Research Paper :

Influence of various weed control methods on growth and yield contributing character of onion seed

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SUMMARY

The experiment on influence of various weed control methods on growth and yield contributing character of onion seed crop was laid out in Randomised Block Design with three replications. Onion seed crop was grown in ridges and furrow layout and in eight treatments. An experimental soil was clayey in texture, low in available N (241.41 kg ha^{-1}), medium in available phosphorus (19.81 kg ha^{-1}) and moderately rich in available potassium (350.50 kg ha^{-1}). The plant population at 30 days after planting and at harvest was not influenced by different herbicide treatment. The plant height was also not influenced by herbicides upto 60 DAP but at later stage, it was significantly more in weed free treatment followed by oxyfluorfen @ 0.25 kg a.i. ha^{-1} among the herbicidal treatments. Within the treatments of herbicides coupled with hand weeding more height was observed in oxyfluorfen @ 0.1875 kg a.i. ha^{-1} followed by oxadiargyl @ 0.0675 kg a.i. ha^{-1}. The dry matter accumulation per plant was observed to be significantly more in weed free check followed by oxyfluorfen @ 0.1875 kg ha^{-1} coupled with one hand weeding. The accumulation of dry matter was less in unweeded control. The seed weight per umbel, test weight and seed yield were found to be significantly higher in weed free check followed by oxyfluorfen @ 0.1875 kg ha^{-1} + one hand weeding. Among the herbicide treatments oxyfluorfen @ 0.25 kg ha^{-1} recorded higher seed weight per umbel, test weight and seed yield followed by oxadiargyl @ 0.09 kg ha^{-1}. The integration of oxyfluorfen @ 0.1875 kg a.i. ha^{-1} along with one hand weeding showed higher benefit : cost ratio followed by oxadiargyl @ 0.0675 kg a.i. ha^{-1} coupled with hand weeding. Integrated weed management of oxyfluorfen (PE) @ 0.1875 kg a.i. ha^{-1} in conjugation with one hand weeding at 30 DAP was the most viable proposition in controlling weeds in onion seed crop and increasing the seed yield and net monetary returns, followed by oxadiargyl (P.E.) @ 0.0675 kg a.i. ha^{-1} +one hand weeding at 30 days after planting.

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Onion is a biennial crop, it produces bulbs in first season and seed in the succeeding season. Onion seed production is done largely under subtropical climate which is influenced by cultivars, bulb weight, soil, spacing, fertilizers and date of planting. Secondly, onion seed has poor keeping quality and losses in vigour and viability. Therefore, it is essential to produce fresh seed every year for the next sowing (Tomar, 2001).

It is essential to produce fresh seed every year for the next sowing. Limited availability of quality seed is due to high incidence of diseases and pests over the seed crop. Purity of seed is less due to its highly cross pollination and the use of self seed saved for raising the onion crop. Adequate supply of high quality seed free from noxious weeds is the basic need for increasing the production of onion bulb. Amongst the different constraints in the production of onion, management of weeds is one of the most important factor. Weeds compete severely with crop for essential plant nutrients, space, sunlight and moisture. Thus, it reduces the bulb yield from 48 to 85 per cent depending upon the duration of the crop, weed competition, weather condition and intensity of weeds (Bhalla, 1978). In view of this, the present investigation was carried out to study the Influence of various weed control methods on growth and yield contributing character of onion seed.

MATERIALS AND METHODS

The experiment was conducted during *Rabi* season on Central Farm, Mahatma Phule Krishi Vidyapeeth, Rahuri. Dist. Ahmednagar (Maharashtra). It lies between 19^0 48'N and 19^0 57' N latitude and between 74^0 35' E and 74^0 18'E longitude. The altitude varies from 495 to 569 meters above mean sea level. The soil of the experimental area was well drained with more than 1 m depth. There were eight treatments *viz.,* spraying of oxyfluorfen (PE)