

DESIGNER GENES

Designer genes. Ray Prebble (ed.). Dark Horse Publishing Ltd., Wellington, New Zealand, 2000. 221 pp, ISBN 0-9582146-0-3.

The book aims in providing the answers and to some degree also solutions to the humanity facing problems of genetically modified organisms. The book claims to be just a starting point in providing a forum for debate and opinions in this field of research and technology.

Following an introductory section in which the DNA based manipulations are briefly described as a methodological basis of genetic engineering, the benefits and pitfalls of the DNA-recombinant technology are presented in subsequent 17 chapters. A special section is in this context devoted to the opinion of J. D. Watson, one of the authors who have described the double structure of DNA, its spatial configuration and nature of the genetic code. Except for a short excursion to the history of the gene engineering industry the author emphasizes the necessity to separate carefully the facts from fictions in a debate on safety of foods that contain components from genetically modified plants. Summarizing the most important achievements during the last 19 years of gene technologies the production of recombinant human insulin and growth hormone to treat diabetes and growth defects are mentioned by J. D. Watson along with the new proteins to treat cancer and arthritis. The perspective and advantage of planting the genetically modified plants in agriculture is viewed from the standpoint of a global tendency to do agriculture without agricultural chemicals which cause toxic effects in agricultural workers and contaminate environment and ground water. A strong preference is given in this field on production of new varieties of crop plants with conferred resistance to pests and to environmentally friendly herbicides. The main issues of public concerns are presented with regard to the genetic pollution resulting from the release of genetically modified plants into the environment and with respect to the safety testing and labeling of foods produced from such plants. There is also a widespread concern that new varieties of plants will result in foods that contain more allergens, more

toxins and more cancer-inducing agents. The answer how far these fears are realistic may be found in the chapters dealing separately with genetic engineering for human health and agriculture as well as with its impact on the environment, biodiversity and its conservation. Spiritual and ethical considerations are specifically addressed in two chapters of the book stressing a great deal of research which is needed for risk assessment and public determination of the knowledge ownership. Also, a strong call for public control of genetic research in human reproduction has emerged as a response to the respective attempts in several laboratories of the world during the last few years. According to the right reverend Dr. T. J. Brown, in light of the sacred nature of life any change to the kernel of life, especially human life, must be contemplated with the utmost seriousness and for the good of humanity.

Regarding genetically modified conservation, the introduction of any new organism including genetically modified organisms is looked upon as a threat causing unwanted adverse effects to native species and their habitats. Among a few conservation benefits discussed so far, the production of sterile crop plants may be mentioned resulting from a remote hybridization of plant species and lacking the potential for pollen formation.

The remaining chapters forming a substantial part of the book deal with the effects of genetically engineered food on human health. The arguments of those advocating GE technology together with the opinions of its opponents are widely discussed. Although the book had been written exclusively by the New Zealand authors and is addressed preferentially to a New Zealand audience, its contribution to the world-wide debate on genetically modified organisms is indisputable.

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