

Integrated Weed Management in Rabi Chilli (*Capsicum annuum*)**A. R. Shaikh**

AICRP on Weed Control

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Chilli is one of the important spice cash crops of Maharashtra grown for its red and green fruits. The crop grown during **rabi** under irrigated condition with high weed density and ultimately reduction in yield. Hence, weed management is one of the important factors for increasing the yield and monetary return. Due to high cost and non-availability of labourer at required time the integrated weed control method is the best alternative to only manual weeding. The present study was, therefore, conducted to find out effective and economically viable weed control method for **rabi** chilli.

A field experiment was conducted during 2002-03 and 2003-04 on Research Farm of Marathwada Agricultural University, Parbhani. The soil of experimental plot was medium deep vertisol, slightly alkaline in nature (pH 8.0) having organic carbon content of 0.45%, available nitrogen 230 kg ha⁻¹, available P₂O₅ 15 kg ha⁻¹ and available K₂O 205 kg ha⁻¹. The experiment was laid out in randomized block design with three replications. There were eight treatments consisting of pendimethalin at 1.0 kg a. i. ha⁻¹ and at 0.75 kg a. i. ha⁻¹, fluchloralin at 1.35

kg a. i. ha⁻¹ and at 0.90 kg a. i. ha⁻¹ and oxyfluorfen at 0.125 kg a. i. ha⁻¹ and at 0.10 kg a. i. ha⁻¹. The lower dose of each herbicide was supplemented with one hand weeding at 45 days after transplanting (DAT). These were compared with two weeding at 25 and 45 DAT and weedy check. Pendimethalin and oxyfluorfen were applied two days after transplanting and before emergence of weeds and fluchloralin as pre-plant incorporation. Healthy seedlings of 30 days old of variety Tejas were transplanted in last week of October.

Out of 14 total weeds, the grassy were 29% and broad-leaved weeds were 71%. The dominant weeds were : *Brachiaria eruciformis*, *Cynodon dactylon*, *Dinebra retriflexa*, *Cyperus rotundus*, *Parthenium hysterophorus*, *Digera arvensis*, *Merremia emerginata*, *Acalypha indica*, *Chrozophora rotleri*, *Euphorbia hirta*, *Convolvulus arvensis*, *Corchorus acutangulus*, *Lagasca mollis* Cav. and *Physalis minima* L. were associated with the chilli crop in experimental field.

All the weed control treatments significantly reduced the dry weed weight as compared to

Table 1. Effect of treatments on weeds and crop

| Treatment | Dose (kg ha ⁻¹) | Application stage (WAT) | Fruit yield (kg ha ⁻¹) | WCE | Cost due to treatment (Rs. ha ⁻¹) | Return due to treatment (Rs. ha ⁻¹) |
|--------------------------|-----------------------------|-------------------------|------------------------------------|-----|---|---|
| Weedy check | - | - | 473 | - | - | - |
| Weeding | - | 3, 6 | 901 | 85 | 1950 | 24340 |
| Pendimethalin | 1.0 | Pre-em. | 740 | 81 | 1560 | 14440 |
| Pendimethalin fb weeding | 0.75 | Pre-em. 6 | 962 | 84 | 2220 | 27140 |
| Fluchloralin | 1.35 | Pre-em. | 754 | 54 | 1380 | 15440 |
| Fluchloralin fb weeding | 0.90 | Pre-em. 6 | 827 | 55 | 1980 | 19140 |
| Oxyfluorfen | 0.125 | Pre-em. | 825 | 76 | 1040 | 19130 |
| Oxyfluorfen fb weeding | 0.100 | Pre-em. 6 | 932 | 85 | 1850 | 25560 |
| LSD (P=0.05) | | - | 181 | - | - | - |

WAT-Week after transplanting, WCE-Weed control efficiency.

weedy check. During the year 2002-03, significantly minimum dry weed weight was observed in two weedings and 2003-04 in oxyfluorfen at 0.10 kg a. i. ha⁻¹ supplemented with one weeding at 45 DATP. During the year 2003-04, two weedings at 25 and 45 DAT were at par with pendimethalin at 0.75 kg a. i. ha⁻¹ fb one weeding at 45 days after transplanting (DATP) and significantly superior over rest of the treatments. Maximum mean weed control efficiency (>80%) was recorded in two hand weedings, oxyfluorfen at 0.10 kg a. i. ha⁻¹ and pendimethalin at 0.75 kg a. i. ha⁻¹ supplemented with hand weeding at 45 DAT.

Significantly highest pooled mean yield (9.62

t ha⁻¹) was observed due to pre-emergence pendimethalin at 0.75 kg a. i. ha⁻¹ fb weeding at 45 DAT which was at par with two hand weedings, oxyfluorfen at 0.10 kg a. i. ha⁻¹, fluchloralin at 0.90 kg a. i. ha⁻¹ each fb hand weeding at 45 DAT. The highest pooled mean net monetary returns (Rs. 55.70 thousand ha⁻¹) were observed in treatment of pre-emergence pendimethalin at 0.75 kg a. i. ha⁻¹ fb hand weeding at 45 DAT which was significantly superior over weedy check and fluchloralin at 1.35 kg a. i. ha⁻¹ and at par with rest of the treatments. Higher yield was registered due to effective weed control. Highest NMR was recorded with treatment pendimethalin at 0.75 kg a. i. ha⁻¹ fb hand weeding at 45 DAT.