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Research Paper

Effect of integrated weed management on economics of *Rabi* onion (*Allium cepa* L.)

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ABSTRACT

A field experiment was conducted during *Rabi* season at Agronomy farm College of Agriculture, Pune (M.S.) to study the economics of different weed control practices in *Rabi* onion. The results indicated that the application of two hand weedings at 20 and 40 days after transplanting was economically superior for weed control followed by spraying of pendimethalin (PPI) + one hand weeding at 40 DAT and oxyflourfen PPI + one hand weeding at 40 DAT treatments. The application of two hand weedings at 20 and 40 days after transplanting was found cheaper and most effective in controlling weeds in *Rabi* onion in clay textured and slightly alkaline soils under Pune region.

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Key words : Onion, Weeds, Pendimethalin, Hand weeding

INTRODUCTION

Onion (*Allium cepa* L.) is one of the most widely used vegetables in the world. Onion is consumed in salad, pickles and chutney. It has a high nutritive value as it contains proteins, carbohydrates, minerals like calcium and vitamin A, riboflavin, ascorbic acid and thiamine. It is a commercial vegetable crop, which is extensively cultivated in India. It is grown over an area of 3.13 lakh ha with total production of 45.5 lakh tones (Anonymous, 2000). Weeds compete severely with this crop for essential plant nutrients, sunlight and thus reduce the bulb yield from 48 to 85 per cent, depending upon the duration of crop, weed competition, weather condition and intensity of weeds (Bhalla, 1978). Though physical methods of weed control are very effective, they have certain limitations such as unavailability of labours during peak period, high labour cost and unfavorable environment. Therefore, experiment was carried out to find most effective and cheaper weed control practice combined with herbicide for harnessing the economic yield of *Rabi* onion.

MATERIALS AND METHODS

The field experiment was conducted during *Rabi* 2002 at Agronomy farm, College of Agriculture, Pune (MS). The soil was clay in texture and slightly alkaline with low available nitrogen (200.00 kg ha^{-1}), medium in available phosphorus (18.44 kg ha^{-1}) and very high available potassium (402.40 kg ha^{-1}). The experiment was laid out in Randomized Block Design (RBD) with eight treatments (Table 1) replicated thrice. The gross and net plot size were 3.0 x 1.8 m^2 and 2.4 x 1.2 m^2, respectively. Seven weeks old, healthy uniform seedlings were used for transplanting. Transplanting of variety N – 2 – 4 – 1 was done in dry soil at 15 x 10 cm spacing. All the recommended management practices were followed. Pre-planting herbicide pendimethalin 30 EC @ 1kg a.i. ha^{-1} and oxyflourfen 23.5 EC @ 0.2 kg a.i. ha^{-1} were sprayed one day before the transplanting and same dose of above herbicides were sprayed in post emergence treatment at 20 days after transplanting through 500 liters of water ha^{-1}. Weed control efficiency of each treatment was calculated by using the formula given by Gautam and Mishra (1995).

RESULTS AND DATA ANALYSIS

The major weed flora of monocot weeds like *Panicum isachmi, Cynadon dactylon, Cyprus rotundus* and dicot weeds, *Amaranthus polygamus, Convolvolus*