**Much a Do About Nothing**

**GMO Fact and Opinion**

The GMO (Genetically Modified Organism) topic continues to be a subject of discussion throughout many sources, individually and media outlets.

These are several comments and statements  that can assist you, the American family consumer and general public, to evaluate a decision for your family.

***What is a GMO?***

GMO’s are foods or plants created with the use of biotechnology.

U.S.D.A. defines the GMO as a term originally used by the molecular biology community to denote a living organism that had been genetically modified by inserting a gene from an unrelated species. Incorporation of genes from an unrelated species does not occur in nature through sexual reproduction; thus various technologies are used to accomplish this. These types of plants are generally called “transgenic”.

In crop plants the technology has generally been used to incorporate insect resistance or herbicide tolerance. Recently the technology was used to increase Vitamin A and Iron in rice.

In the future, transgenic plants may be used as “bioreactors” to produce large quantities of inexpensive pharmaceuticals, polymers, industrial enzymes, modified oils, starches and proteins.

Basically a GMO is a food, plant, crop or an item related to these things created using biotechnology. There are several kinds of GMO’s, all involving taking a gene from one species and placing it in another unrelated species.

Do farmers have a choice to plant GMO Crops?

**Yes**; farmers have a choice to plant or not to plant GMO crops.  No individual or company is forcing any farmer to plant GMO seed or crops. The market place does have other seed or crops available.

Through biotechnology, there are many varieties of seeds available that help farmers raise better crops despite harsh conditions; such as, drought, pest and weeds.

Biotechnology allows farmers to use fewer pesticides (insecticides and herbicides) with more precise application to reduce damage and competition for crops. Also, use less labor, fuel and reduce greenhouse gases.

These biotechnologies allow farmers to use more soil and water conservation practices. For farmers sustainability means maintaining their environment and leaving it in a better condition than they found it, for the next generation.

The technology use agreement signed by farmers purchasing a company’s seed is their patent protection, much like any patent item we purchase.

***What do farmers say about the safety of using GMO Crops?***

Farmers believe the use of GMO food **is safe**. They have no concerns in eating GMO foods; feeding their animals GMO crops then eating the meat, milk and eggs produced.

Fifteen million from sixty countries have been granted approval for raising GMO crops and importing other crops for food and feed for livestock.

During the 2009/2010 growing season 95% of sugar beets, 93% of soybeans, 93% of cotton and 86% of corn acreage were GMO crops.

The grocery manufactures of America estimate 70 to 75% of all processed foods in the U.S. contain GMO ingredients. Another report indicates the estimate to be 80% of foods in supermarkets contain GMO ingredients.

Transgenic technology has been used in over 40 species of plants including but not limited to:

corn, cotton, tomatoes, potatoes, soybeans, tobacco, rice, cranberries, papayas, raspberries, gladioli, chrysanthemums, petunias, poplars, spruce, walnuts, canola, squash, alfalfa, sugar beets, sugar cane, rapeseed, sweet pepper, sweet corn and corn syrup.

These GMO crops and others look the same as conventional and organic varieties of the crop. They are the same because they are the with the exception of a single protein or a few proteins. These proteins are all natural.

The protein placed into sweet corn or field corn to protect from moths and worms is similar to one of the primary organic pesticide “bt” or bacillus thuringenes. The protein is safe and more environmentally friendly.

***Use GMO or Not***

BT products are found to be safe for use in the environment and with mammals. The EPA (environmental protection agency) has not found any human health hazards related to using BT products. The EPA has found BT safe enough that it has exempted BT from food residue tolerances, ground and water restrictions, endangered species labeling and special review requirements. BT is often used near lakes, rivers, homes and has no known effects on wildlife; such as, mammals, birds and fish.

The insect tolerant; Bollgard, yield guard, widestrick, twinlink, herculex; BT is specific to certain insects and will have no effects on others.

The herbicide tolerant; round up ready, liberty link, glytol, round up ready 2 extend, the “Roundup Ready” gene has received more attention. Some would have you believe plants have “roundup” injected into their system. This is not the case. The gene that is inserted into “roundup ready” plants is a petunia gene because they are naturally resistant to Roundup. The process is essentially taking a desirable gene from an innocuous plant and inserting that protein into another. Sorta like adding nuts to chocolate.

The FDA (Federal Drug Administration) requires wording on labels for an ingredient **only if** it might present a danger to a consumer, if the consumer were unaware of its presence. Knowing whether or not GMO is in your food **doesn’t** make it any safer for you.

We have all sorts of scientists engaged on health and environment. It’s amazing the amount of research and testing being conducted. These scientists are concerned about farm, family and health; following 20 years of raising GMO crops.

**GMO Relates to Me, How?**

Increasing ones knowledge of farm operations will separate fact from fiction and misconceptions. Farmers are concerned with the care of the land, crops, animals and consumers.

All journals of information aren’t created equal. Some allow a person to pay to get opinions and uninformed choices published and presented as fact. Be sure to use reliable sources.

Scientists need to get more involved to support or discredit such claims being made on subjects; such as GMO foods.

Older methods of modifying crops mixed thousands of genes and had unpredictable results. The fact that today’s scientists can now insert a single gene into a seed crop **shouldn’t** raise a new alarm.

Therefore, as a consumer it’s a choice for you to make, based on your informed choice. The increase of knowledge will assist you to make an acceptable choice for you and your family. Be sure you check the reliability of your sources.

**Where Can Biotechnology GMO information be found?**

1 Google Scholar

2 Pulz Med

3 Alexander Stein

4 David Tribe

5 Academics Review

6 Applied Mythology-Steve Savage

7 Best Food Facts

8 Bio Fortified.org/Biology Fortified, Inc.

9 Genetic Literacy project

10Kevin Folta-University of Florida

11 Keith Kloor-Discover Magazine “Collide-A-Scope”

12 Emil Karlsson “Debunking Denialism”

13 Derek Lowe a chemist, “In The Pipeline”

14 Pamela Ronald- National Geographic Magazines “Tomorrows Table”

15 wikipedia.org Genetically Modified Crops

16 Mark Lynas- environmentalist I was wrong about GMO’s from Dovers Cattle Network- editorials Page 62 dated 1-9-2013

17 Oxford Farming conference in United Kingdom- Mark Lynas report “I was wrong about GMO’s”

18 Mom at the Meat Counter by Janeal Yancey

19 Nina Fedoroff- Penn State University

20 Ruth MacDonald- Iowa State University

21 Scientific American- Journal

22 American Association for the Advancement of Science