

GENETICALLY MODIFIED ORGANISMS (GMO)



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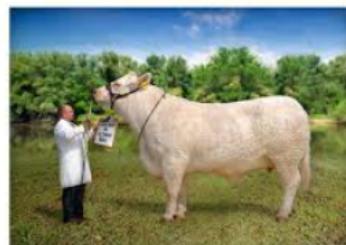
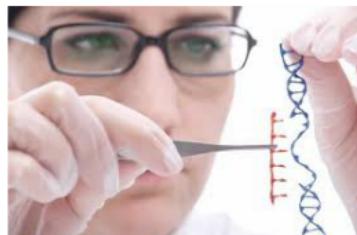


GENETICALLY MODIFIED ORGANISMS (GMO)

*Joshua Calaguas
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WHAT

- Plants or animals that have been genetically engineered with DNA from bacteria, viruses or other plants and animals
- Also sometimes called "*transgenic*" for transfer of genes.
- Genetic engineering may require mutation, addition, or deletion of genetic material.
- *When genetic material from a different species is added, the resulting DNA is called **recombinant DNA** and the organism is called a **transgenic organism**.



EXAMPLES OF GENETICALLY MODIFIED ORGANISMS

1. BT CORN



Q: What's Bt corn?

A: It's corn. With Bt.

Q: How is it a GMO? It's corn with bacteria. It's not modified.

A: Well, the corn is injected with Bt toxin from the bacteria and they insert it to the corn genome. So it's modified.

Q: What does it do?

A: Well, it creates pores in the digestive tract of worms.

Q: And then?

A: The pores allow bad bacteria to enter and then the worms infecting the corn will die!

Q: How?

2. GFP (Green Fluorescent Protein)



Q: Is GFP an organism?

A: No. It's a protein.

Q: Where do you get this protein?

A: From jellyfishes!

Q: Why do they need to glow?

A: Because they allow scientists to see the movement of particles in an organism.

Q: Like what organism?

A: Influenza virus.

Q: Really? You can see the movement just by making organisms glow?

A: When something glows, there's light. When there's light, you can see things. Scientists were able to see things they don't normally see, like in the case of the influenza virus.

3. Dolian



Q: What is a dolian?

A: A rare breed of animal which is transgenic.

Q: Why is transgenic?

A: Genes from a lion and a dog were transferred to a host egg.

Q: Why did scientists do this?

A: To show how far Science can go with modern DNA and cross fertilization. To prove that it can be done.

Q: That's it?

A: Well, in a simple view, yes. But cross fertilization paved the way for more benefits (e.g. experimentation on the fern spider)

2. GFP



1. BT CORN



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Q: What's Bt?

A: Bacillus Thuringiensis :))

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Q: How?

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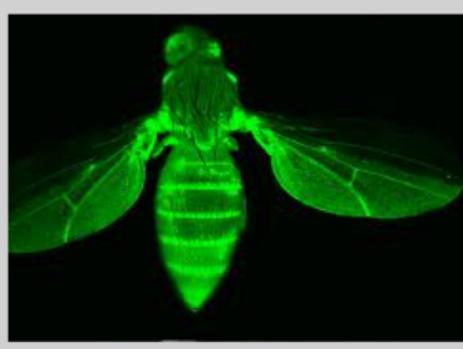
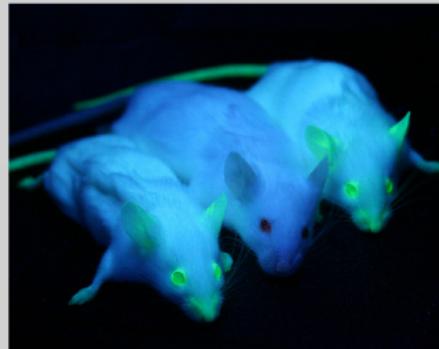
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Q: A protein for what?

A: Well, it's a protein placed in the genome of organisms to make them glow.

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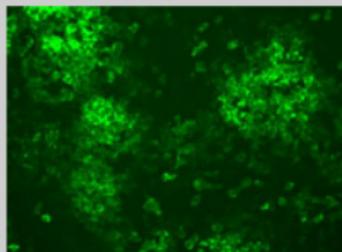
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WHY

- To improve health and disease resistance (*Green Fluorescent Protein*)
- To improve crop growth and crop's nutritional value (*Bt Corn*)
- To prove the advances of modern science and pave the way for more research (*Dolion*)

PROS

- Increase the supply of resources needed for sustainable development of the nation
- Less cost in the production of such organisms
- Less pesticides and chemicals
- More benefits in the foods themselves
- Vaccine possibilities:
- Better food quality and taste



CONS

- Transgenic seeds are more expensive
- Possible alterations the ecosystem
- Increase in the need for herbicides



Social Impact

- Rise of healthy and organic lifestyle trend



Environmental Impact

- *Genetically modified crops require even greater amounts of herbicide*
- *Relies heavily on chemicals leading to water pollution and soil degradation*
- *Insects, birds and wind might carry genetically altered pollen to other places, pollinating plants and creating new species (Transmutation)*



Issues

Big Companies

- Monsanto, Syngenta, DuPont
- Patenting Issue



Health Issues

- Allergenicity
- Gene Transfer



Labeling Issue

- House Bill 5247
- More than 50 countries have restrictions on GMO products

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MONSANTO



syngenta

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