC), hand weeding twice and unweeded control. The herbicide doses up to 6 lit ha⁻¹ was applied to evaluate residues at 2X (double the recommended) and 4X levels. The herbicides selected for the study were sprayed at the calculated quantities on the third day after sowing on the soil surface using a hand operated knapsack sprayer.

The soil of the experimental field was clay loam with a pH of 7.8 and EC 0.34 dS m⁻¹. The KMnO₄ - N, Olsen's - P and NH₄OAC - K status indicated that the soil was low in available N (252 kg ha⁻¹), medium in available P₂O₅ (20 kg ha⁻¹) and high in available K₂O (410 kg ha⁻¹). Growth attributes of soybean like, plant height, DMP were recorded at 20, 40 and 60 DAS. The oil content of the seeds from each treatment was determined using Nuclear Magnetic Resonance (NMR) analyzer and the oil content was expressed in percentage. The oil yield was calculated