

Preface

The limitations and concrete possibilities of biotechnology have long been debated, but general agreement now appears to have been reached on considering biotechnology "the use of living organisms or their parts, by exploiting the techniques of biology, chemistry, and engineering, to obtain products of practical use." In other words, biotechnology is not only "genetic engineering," it is also the rational exploitation and improvement of cell engineering, biochemical engineering, mutualistic symbiosis, and so on.

In reflecting on this wide definition, we recall that all branches and skills of biotechnology should exchange ideas and results in a frank interdisciplinary forum, without rhetoric, even risking the object of the meeting becoming generic.

We have thus set up a generic congress (or, if you prefer, one of reflection and verification on what is innovative in all these aspects). In fact, the construction and use of a diagnostic bioproduct is biotechnology, but so is the use of analytical technologies giving information on the environment—from mathematical models to predict the "behavior" of an organism, to the computerized analysis of forms for the recognition of microorganisms. The introduction of a biopesticide as an antagonist to a pathogen is biotechnology, but so is the use of a microorganism as a biological fertilizer. Also, and above all, the production of everything that goes before, and thus the selection, improvement, and engineering of the organisms in production is biotechnology, but so is the complicated engineering-biochemical technology needed to produce the bioreactors for the microorganisms or cells in production and to extract the products from them. From these simple reflections, the subtitle "Biodiagnosis, Biocontrols, Bioprocesses" originated.

An even more obvious observation, but strangely not so "popular," made us realize that biotechnologies, in the general meaning outlined here, are becoming increasingly important in the agricultural and environmental fields. Cellular manipulation and the micropropagation of plants in production, the controlled use of potentially favorable microorganisms, problems of parasitic and nonparasitic diseases, always on the increase, a future that will see the introduction into production of plants and of transgenic soil microorganisms: All of these are either already a reality or close to being one.

Agriculture is working to adapt its classical chemical methods to the use of biological means. This is significant, since 30% of current financial contributions to biotechnology goes to agricultural biotechnology.

On that basis, the idea originated of “seeing” how, and whether, biotechnologies influence not only “agricultural production,” but also what is apparently in opposition—although in reality is an inseparable companion—the equilibrium of the so-called natural environment; and thus to see what concrete things are being done in the field today. And so the title “Agricultural and Environmental Engineering” was born, and the conference was “constructed”: an invitation to rational innovation in a basic field, complex and still misunderstood.

Silvano Scannerini
Department of Plant Biology
University of Torino
Torino, Italy