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## The Efficacy of Glyphosate Monoammonium and Other Commercial Herbicides to Control Volunteer Oil Palm Seedlings in Oil Palm Plantations\*

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*The unwanted oil palm seedlings termed as VOPs (volunteer oil palm seedlings) germinated from uncollected fruits in the field to become weed in oil palm plantations. Uncontrolled VOPs will hinder field operations such as harvesting and collection of fresh fruit bunches (FFB) and fertiliser application. A study to evaluate the efficacy of herbicides for controlling VOPs has been conducted in a plantation at Bangi, Selangor, Malaysia under mature oil palm (19 years old). Twelve treatments were carried out including an untreated control, 2,4-D isopropylamine 45 per cent w/w at 2.5 L per hectare, diuron 80 per cent w/w at 1.0 kg per hectare, glufosinate ammonium 13.5 per cent w/w at 3.3 L per hectare, glyphosate dimethylamine 52 per cent w/w at 3.0 L per hectare, glyphosate isopropylamine 41 per cent w/w at 4.0 L per hectare, glyphosate monoammonium 33.6 per cent w/w at 5.0 L per hectare, imazapyr isopropylamine 11.9 per cent w/w 2.5 L per hectare, MSMA 35.5 per cent w/w at 5.0 L per hectare, paraquat dichloride 13 per cent w/w at 5.0 L per hectare, a mixture of glufosinate ammonium 5.8 per cent w/w + imazapyr 5.5 per cent w/w + 2,4-D 4.7 per cent w/w at 1.2 L per hectare and a mixture of glyphosate isopropylamine 34 per cent w/w + MCPA isopropylamine 6.5 per cent w/w at 3.0 L per hectare. All the herbicides were sprayed at a volume of 450 L per hectare normally applied for general weed control (GWC) using a knapsack sprayer fitted with a hollow cone nozzle tip. Foliar symptoms were recorded at 1, 2, 3 and 7 days after application (DAA). Subsequent assessments were conducted at weekly intervals until 70 DAA. At 3 DAA, severely scorching of leaves was observed on VOPs sprayed with paraquat dichloride (5.0 L/ha) and MSMA (5.0 L/ha). At 7 DAA, paraquat dichloride at 5.0 L per hectare (93% kill) and MSMA at 5.0 L per hectare (20% kill) were significantly more effective than the other herbicides. At 14 DAA, there was 100 per cent control of VOPs by glyphosate monoammonium at 5.0 L per hectare, followed by paraquat dichloride at 5.0 L per hectare (93%) and glyphosate isopropylamine at 4.0 L per hectare (70%). Regrowth of treated VOPs were recorded for all treatments except glyphosate monoammonium (5.0 L/ha). Glyphosate monoammonium (5.0 L/ha) is the most superior herbicide to control VOPs using normal knapsack GWC spray volume of 450 L per hectare followed by paraquat dichloride (5.0 L/ha) and glyphosate isopropylamine (4.0 L/ha).*

**Keywords:** Volunteer oil palm seedlings, weed, efficacy, herbicide.