

Biotechnology is enriching our life

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Introduction. Biotechnology research has been, and continues to be, central to meeting many of the current global aspirations and challenges, such as maintaining food, water and energy security for a healthy population on a habitable earth.

Currently, there are more than 250 biotechnology health care products and vaccines available to patients, many for previously untreatable diseases. More than 13.3 million farmers around the world use agricultural biotechnology to increase yields, prevent damage from insects and pests and reduce farming's impact on the environment.

Biotech is helping to heal the world by:

- Reducing rates of infectious disease;
- Saving millions of children's lives;
- Changing the odds of life-threatening conditions affecting millions around the world;
- Tailoring treatments to individuals to minimize health risks and side effects;
- Creating more precise tools for disease detection;
- Combating serious illnesses and everyday threats confronting the developing world.

Biotech is helping to fuel the world by:

- Streamlining the steps in chemical manufacturing processes by 80% or more;
- Lowering the temperature for cleaning clothes and saving \$4.1 billion annually;
- Improving manufacturing process efficiency to save 50% or more on operating costs;
- Reducing use of and reliance on petrochemicals;
- Using biofuels to cut greenhouse gas emissions by 52% or more;
- Decreasing water usage and waste generation;
- Tapping into the full potential of traditional biomass waste products.

Biotech improves crop insect resistance, enhances crop herbicide tolerance and facilitates the use of more environmentally sustainable farming practices. Biotech is helping to feed the world by:

- Generating higher crop yields with fewer inputs;
- Lowering volumes of agricultural chemicals required by crops-limiting the run-off of these products into the environment;
- Using biotech crops that need fewer applications of pesticides and that allow farmers to reduce tilling farmland;
- Developing crops with enhanced nutrition profiles that solve vitamin and nutrient deficiencies;
- Producing foods free of allergens and toxins such as mycotoxin;
- Improving food and crop oil content to help improve cardiovascular health.

Conclusions. Modern biotechnology provides breakthrough products and technologies to combat debilitating and rare diseases, reduce our environmental footprint, feed the hungry, use less and cleaner energy, and have safer, cleaner and more efficient industrial manufacturing processes. Recent advances in biotechnology are helping us prepare for and meet society's most pressing challenges.

References:

1. Microbiology Society Journal «What is microbiology?» Editor-in-Chief: Kangseok Lee. - March 2014, Volume 52, Issue 3.-P. 211–226.