Integrating Varietal Resistance and Phosphonate Fungicide in Management of Foliar Late Blight in Potato

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Conventional potato production is not possible without fungicide and the commonly used fungicides are expensive and are considered as environmental and human hazards. The aim of the experiment was to evaluate the efficacy of Phosphonate fungicides, the potential of combination with potato cultivars and economic impact as late blight control alternative. Two Phosphonates formulations; Agrifos 400 and Fosphite were compared Ridomil alternated with Mancozeb on different potato varieties in Kabete and Koibatek. Agrifos 400 alone was compared with Ridomil alternated with Mancozeb on different varieties in Kisima, Njambini and Limuru. Planting was done in 3 m × 3 m plots with four row and 10 tubers per row. Experimental units were replicated three times in a split-plot design. The results showed an effect of Phosphonates, which represent lower risks to human health and environment than conventional fungicides, on control of foliar late blight. In all the five sites Agrifos 400 was not significantly different with Ridomil alternated with Mancozeb in control of foliar late blight in most the varieties used and they were also comparable in yields with no significant differences in most of the sites. Preliminary economic analyses were also done and the result showed that there is more economic benefit in the use of Phosphonate formulation Agrifos 400 compared to conventional fungicides Ridomil and Mancozeb. The study suggests that the relatively inexpensive Phosphonate fungicides have significant potential to become an effective management tool for control of foliar late blight, and can be used as alternative to the hazardous conventional fungicides.

Keywords: Developing countries, economic benefit, phosphonate, *Phytopthora infestans*

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