Answers Question 7: In which areas do you see advantages of genetic engineering?

Micropollutant / plastic degradation

Nitrate input into the groundwater can be reduced by plants that are more resistant to nitrogen deficiency.

e.g. in the breakdown of micropollutants

possibly under strict conditions / controls

Use of genetically optimized microorganisms

As long as the environment does not suffer blatantly in other areas.

Modified bacteria that could metabolize pollutants or waste

Filtering the pollutants in the water

Biological solutions are desirable

Possible?!

Breakdown of pollutants

Solving the pollution of the waters by garbage (plastic) and micropollutants (not only painkillers)

Increase in yield of crops on the same cultivated area; less clearing

With new technologies one can possibly prevent environmental problems or crises

see answer above

- depending on the area of application

But also critical, since genetic engineering can generate new problems

Your project would be an example

It is certainly useful to use signal technology to eliminate pollutants and threats to the environment

Recycling of various materials

Plastic degradation

See iGEM projects

E.g. Fight neobiota, where this would otherwise lead to significant distortions of flora and fauna.

Water purification: rivers, lakes, seas plus sewage

Absorption of CO2 by genetically modified plants or algae

Plants resistant to diseases, climate, environmental changes; faster growing plants; aesthetics

> 10t / hectare are not a problem in Germany, in areas with less education, genetic engineering can lead to an increase in yields

e.g. More stress-resistant varieties -> higher and more stable yields and better land use

Increase in yield without pesticides

Obvious: seeds, more resistant, more productive plants etc.

I prefer to buy products that do not use genetic engineering. Nevertheless, I believe that, in principle, food shortages and plant diseases can be countered with genetic engineering.

Genetically modified plants that survive a drought better

higher yields

Actually more towards targeted, efficient nutrient production; white BioTech

Improve yields

Curb plant pathogens

artificial meat

More yield in agriculture

better crops that can deal with climate change

Yield increase and resistance development in crops

The

Pros: can increase profitability; Cons: possible health consequences for the consumer

Increased yield, more robust plants

Less pesticides and better growth in poorer conditions

In the supply of food and the prevention of pesticide use

Resistance so

Higher yields, adaptation to climate change, optimization of nutrients (e.g. Golden Rice), fewer pesticides (e.g. Bt plants)

Higher yields and less soil stressful harvests

Drug development; Gene therapies

Complex natural substances cannot be produced or can only be produced at great expense.

e.g. Manufacture of drugs (example insulin)

under strict conditions / controls

New therapies such as Bacteriophage

Human health should be consistent with ethical principles.

e.g. in the manufacture of medicines

obviously: "cutting out" diseases, etc, etc .; Develop drugs

Designer babies

E.g. production of medicines or similar.

Reproductive medicine

Ethically very complicated to evaluate. But basically it has the potential to overwrite serious hereditary diseases in the genome. - Here, too, I am by no means a frivolous advocate. I only see POSSIBLE benefits.

new therapy options

Cancer, reproductive medicine

Healing of diseases through individual medicine.

Medicines, therapies

Fight diseases

e.g. Production of insulin or skin cells grow and implant

Vaccine against SARS-CoV-2, 12% of all active ingredients are already produced with genetic engineering, among the newly approved it is 50% -> great potential!

Prevention or alleviation of genetic diseases

because I think that would speed it up

- depending on the area of application

New healing methods possible

Production of insulin, for example

Definitely useful, a lot already works with genetic engineering, but I still think that certain ethical limits should be observed here

Disease prevention or control

Cancer research

For the treatment of hereditary diseases and in the biotechnological production of substances as remedies

Fighting serious diseases

Production of hormones such as insulin

E.g. Cancer therapies

Disease detection in babies

Analysis of organism functions

Feeding people in areas with difficult agricultural conditions

3rd world

see agriculture. - But there are also negative examples: See rice that only grows for one period, which was distributed by the USA in Indonesia and which has pushed back the perennial golden rice.

Resistance of plants to pests, higher yields

Resistant plants for areas affected by e.g. climate change. (Must not be sold expensive with patent rights !!!!) Bayer

Food for third world countries

Plants that are drought-resistant, salt-resistant, flood-resistant, etc., genetically modified malaria mats, etc. with gene drive (project supported by Bill and Melinda Gates Foundation))

Yield increase and resistance development in crops; Vaccine manufacturing

It is an important issue, similar to environmental problems. Unfortunately no examples occurred to me at the moment.

Climate adapted foods

Again, there is also the possibility of increasing profitability. Especially for countries that are heavily dependent on agriculture

With more robust and high-yielding plants

food

See agriculture

Vitamins added to foods

Designer babies

Genetic engineering has definitely led to progress in terms of, for example, "our" / (western) standard of living

see all areas above.

Genetically modified foods e.g. "Golden Rice" avoids malnutrition

Xenotransplantation

Vaccine manufacturing

sure in some subjects

- depending on the area of application

See medicine.

Low price for groceries

See agriculture / development aid

Should be ethically weighed against all risks

only in well-researched areas, when necessary and when there are no alternatives, not experimentally outside of controlled environments

Substance conversion and synthesis of substances by specifically modified organisms offers many advantages which can ultimately offer improvements in all areas of life. Especially for products that are still being processed.

There are hardly any disadvantages

Biofuels

Generally more efficiency

Anything is conceivable, also great risks

Meat substitutes, see Ginkgo Bioworks - Impossible Burger