

THE EFFECT OF PENDIMETHALIN AND CARFENTRAZON ETHYL HERBICIDE APPLICATIONS ON WEED SUPPRESSION ALONG WITH GROWTH, YIELD AND ESSENTIAL OIL COMPOSITION OF MARIGOLD

By : Nadya Noora Icksan Warganegara

Supervised by : Abdul Rizal AZ dan Siwi Hardiastuti Endang Kawuryan

ABSTRACT

Marigold is an aromatic plant that contains essential oil. The composition of essential oils can be influenced by the growth of weeds around the crops, therefore control is needed to suppress weed growth. The use of herbicide is the most effective weed control to suppress weed growth around the crop as well as improve the quality of marigold essential oil. The research was carried out in June – September 2022 at Agroedukasi Caping Merapi, Sleman Regency, Yogyakarta. Field experiments used RAKL (Completely Randomized Block Design) one factor method with 10 treatments: Pendimethalin herbicide 1.00 kg a.i./ha, Pendimethalin herbicide 1.50 kg a.i./ha, Carfentrazon-ethyl herbicide 0.02 kg a.i./ha, Carfentrazon-ethyl herbicide 0.04 kg a.i./ha, Pendimethalin herbicide 1.00 kg a.i./ha + Carfentrazon-ethyl herbicide 0.02 kg a.i./ha, Pendimethalin herbicide 1.00 kg a.i./ha + Carfentrazon-ethyl herbicide 0.04 kg a.i./ha, Pendimethalin herbicide 1.50 kg a.i./ha + Carfentrazon-ethyl herbicide 0.02 kg a.i./ha dan Pendimethalin herbicide 1.50 kg a.i./ha + Carfentrazon-ethyl herbicide 0.04 kg a.i./ha, mechanical control by farmer and control. The results shows the use of Pendimethalin herbicide 1.50 kg a.i./ha + Carfentrazon-ethyl herbicide 0.04 kg a.i./ha are significantly better than the control and gave the best results compared to other treatments in each parameter including: amount of weed, vegetation analysis, weed population each species, weed dry weight each species, plant growth and yield including plant height, flowering age, leaf area, amount of flowers each sample plant, amount of flower each plot and the essential oil content.

Keywords: *Marigold, Weed, Pendimethalin, Carfentrazon-ethyl, Essential Oil.*