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HERBICIDAL WEED CONTROL IN *Kharif* ONION

R.K. SARAF

Correspondence to :
R.K. SARAF
Department of Horticulture,
Dryland Horticulture
Research & Training Center,
Ranguan P.O. Garhakota,
SAGAR (M.P.) INDIA

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ABSTRACT

Ten herbicides were evaluated for weed control in kharif onion at Chhindwara, zonal agricultural research station of Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur (M.P.) India. The Two years study revealed economically effective weed control and higher bulb yield under oxyfluorfen 0.25 kg/ha (240.73 q/ha), oxadiazon 1.0 kg/ha (234.42 q/ha), pendimethalin 1.0 kg/ha (230.56 q/ha) as compared to all other herbicides and weedy control (67.13 q/ha). All these herbicides were on a par to one hand weeding at 30 days after transplanting (232.48 q/ha) and weed free treatment (244.97 q/ha). Other herbicides viz. alachlor 1.0 kg, butachlor 2.0 kg, fluchloralin 1.0 kg, isoproturon 1.0 kg, thiobencarb 2.0 kg all as pre planting were on a par among themselves (185.71 to 198.91 q/ha) and significantly better than weedy control. All the above herbicides had broad spectrum effects and controlled grassy weeds viz. *Echinochloa crusgalli* (L), P. Beauv, *Dinebra aerabica* L. and *Commelina benghalensis* L.

Key words : Onion, Oxyfluorfen, Oxadiazon, Pendimenthalin, Alachlor, Butachlor, Fluchloralin, Isoproturon, Thiobencarb.

The onion (*Allium cepa* L.) is a cash crop and one among the most important vegetables because of its outstanding characteristics of pungency, mild flavor, medicinal qualities and spice value. To meet the fast increasing consumption and exorbitent demand, emphasis is being laid on growing onion crop in *kharif* (rainy) season. The management of weed is one of the most serious problems during kharif which limits the crop yield and decreases profits. Yield losses in kharif onion due to weeds have been reported to the extent of 10-70 precent by *Phogat et al.* (1989). The traditional method of weed control i.e. hand weeding is widely practiced in vegetable fields in india but with the rapid industrialization, increased literacy and mass migration of rural populations to urban areas, labour availability is becoming increasingly scare and costlier. The mechanical cultivation in onion is difficult due to high plat density. Hence, these factors have induced interest in herbicidal weed control. Experiments were conducted to determine effective weed control for longer duration, by using herbicides in onion.

MATERIALS AND METHODS

The field experiment were carried out at Krishi Vigan Kendra Farm, ZARS, Chhindwara during *kharif*, 1991 and 1992 in clay-loam soil. The experiment was laidout in randomized block design having 14 treatments (Table) in four replicatons. The spraying of herbicides was done as pre plant treatment one day before transplanting. Hand weedings were done as per treatment i.e. 30 and 45-DAT. Weed free treatment were kept free from weeds for entire crop season, whereas, in weedy check (control) weeding was not done. The thiram treated seeds of variety N-53 was sown in lines on 15th june and 45 days old healthy and uniform seedings were transplanted on 1st August at a spacing of 20 cm x 10 cm during both years. A uniform dose of farm yard manure @ 100 q/ha, and nitrogen, phosphorus and potash @ 125:60:60 kg/ha were applied to the crop. Data on weed population were recorded species wise by list count quadrat (size 0.5m^2) from four random places in each treatment. The weed biomass was recorded at harvest and the weed control efficiency (WCE) was calculated by using the following relationship.

$$WCE = \frac{DWC-DWT}{DWC} \times 100$$

Where,

DWC = Dry weight of weeds in control plots
DWT = Dry weight of weeds in treated plots

The weed competitional index (WCI) was calculated by using the following formula.

$$WCI = \frac{X - Y}{X} \times 100$$

Where,

X= Yield from weed free treatment.
Y = Yield from the treatment for which WCI is to be worked out.

Data on the crop were recorded for plant height,