Eleusine indica has been reported to have become a dominant weed in oil palm nurseries after repeated chemical usage, especially of the same chemicals. This weed species is reported to be resistant to a number of herbicides including glyphosate. The main strategy to prevent or avoid herbicide resistance has been to apply combinations of herbicides in mixtures or in sequence. A field trial was conducted in an oil palm nursery to determine the effectiveness of clethodim, a new grass herbicide, in combination with glyphosate against E. indica that had been reported to be resistant to glyphosate. A total of ten treatment combinations were evaluated. Clethodim 26 per cent w/w EC at 0.9 litre product per hectare and 1.125 litres product per hectare with or without added adjuvant were found to be effective in controlling E. indica up to four weeks after spraying. However, weed succession by species of sedges and broadleaved weeds (Cyperus digitatus, Borreria latifolia, Ageratum conyzoides, Phyllanthus amarus and Cleome rudidosperma) occurred within the sprayed areas as early as three weeks after spraying; where glyphosate IPA 41.0 per cent w/w SL alone at 2.0 litres product per hectare was ineffective, indicating weed resistance. The lower rate of glyphosate IPA 41.0 per cent w/w SL + clethodim 26 per cent w/w EC at 2 litres + 0.54 litre product per hectare only provided 85 per cent control, and is followed with regeneration of the E. indica at three weeks after spraying. However, there was no succession by other weeds in this glyphosate IPA + clethodim mixture. The treatment with glyphosate IPA 41.0 per cent w/w SL + clethodim 26 per cent w/w EC at 2 litres + 0.9 litre product per hectare was most effective and gave excellent control of E. indica and at the same time there was no weed re-growth or succession up to four weeks after application. The responses observed in all glyphosate IPA + clethodim combinations suggest synergistic activity in mixture.

Keywords: Eleusine indica, herbicide resistance, clethodim, glyphosate, weed management.