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## Comparative analysis of main on-farm irrigation systems in Portugal

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### Abstract

Traditional irrigation systems still cover a large area of irrigated lands in Portugal. The needs for competitiveness leads to the gradual abandon of traditional systems, resulting in social and economic impacts. Pressurised on-farm irrigation systems provide labour savings but imply important investments. Surface irrigation does not require expensive equipment and is low energy and low labour consuming, if modern systems are implemented. Flexible-pipe, gated-pipe, surge-flow valve and cablegation are the main equipment issues available to Portuguese farmers for modern surface irrigation practice. Conditions for application of these systems have been studied relative to different soil and topographic conditions. Plane land, either horizontal or sloped and undulated fields can be irrigated by surface systems, if a convenient design is accomplished. The adequacy of the irrigation systems has been evaluated and a cost-benefit study was carried out. A case study of a situation with undulated land, representative of South Portugal, is presented in this paper, comparing surface irrigation issues and a sprinkler system. Conclusions show a particular economic interest on adopting surge-valve, gated-pipe and cablegation.

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