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Importance of Weed-Tolerant Potato Cultivars

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Abstract

Potato plants are highly susceptible to weed interference, which can severely reduce crop productivity and quality. Efficient weed management is crucial for maintaining high yields, but current approaches have limitations. Mechanical and biological weed control methods often lack efficiency and are costly, while herbicide use poses environmental risks and contributes to herbicide-resistant weed species, thereby limiting herbicide options for potato producers. There is a growing need for alternative strategies, such as identifying potato cultivars that can naturally tolerate weed pressure while maintaining high yields. This study investigated the weed tolerance and yield stability of several potato cultivars when subjected to weed competition. Results revealed considerable variation in weed tolerance across the cultivars, with certain cultivars showing superior performance. The key traits associated with weed-tolerant potato cultivars included greater plant height, enhanced canopy coverage, and higher yield potential under competitive conditions. These traits enable certain cultivars to outcompete weeds and maintain productivity. Incorporating such weed-competitive potato cultivars into integrated weed management (IWM) systems could reduce the dependency on herbicides, thereby minimizing environmental impacts and lowering management costs. This approach represents a critical step toward more sustainable agricultural practices, offering an environmentally friendly and economically viable solution for potato producers facing weed management challenges.

Keywords: *Potato, weed competition, non-chemical weed control, competitive cultivars.*

