

THE POSSIBLE INTEGRATED PEST MANAGEMENT OF EARLY BLIGHT DISEASE OF POTATO

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Abstract

Potato, *Solanum tuberosum* L., is planted in nearly all provinces of Iran and ranked third behind rice and wheat as a staple food. Although, Iran is clearly one of the largest potato growers in the Central Asia, The early blight disease of potato, *Alternaria alternate* and *A. solani* with dominance of *A. alternate*, is one of the worldwide disease, which occurs epidemically in potato growing areas specially in Iran. The disease primarily affects leaves and stems, but under favorable weather conditions, and if left uncontrolled, can result in considerable defoliation and enhance the chance for tuber infection. Premature defoliation may lead to considerable reduction in yield. The disease can also be severe on tomatoes, and can occur on other solanaceous crops and weeds. The fungus overwinters either on potato tubers or in dead, infected plant debris either in the soil or on the soil surface. The concentration of initial or primary inoculum from these reservoirs is usually low. Therefore, primary infection is difficult to predict since, early blight disease is less dependent upon specific weather conditions than late blight. Thus, because of the economic importance of potato, in Iran, there is a great need for the management planning to be taken into consideration. Movements toward a sustainable agriculture need to consider the managements which are to be economical, free of chemical hazards, applicable in large scales and adoptable by the farmers. Thus, searching for resistant sources, breeding and cultural practices become important as far as the disease and pest managements are concerned. In this study, with reference to the above scales, the factors including type and date of sowing, irrigation types, genetic sources and chemical controls by few systemic and non-systemic fungicides were assessed against the early blight disease of potato for three continuous years in Freidan, Isfahan, Iran. The results revealed that, almost all the treatments were having great influence on disease reduction with significant effects individually, and or in combination. Also enhance the potato productions. Sprinkler and dripper irrigations were very effective in comparison to furrow one respectively. Also, single and double rows had no any considerable effect. Late sowing by a month and or two weeks reduced the disease by 77 and 84 percent effectively and respectively. The resistance sources and or varieties, Diamante, Granola, Maradona, Picasso and Kaiser reduced the disease respectively. In respect to fungicides with lower dosage, including Belqute @ 750 g/ha and Flint with 250 and 200 g/ha, greatly reduced the disease severity respectively. Investigation on the integration of these scales, showed that in addition to disease reduction, the integration of various methods of control, resistant source, cultural practices and chemical measurements, not only causing the reduction of the cost product, but also, reduce the chemical hazards greatly.

Keywords: Resistance, IPM, irrigation, fungicide, sowing date and sowing type

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