

Preface

This book focuses on the challenges to implement sustainability in diverse contexts such as agribusiness, natural resource systems and new technologies. The project arose from the editor's experience during the International Edamus M.Sc. course on "economics of quality for sustainable development"—the School of Agricultural, Forestry, Food and Environmental Science (SAFE), University of Basilicata, is a partner of the Edamus Mundus Programme. The exchange of ideas and the experience with students from all continents led to the idea to gather in one volume the experiences of researchers at the SAFE of the University of Basilicata in Southern Italy.

Basilicata's production system is mainly based on the agricultural sector and exploitation of natural resources. However, in recent years, it has witnessed industrial development driven by the discovery of oilfields. SAFE research took up the challenge posed by market competition to create value through the sustainable use of the region's renewable and non-renewable resources. Moreover, due to its unique geographical position in the middle of the Mediterranean basin, Basilicata is an excellent field laboratory for testing sustainable solutions adaptable to other Mediterranean areas.

The book offers a broad, multidisciplinary approach to identifying and testing different solutions tailored to the economic, social and environmental characteristics of the region and the surrounding areas. The volume is a collection of multidisciplinary case studies involving SAFE researchers and their scientific partners. It is intended as a stimulating contribution to the debate on the development of sustainable techniques, methods and applications for the Mediterranean regions. Last, but not least, a global event like Expo 2015 represents a unique opportunity to present the volume.

The book consists of three parts, with agro-food systems examined in Part I, natural resource systems and the environment in Part II and new technologies in Part III.

The first part includes the case studies related to experiences in the agro-food system. The first article addresses food security in the southern Mediterranean,

providing readers with an overview of important factors to achieve more inclusive, integrated and efficient food systems. Thus, after setting the scene, the next two articles deal with crop production from the twin angles of sustainability and healthy food production. The next five articles are case studies related to livestock production typical of the Mediterranean including goats, sheep but also buffaloes and Podolian cattle. The focus is on a more sustainable rearing method but also on enhancing the products obtained from the milk of these species; the last article in this group describes the innovative uses of donkey milk. This is followed by two studies dealing with sustainable agricultural practices in protecting traditional crops in southern Italy from disease: the cherry tomato and the PGI-labelled Sarconi bean. To follow, there is the experience of the Turkish Cypriot community's adoption of pomegranate farming. Last, but not least, is a contribution on the role of women in the wine industry.

The second part explores issues relevant to the sustainability of natural resource systems and the environment. The first four case studies analyse the effects of climate change and the use of non-renewable resources in relation to the region of Basilicata. Of considerable interest is the case study on the allocation of oil royalties from the presence of oilfields that have to coexist with the extensive agricultural and forestry resources of the region. The next article addresses the role of soil variability on potential groundwater pollution and recharge in a Mediterranean agricultural watershed. The last three articles discuss biodiversity from original standpoints such as the use of native grasses for turfgrass, hypogeous fungi and the role of grazing for biodiversity conservation on a Nature 2000 network site.

The third part pools experiences in the use of new technologies such as geographical information systems as a tool for landscape modelling and three-dimensional analysis; satellite technologies to apply precision farming; technologies for extending the shelf life of fresh fruit and vegetables; cost-effective and non-invasive geophysical techniques for near-surface investigation; the use of electrolysed water as the disinfecting agent in the food industry.

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