1. Record Nr. UNINA9910688482703321

Autore	Perez-Alfocea Francisco
Titolo	Vegetable Grafting : Principles and Practices / / Francisco Perez-Alfocea, Giuseppe Colla, Dietmar Schwarz
Pubbl/distr/stampa	Wallingford, UK : , : CABI, , 2017
Descrizione fisica	1 online resource (278 pages)
Disciplina	631.5
Soggetti	Grafting
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	1: Introduction to vegetable grafting -- 1.1: Importance and use of vegetable grafting -- 1.2: The process of vegetable grafting -- 1.3: Problems associated with vegetable grafting -- 1.4: Conclusions 2: Genetic resources for rootstock breeding -- 2.1: Genetic diversity -- 2.2: Genebank collections -- 2.3: Current usage of genetic material in rootstocks -- 2.4: Germplasm collection of other plant families -- 2.5: Concluding remarks 3: Rootstock breeding: current practices and future technologies -- 3.1: Introduction -- 3.2: Stacking traits: meiosis or grafting or both? -- 3.3: Developing stable, core collections of germplasm for breeding -- 3.4: Deploying genetic diversity for rootstocks -- 3.5: Grafting as a tool for genetic hybridisation and chimera production -- 3.6: Selection of improved rootstocks -- 3.7: Transgenic rootstocks -- 3.8: Rootstock registration and commercialization 4: Rootstock-scion signalling: key factors mediating scion performance -- 4.1: Introduction -- 4.2: Current knowledge of ionic and chemical signalling between rootstock and scion -- 4.3: Conclusions 5: Physiological and molecular mechanisms underlying graft compatibility -- 5.1: Introduction -- 5.2: Anatomical and physiological steps during graft union development -- 5.3: Role of secondary metabolites at the interface in graft incompatibility -- 5.4: Cell-to-cell communication between graft partners -- 5.5: Understanding the molecular mechanisms involved in graft union formation and compatibility. -- 5.6: Methods for examining graft union development and compatibility -- 5.7: Conclusions and future

perspectives 6: Grafting as agro-technology for reducing disease damage -- 6.1: Introduction -- 6.2: The first step: Managing diseases in the nursery -- 6.3: Disease spread from the nursery to the field, the example of powdery mildew of watermelons -- 6.4: Intra- and interspecific grafting and their relations to diseases -- 6.5: Biotic or abiotic stress? Different responses of grafted plants to environmental conditions, the case of "physiological wilt", and germplasm selection for rational breeding -- 6.6: Grafted plants' response to nematodes -- 6.7: Commercial rootstocks and unknown genetics -- 6.8: Different mechanisms involved in disease resistance induced by grafting -- 6.9: Conclusions 7: Grafting as a tool to tolerate abiotic stress -- 7.1: Introduction -- 7.2: Temperature stress -- 7.3: Salinity stress -- 7.4: Nutrient stress -- 7.5: Stress induced by heavy metals and metalloids -- 7.6: Stress by adverse soil pH -- 7.7: Drought and flood stress -- 7.8: Conclusions 8: Quality of grafted vegetables -- 8.1: What is quality? -- 8.2: Rootstock effects on fruit quality -- 8.3: Effects of grafting on ripening and postharvest behaviour -- 8.4: Bio-physiological processes affecting fruit quality -- 8.5: Conclusion and perspectives 9: Practical applications and speciality crops -- 9.1: Establishment of grafted transplant under Mediterranean climate conditions -- 9.2: Recommendations for the use of grafted plants in greenhouses. The case of the Netherlands -- 9.3: Role of grafting in speciality crops -- 9.4: Conclusions and future perspective of vegetable grafting -- 10: Index.

Sommario/riassunto

Although the benefits of using grafted transplants are now fully recognized worldwide, the need to enlighten the scientific basis of rootstock-scion interactions under variable environmental pressures remains vital for extracting grafting-mediated crop improvement. This has prompted the COST (European Cooperation in Science and Technology) Action FA1204 entitled 'Vegetable grafting to improve yield and fruit quality under biotic and abiotic stress conditions' aimed at systematizing research findings. The COST action allowed the development of a multidisciplinary network of partners targeting the root system and employing rootstock breeding to unravel the mechanisms behind rootstock-mediated crop improvement: the enhancement of productivity and fruit quality, and the sustainability of vegetable crops under multiple and combined stresses. The current book is the major output of the COST Action and contains nine chapters drawing on the 2012-16 activities of four Working Groups (WGs) dealing with 'Genetic resources and rootstock breeding' (WG1), 'Rootstock-scion interactions and graft compatibility' (WG2), 'Rootstock-mediated resistance to biotic and abiotic stresses' (WG3) and 'Rootstock-mediated improvement of fruit quality' (WG4). While recent advances of scientific knowledge constitute the core of this COST book, valuable practical information is also provided on rootstock-scion combinations, on applicable grafting methods, on the establishment of grafted transplants and on recommendations for the use of grafted plants as an effective tool for sustainable vegetable production. This book is compiled as a collection of scientific information and as a practical tool aimed at both the people involved in the commercial production and cultivation of grafted plants, as well as researchers interested in an understanding of the science and technology behind a grafted plant.