

## **Increasing Water Productivity by Decreasing the Discrepancy between Average Potato Yield in the Region and Its Performance in Pioneer Farms (A Case study of Fereidan Region, Isfahan)**

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### **Abstract**

Sustainable agriculture in each region relies heavily on monitoring production in that region to gain statistically accurate information. The present study was conducted in 2013–2014 in Fereidan, Isfahan Province, to determine the actual yield (average yield in the area) and the easy access yield (yield by pioneering farmers in the region) in an attempt to estimate possible water savings. Based on the data collected through questionnaires from the statistical population studied, certified tuber seeds, disinfection of the tubers, and application of potassium fertilizers were identified as the major factors affecting agricultural production that had been duly observed by 43, 66, and 59%, respectively, of the beneficiary farmers in cultivating the Agria cultivar. The figures obtained for the same parameters in the case of the Marfona variety were 42, 65, and 74%, respectively. Results indicated that observing these three factors would lead to increases of 12.2 and 12.3 t ha<sup>-1</sup> in the actual yields of the two Agria and Marfona cultivars, respectively, while the practice would also prepare the grounds for achieving easy access yield. Based on actual yields of the Agria and Marfona cultivars, water productivity values were 2.95 and 2.56 kg m<sup>-3</sup>, which will expectedly rise to 4.06 and 3.86 kg m<sup>-3</sup> if agricultural production in the region is raised to the easy access yield level. The net potato irrigation demand in Fereidan region was measured to be 5809 m<sup>3</sup> ha<sup>-1</sup>; this indicates an annual saving of 387200 m<sup>3</sup> of water for the approximately 4,000 hectares under potato cultivation if proper agricultural practices are implemented and easy access yield is achieved in the region.

**Key words:** Water productivity, Yield potential, Weeds.

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