THE VEGETATIVE PROPAGATION OF FOREST TREES

Enescu, V., Ionita, L. & Palada, N.M.: [The Vegetative Propagation of Forest Trees]. Editura Ceres, Bucharest, 1994, 336 pp. ISBN 9–7340–0297–X. [in Romanian].

The book which is the first one in the Romanian specialized literature, deals with the most outstanding and modern issue of vegetative propagation of forest trees as well as its implications in practical forestry. It is also concerned with the new concept of clonal forestry in comparison to zygotic forestry based on sexual reproduction.

At the very beginning of the book the authors point out the scientific bases of vegetative propagation paying special attention to cellular bases and to the importance of meristems in vegetative propagation. The vegetative propagation is being treated in close relationship with trees juvenility, maturation and senescence. This part of the book is finished with treating the rejuvenation (sexual and somatic) or regaining the juvenile state through apex cultures.

The second part of the book shows the "conventional" methods of vegetative propagation: grafting, micrografting and cutting, including industrial cutting which is widely used nowadays all over the world with conifers and broadleaves. At the end of this part, special attention has been paid to the industrial cutting of Norway spruce, pines, oaks, beech, ash and sycamore.

Propagation by means of organs, tissues and cells *in vitro* is emphasized in the third part of the book. Different theoretical and technical problems of tree micropropagation by organogenesis and somatic embryogenesis are presented separately. In both cases, the main problem is organogenesis *in vitro* and somatic embryogenesis of gymnosperms and dicotyledons.

The fourth chapter of the book gives the latest applications of *in vitro* cultures: haploid, triploid and polyploid cultures, zygotic embryos, pollination and fertilization *in vitro* somatic hybridization, gene transformation, somaclonal reproduction techniques, nitrogen fixation and the possibility to get secondary products.

The fifth part is an introduction to plant breeding strategies based on vegetative reproduction in general, beginning with an attempt to preserve the huge biological diversity which is considered to be of great importance in biological and economic integration of vegetative reproduction in plant breeding and ending with several examples of breeding strategies based on clone selection and vegetative reproduction of plant material.

And finally, clonal forestry is the main problem of the last chapter of the book. Clonal forestry is a rather modern concept of wide perspective that tries not only to improve most of the mistakes of the past but also to realize several different capacities connected with the forest. This part of the book includes some theoretical aspects such as clone cultures, clone genetics and many practical implications as for forestry modernization, the advantages and disadvantages of clonal forestry, its principles or modern possibilities for using clonal forestry including policy and legislation.

The book is based on a wide range of special literature; its bibliography contains over 670 references published abroad or in Romania.

This publishing event has at least double significance. The first one lies in the practical and scientific progress that goes into the commercial use of results in vegetative propagation – as the authors state in the preface of the book – it makes reason to believe that the plant breeding and forestry in general are at the moment of choice. There have been created new theories and concepts based upon scientific documentation that make it possible to elaborate new strategies – the national forestry policy including "conventional" methods, *in vitro* micro propagation up to genetic engineering. The second important significance concerns time and space conditions in several European countries, where oaks are not used in the production process due to the absence of seed crop.

Under these circumstances vegetative multiplication by means of industrial cutting and even by micropropagation represents a serious alternative with scientific backgrounds sufficient in order to become of current use.

The book is aimed at the wide circle of scientists, specialists in forestry, horticulture and different fields due to the fact that the authors intended and they really succeeded, in elaborating a comprehensive synthesis of the latest knowledge paying special attention to the scientific bases of vegetative propagation and the implications that appear in a short or a long period of time.

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