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A multi-disciplinary approach for promoting soil conservation in modern Industrialized Agriculture

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Over the past several decades agriculture has been faced with several significant developmental trends: productivity has increased, the growing season has expanded and technology has improved while manpower needs have decreased. At the same time soil conservation has often been ignored. This lack of consideration of soil conservation issues in modern agricultural practices may be due to several reasons: (1) soil erosion is not usually a visible and obvious phenomenon because in many cases its a slow process and often been obscured by cultivation; (2) unawareness of the problem by professionals (farmers and the extension services) and stakeholders; (3) the tendency to avoid direct costs of conservation practices; (4) research and development have been mono-disciplined, focusing on runoff control without treating other soil conservation objectives, as well as other agronomic and environmental aspects.

Recently the Israeli Ministry of Agriculture and Rural Development has integrated the concept of sustainability as a major component in farming policies. This change in approach has led to the advancement of multidisciplinary research for developing sustainable practices with mutual benefit to: the farmers, society and the environment. The project presented herein combines nine researchers from different disciplines in order to deal with current problems that originated over many years from a consistent, cumulative gap of technical knowledge in soil conservation and modern agricultural practices. The study aims at developing a BMP (Best Management Practices) for sustainable citrus orchards in the areas of soil water and environment conservation. It covers key factors for achieving sustainability: agronomic aspects - tree development, quantity and quality parameters of crop yield, disease and pest control and water use efficiency, environmental aspects - quantity and quality parameters of runoff, sediment transport, river pollution and blockage, biodiversity, soil contamination by herbicide and pesticide leakage and overall economic efficiency considering both the farmer and the entire society.