



may be because of the fact that pendimethalin from this layer on the soil surface, which was responsible for killing of the susceptible weeds as they emerge while in case of hand weeding all the emerged weeds removed mechanically.

From the experiment, results show that management systems had greatly affected the production of seed yield and stover in mustard. M₅ management system was significantly more yield (both seed and stover) than all other treatments. This production influenced by higher supply of nitrogen, phosphorus, potassium and made available adequate moisture. These findings are agreed with the results of Pandey and Bharti (2005), Reager *et al.* (2006) and Saud and Singh (2011).

The seed and stover yield also increased significantly due to weed management treatments. The seed yield was higher under the hand weeding and next to pendimethalin over the weedy check plot.

The amount of nutrients removal was significant influenced by management systems. Maximum uptake of NPK observed under M₅ management systems closely followed by M₄ management systems. This is obvious because the biomass production increased due to this management system over the other management systems. NPK uptake increased with its successive level of fertilizer dose. These findings are in close conformity with those of Singh and Kanaujia (2009). Mustard plants, under pendimethalin application and hand weeding, removed more nutrients than weedy check. Although no variation of a significant order, with respect to NPK removal existed between pendimethalin application and hand weeding but the trend showed higher uptake of nutrients under pendimethalin reduced

considerably to crop weed completion for nutrients which reflected in the more dry matter accumulation than hand weeding, resulting more uptake from the soil.

It may be concluded that 100% of the recommended fertilizer dose (N₈₀ + P₄₀ + K₄₀) + two irrigation (at 30 DAS and flowering stage) and hand weeding at 30 DAS are the recommended for mustard crop because they given better results than other management practices and pendimethalin 1.0 kg/ha.

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Study on weed dynamics in soybean-based intercropping system

Khesi Yhokha and L. Tongpang Longkumer

Department of Agronomy, School of Agricultural Sciences and Rural Development, Nagaland University, Medziphema, Nagaland 797 106, India

Key words: Soybean, rice, sesame, green gram, black gram, intercropping, weed dynamics.

A field experiment was conducted in the Agronomy farm, School of Agricultural Sciences and Rural Development, Nagaland University, Medziphema campus to study the effect of soybean based intercropping on weed dynamics. Soybean based intercropping with rice, sesame, green gram and black gram in two row ratios (1:1 and 2:1) along with sole crops was studied. The experimental field was laid out in Randomized Block Design with three replications. Additive series of intercropping was followed by planting the intercrops in between the rows of 45x10 cm spacing of soybean. Results indicated that intercropping treatments irrespective of row ratios performed better than the sole crop treatments in suppressing the weed population and thereby reduced weed biomass at 20, 40 and 60 DAS. The dominant weeds species

were *Borreria hispida* (Linn.), *Ageratum conyzoides* (Linn.), *Amaranthus viridis* (Linn.), *Mimosa pudica* (Linn.) and *Euphorbia hirta* (Linn.) among the broad leaf weeds. Among the grasses, *Cynodon dactylon* (Linn.) Pers., *Eleusine indica*. Gaertn., *Digitaria sanguinalis* (Linn.) Scop., *Setaria glauca* (Linn.) Beauv. and *Echinochloa colonum* (Linn.) Link. were the dominant species. While among the sedges, *Cyperus rotundus* (Linn.) and *Cyperus iria* (Linn.) were the most common species. Among the sole crops, sole rice (T₂) performed better in terms of growth and yield attributes. Among the intercropping treatments 1:1 row ratio of soybean and rice gave the highest economic return with net return of 1,14,160/ha and a Benefit: Cost ratio of 3.96.