

Relative efficacy of integrated weed management in irrigated cotton (*Gossypium spp.*)

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ABSTRACT

The experiment was laid out in randomized block design (RBD) with three replications and ten treatments. Treatment consisted of pre-plant incorporation of trifluralin and fluchloralin at 1200 and 1120 g a.i. ha⁻¹, respectively, post emergence sprays of glyphosate and haloxyfop (21 DAS) at 1200 and 100 g a.i. ha⁻¹, respectively, along with or without hand weeding at 42 DAS, weed free and weedy check. The higher seed cotton and lint yield were obtained under weed free treatment (16.99 and 5.85 q ha⁻¹) closely followed by post emergence of glyphosate at 1200 g a.i. ha⁻¹ with follow up hand weeding at 42 DAS (10.80 and 3.71 q ha⁻¹, respectively) and pre-plant incorporation of fluchloralin at 1120 g a.i. ha⁻¹, with a follow up hand weeding (10.66 and 3.65 q ha⁻¹, respectively). Weed competition throughout the crop growth period in irrigated cotton reduced the seed cotton and lint yield by 71.5 and 72.0 per cent, respectively. Ginning percentage and lint index of cotton were highest under weed free treatment followed by post emergence spray of glyphosate at 1200 g a.i. ha⁻¹ after 21 days of sowing with a follow up hand weeding at 42 DAS steeple length was not influenced significantly.

Key words : Relative efficacy, Interated weed management, Cotton.

INTRODUCTION

Cotton (*Gossypium spp.*) is a very important commercial crop in India, it sustains the country's cotton textile industry which is perhaps the largest segment of organized industries in the country.

Cotton is grown on 8.65 million ha area in India which constitutes 27 per cent of world area under cotton with production of 12.3 million bales (Singhal, 2003), whereas in Maharashtra, the area under cotton is 3.07 million ha with its production of 2.80 million bales. Yield levels in this crop keep fluctuating year after year depending upon the problem of insect pests and diseases that are closely associated with the climatic conditions in the region. Since its long growth cycle, the crop also panes through frequent rains and thus weeds also pose a serious problem. Losses caused by weeds in cotton range from 45-75 per cent depending upon nature and intensity of weeds (Brar and Gill, 1983 and Sandhu *et al.*, 1996). Weeds primarily complete for nutrients, moisture and sunlight in the early stage than in later stage. The critical period of weed competition in cotton was found to be 15-60 days (Mishra, 1997). To eliminate the weed competition, crop should be kept weed free at least first 4-6 weeks after sowing (Brar and Gill, 1983). According to Chander *et al.* (1994) herbicides alone or in combination with one hand weeding reduced the dry weight and nutrient uptake of weeds significantly. Some of the herbicides viz., trifluralin, pendimethalin, flumeteron, and diuron have been found

very promising for this crop (Spark, 1997). The present investigation was an attempt in this direction to establish appropriate weed management practice in irrigated cotton.

MATERIALS AND METHODS

The field experiment entitled "Relative efficacy of integrated weed management in irrigated cotton" was carried out under irrigated condition during summer season of 2003. The soil of the experimental field was vertisol and clayey in texture. The chemical composition indicated that the soil was alkaline in reaction (pH 7-9), low in available nitrogen (144.72 kg ha⁻¹) medium in available phosphorus (18.03 kg ha⁻¹) and high in available potassium (438.68 kg ha⁻¹).

Treatment details :

Haloxyfop:

It is post emergent selective Trans located herbicide.

Fluchloralin :

It is an emulsifiable concentrate and it is selective herbicide applied as pre sowing.

Glyphosate :

It is an emulsifiable concentrate, non selective translocated herbicide local name round up^R. Glycel^R.

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