

ABSTRACT

Oil palm (*Elaeis guineensis* Jacq) is one of the leading commodities that plays an important role in Indonesia's economy as a contributor to foreign exchange from the plantation sector. However, in its cultivation, oil palm plants are very susceptible to weed infestation. One of the most commonly found weeds in oil palm plantations is spiny amaranth (*Amaranthus spinosus*), which is known for its high competitiveness and rapid growth rate. This weed can reduce productivity by competing for nutrients, water, light, and growing space. Therefore, weed control is an important aspect of oil palm cultivation, one of which is the use of herbicides.. This study aims to determine the effect of glyphosate and paraquat herbicides on the mortality rate of prickly amaranth weeds. The study was conducted in Reuleut Timur, Muara Batu District, and the Laboratory of the Faculty of Agriculture, Malikussaleh University, from April to June 2025. The experimental design used was a non-factorial group design with two main treatments: glyphosate and paraquat herbicides, each consisting of four dose levels. Observation parameters included percentage of toxicity, plant height, number of leaves, stem diameter, and dry weight of weeds. Data were analyzed using an F-test at the 5% level, followed by a DMRT test. The results of the study indicated that the application of glyphosate and paraquat herbicides has a significant effect on all observed parameters. Glyphosate doses of 1,440 g/ha and 2,160 g/ha demonstrated high efficacy in causing weed mortality, while paraquat at doses ranging from 552 g/ha to 1,656 g/ha resulted in complete weed mortality from the start of the observation period. Thus, the proper application of herbicides is highly effective for controlling prickly lettuce weeds in oil palm plantations.

Keywords: Glyphosate, Herbicide, Oil palm, Paraquat, Prickly spinach