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IMPACTS OF GENETICALLY MODIFIED FOODS

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ABSTRACT

Genetically engineered food are created for human and animal consumption. The use of genetically engineered food can replace policies and practices that are harmful to the environment such as use of pesticides, fertilizers etc. Genetically engineered food is evolved as the result of human population in the past century.

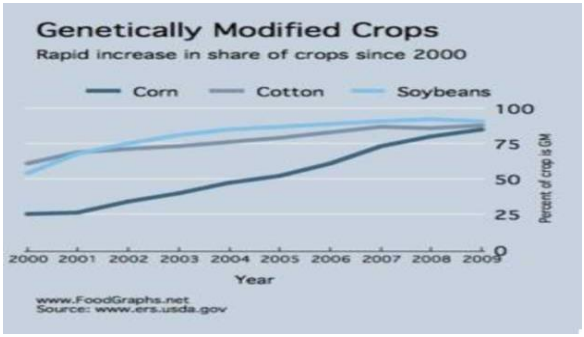
Key Words: *Genetic modification, Biotechnology, Transgenic animals, Vaccination, Antibiotics, Pesticide.*

INTRODUCTION

Genetically Engineered Food has their DNA Altered. It can be done with plant, animal (Transgenic), bacteria & microorganisms. Scientist takes gene of desired trait in one plant/animal and Insert It into another plant/animal. Also known as GEF (Genetically Engineered Food).GMOs indicates the development Of Food Technology. The goal of genetic modification is to introduce new trait that are not currently present in an organism. It is one example for Biotechnology, Vaccination etc...

PRODUCTION OF GMO:

The following graph shows the major GM crops grown,



Growth, Control Reproductive activity, Modify Its Behaviour, Control Fertility, Increase Resistance of Species towards Pathogen/Parasite, Increase Tolerance to Environmental Condition Such As Temperature/Pressure/Humidity etc...One of the Main Objectives for Producing GMO Is To Improve Crop Production

GM FOODS VS ORGANIC FOODS:

Generally consumers think that organic food is safe& healthy. Since the characters of foods are altered both in positive and negative way people hesitate to use GM. Organic foods are grown with natural fertilizers (manure/compost), insects and weeds are Controlled Using Natural Methods Whereas GM Food Are Grown With Synthetic herbicides, and Gene Is Altered To Show Resistance Against Pest, Weeds etc..

ASSESSMENT ON GM AND ORGANIC FOOD:

Specific system from National Authorities have been setup for rigorous evaluation of GM food relative to both human health and environment. Similar Evaluation Are Generally Not Performed for Organic Food. Hence There Currently Exists a Significant Different in Evaluation. The Codex Alimentarius Commission (Codex) Is the Joint FAO/WHO Intergovernmental Body Responsible for Developing the Standards, Codes of Practice, Guidelines and Recommendations that Constitute the Codex Alimentarius, meaning "The International Food Code". Codex Developed Principles for GM Food in 2003.

GM FOODS GROWN:

The First GM Food Grown was Tomato. Cotton, Corn, Soya bean Are Main GM Crops Grown. Most of These Are Used To Make Ingredients for Other Food Such As

- Corn Syrup Used As Sweetener
- Corn Starch Used In Soup Sauces
- Soya bean, Corn, Canola Oils Used in Snack Foods, Breads, Salad Dressing.
- Sugar from Sugar Beets.

Other Major GE Crops Are Apples, Papayas, Potatoes, Golden Rice and Squash.

ADVANTAGES OF GM FOOD:

1. INSECT RESISTANCE

GM Foods Have Been Modified To Make Them More Resistance To Insects And Other Pests. This Means The Amount Of Pesticide Chemicals Used On The Plants Are Reduced.

2. STRONGER CROPS

Crops are engineered To Withstand Weather Extremes and Fluctuation. Therefore There Will Be Good Quality & Sufficient Yields Even Under Poor Or Severe Weather Condition.

3. LESS DEFORESTATION

To sufficiently feed the growing population, deforestation is needed. But with genetically modified animals and crops the use of this method will be minimized. This would decrease co2level in the atmosphere which in turns decrease global warming.

4. NEW PRODUCTS

New kinds of crops are being developed to be grown at extreme climates such as dry/freezing environment. For example, scientists have developed a new type of tomato which would grow in salty soil.

5. OTHERS

Food with most desirable trait such as potato that produces less of cancer causing substance when

- Faster Growing Plants

- Medicinal foods that could use as vaccines or other medicine.

SEVEN MAJOR DISADVANTAGES OF GM FOOD:

1. HARMFUL TO THE ENVIRONMENT

GM crops and their associated herbicides can harm birds, insects, amphibians, marine ecosystem and soil organisms. They reduce biodiversity, pollute water resources and are sustainable.

2. ALLERGIC REACTION

It can pose significant allergy risk to people. It states that genetic modification often adds or mixes protein that were

not indigenous to the original animal or plant, which might cause new allergic reaction in our body.

3. UNUSUAL TASTE

GM foods are observed to have unnatural taste compared with ordinary foods that are sold on the market.

4. DECREASED ANTIBIOTIC EFFICACY

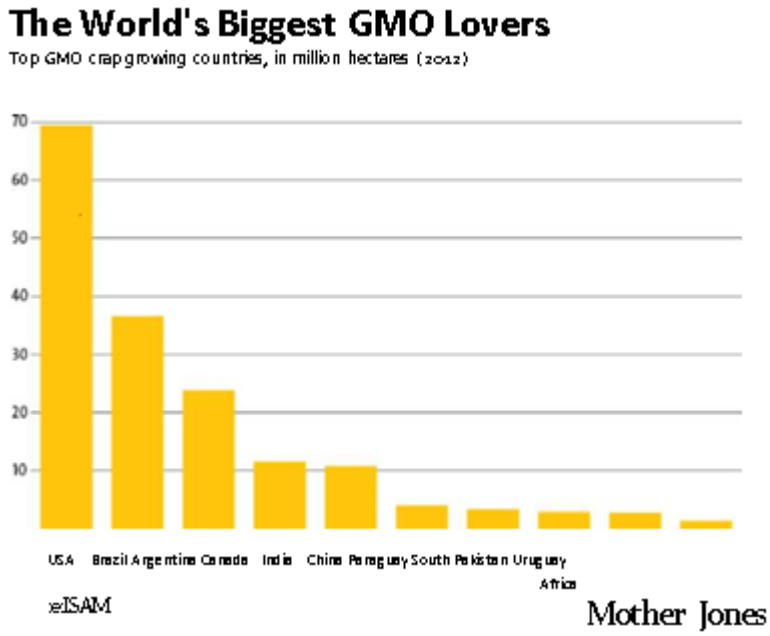
GM foods have antibiotic features that are built into them making them resistant or immune to viruses/diseases and when we eat them, these antibiotic markers will persists in our body and will render actual antibiotic medication less effective.

5. EXPLOITATION

Some countries use genetically modified food as a powerful weapon against their enemies. Scientist has discovered that these products can kill lot of individuals in the world by causing harmful diseases.

6. ECONOMIC CONCERNS

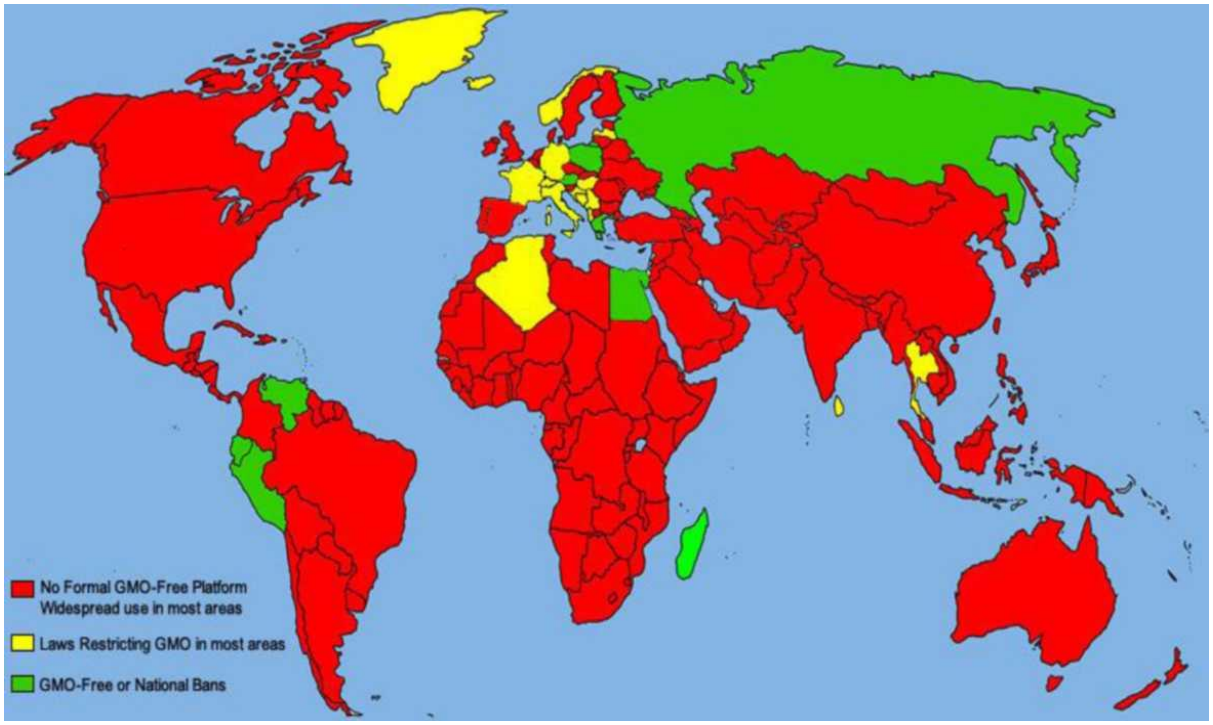
Bringing genetically modified food to the market can be a costly and lengthy process. Many new genetic engineering technologies and products have been patented, and patent infringement is a big concern within agribusiness. The consumer advocates are worried that this will raise seed price to very high level thus widening the gap between rich and poor.



7. RISK OF FOOD SUPPLY

GMO seeds are patented products and in order to purchase them customers have to sign certain agreements for use with supplier or creator. As the reliance on these seeds expand around the world, concern about food supply and safety also continue to rise. Furthermore the

GMO seeds are structurally identical and if a problem affect one of them, a major crop failure can occur. The following map shows the countries
adopted GMO,



RESULT:

GM crops offer many benefits over naturally occurring crops including higher yield, higher nutritional content etc. However genetic engineering is very powerful tool and must be used prudently.

CONCLUSION:

Genetically modified foods can potentially solve many hunger and malnutrition problems in the world, as well as help protect and preserve the environment by increasing yields. However, it is important to proceed with caution to avoid unfavourable consequences for the surroundings and our health, considering that genetic engineering technology is very powerful. As it stands now, genetically modified foods must pass safety tests, and therefore aren't considered to be risky. However, the lack of research on GMOs means the real dangers of these foods will only be known years later. Therefore, it's best to avoid GMOs altogether and stick largely to whole foods that are made organically.

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