

# Biotechnology for rural applications in Thailand

Lessons for developing countries in the Asia-Pacific region

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**Biotechnology has applications in agriculture, industry, energy, environmental conservation and pollution control. In recent years, along with genetic engineering, it has considerably widened its scope of applications. A recent entrant in the Asia-Pacific region, biotechnology has vast potential both for industry and for rural applications. The article discusses the status and scope of biotechnology for rural applications in Thailand and shares its experiences relevant to Asia-Pacific countries.**

## Introduction

**B**iototechnology comprises a series of enabling technologies that involve the practical application of living organisms or their parts for modifying products and improving plants and animals, or for developing microorganisms that will be used in the manufacturing and service industries or in environmental management. Its scope covers agriculture, industry, energy production, environmental conservation and pollution control or prevention.

In fact, biotechnology has been used since the early days of human civilization. For example, the ancient Egyptians produced potable alcohol by yeast fermentation of sugar-containing fruit without understanding the nature of the process. In more modern times, the role of microorganisms in such processes was realized and the resulting field of applied microbiology led to large-scale

fermentations for products ranging from alcohol to food, food additives and drugs. Other industrial applications included production of bulk chemicals and enzymes for industrial or household use.

Agricultural applications of biotechnology include improvement of crop yield and quality, production of plants resistant to pests, conservation of natural genetic stocks, production of biofertilizers and biopesticides, diagnosis and control of plant and animal diseases, increased animal reproduction and stock improvement, improved animal nutrition and improved animal feeds. Biotechnology is also applied to improvement in aquaculture.

In the case of health, energy and the environment, biotechnology is used for the production of drugs, vaccines and diagnostic reagents, for prevention and treatment of diseases, for general health products, for energy

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