

## Weed management in okra grown in *kharif* season under middle Gujarat conditions

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### ABSTRACT

In experimental field, weed species *Eleusine indica* (87/m<sup>2</sup>) was the most dominant weed, while *Digitaria sanguinalis* was second in order (84/m<sup>2</sup>) followed by *Dactyloctenium aegyptium*, *Phyllanthus niruri*, *Boerhavia repanda*, *Digera arvensis*, *Cyperus iria* and *Cyperus rotundus*. Significantly higher number of fruit yield was recorded in pre-emergence application of pendimethalin 1000 g/ha *fb* hand weeding at 30 DAS which was at par with interculturing + hand weeding carried out at 30 and 60 DAS and post-emergence application of quizalofop-ethyl 75g/ha *fb* hand weeding at 30 DAS.

**Keyword :** Weed management, Okra, Pendimethalin, Quizalofop-ethyl.

Okra is one of the most popular vegetables in tropical or sub-tropical region. Okra suffers heavy yield losses in rainy season (*kharif*) due to weed infestation owing to congenial environmental conditions for luxurious weed growth coupled with wider row spacing and slow growth at early stages. Yield losses due to weeds varied from 40 to 80% depending on the type of flora, their intensity and stages (Patel *et al.* 2004, Saikh *et al.* 2002). Scarcity of manpower at critical period of crop-weed competition, costly herbicides and their availability in desired quantity are also problematic. It was, therefore, considered necessary to undertake a study to find the performance of various pre-emergence as well as post emergence herbicides applied with other weed management practices.

Field experiment was conducted at DWSR-Anand Centre, Anand Agricultural University, Gujarat during *kharif* season of the year 2009. The soil of the experimental field was loamy sand in texture, deficient in organic carbon and available nitrogen, high in available phosphorus and medium in available potassium. A set of ten treatments, comprising pre-emergence of pendimethalin 1000 g/ha *fb* HW at 30 DAS, butachlor 1000 g/ha *fb* HW at 30 DAS and oxadiargyl 75 g/ha *fb* HW at 30 DAS, post emergence of quizalofop-ethyl, cyhalofop-butyl and fenoxaprop-p-ethyl each at 75 g/ha, wheat straw 10 t/ha *fb* HW at 30 DAS, in situ mulching of weeds at 30 DAS, interculturing + hand weeding at 30 and 60 DAS (and weedy check was laid out in randomized block design with four replications (Table 1). *Parbhani Kranti* was sown at a spacing of 60 × 30 cm in June during *kharif* seasons. All the recommended package of practices were adopted to raise the crop except weed control. Marketable

size green okra fruits were picked up for yield estimation. Crop received total rainfall of 389.10 mm. Dry weed weight was recorded at 25 and 45 DAS and at harvest.

In experimental field, weed species *Eleusine indica* (87/m<sup>2</sup>) was the most dominant weed, while *Digitaria sanguinalis* was second in order (84/m<sup>2</sup>) followed by *Dactyloctenium aegyptium*, *Phyllanthus niruri*, *Boerhavia repanda*, *Digera arvensis*, *Cyperus iria* and *Cyperus rotundus*. At 25 DAS, significantly lowest dry weight of total weed biomass was registered under the treatment pendimethalin 1000 g/ha *fb* hand weeding at 30 DAS. Treatment butachlor 1000 g/ha *fb* hand weeding at 30 DAS recorded significantly lower dry weight of weed biomass and it remained statistically unchanged with quizalofop-ethyl 75 g/ha *fb* hand weeding at 30 DAS. At 45 DAS and at harvest, significantly minimum dry weight of total weed biomass was registered under the treatment of pendimethalin 1000 g/ha *fb* hand weeding at 30 DAS which remained at par with treatment interculturing + hand weeding at 30 and 60 DAS.

Phytotoxicity symptoms were not seen due to application of any herbicide. Okra fruit yield was significantly increased in all the treatments as compared to weedy check (Table 1). Significantly higher number of fruit yield was recorded in pre-emergence application of pendimethalin 1000 g/ha *fb* hand weeding at 30 DAS which was at par with interculturing + hand weeding carried out at 30 and 60 DAS and post-emergence application of quizalofop-ethyl 75g/ha *fb* hand weeding at 30 DAS. The cost benefit ratio was higher under the treatment of interculturing + hand weeding at 30 and 60

**Table1. Effect of treatments on weeds, okra fruit yield and economics**

Treatments	Dry weight of weeds (g/m <sup>2</sup> )			Fruit yield (kg/ha )	Cost benefit ratio
	At 25 DAS	At 45 DAS	At harvest		
Pendimethalin 10 00 g/ha PE HW at 30 DAS	162.3	21.6	212.4	9973	1:3.79
Butachlor 1000 g/ha PE HW at 30 DAS	336.8	94.3	440.6	7979	1:3.19
Oxadiargyl 75 g/ha PE HW at 30 DAS	492.3	124.5	535.6	7903	1:3.12
Quizalofop -ethyl 75 g/ha POE HW at 30 DAS	323.5	80.3	396.6	9455	1:3.53
Cyhalofop-butyl 75 g/ha POE HW at 30 DAS	503.3	135.0	705.0	6726	1:2.56
Fenoxaprop -p-ethyl 75 g/ha POE HW at 30 DAS	412.0	87.2	428.1	8593	1:3.33
Wheat straw 10 t/ha HW at 30 DAS	483.0	126.1	617.5	7519	1:2.43
In situ mulching of weeds at 30 DAS	740.0	129.4	651.4	7167	1:2.87
IC + HW at 30 and 60 DAS	700.6	46.6	247.4	9927	1:3.87
Weedy Check	817.6	1022.1	1679.6	5475	1:2.35
LSD (P=0.5)	57.9	27.1	69.2	8229	-

PE- Pre emergence; POE- Post emergence; HW- Hand weeding; DAS-Days after sowing; *fb*- Followed by; IC-Inter culturing.

DAS followed by pre-emergence application of pendimethalin 1000 g/ha *fb* hand weeding at 30 DAS, quizalofop-ethyl 75 g/ha as POE *fb* hand weeding at 30 DAS.

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