***GENETICALLY ENGINEERED FOOD***

***CHANGING THE NATURE OF NATURE****What You Need to Know to Protect Yourself, Your Family, and Our Planet
Outline based on this book written, by Martin Teitel, Ph.D., and
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I. The Agriculture that produces our food is vital for all human life
A. the nutritional value and safety of our agriculture is the
basis for our health.
B. Food is very important to God.
1. Many of the Feasts of the Lord are associated with food and with
the harvesting of food
2. In Acts Chapter 15:19-20 Apostles had a Council in Jerusalem to
determine what Hebrew Laws (called the Laws of Moses) the Gentiles had
to keep upon their conversion to Yeshua.
a. 3 of the 4 DETERMINED AS NECESSARY, HAD TO DO WITH FOOD!!
b. ACTS 15:19-20 19 Wherefore my sentence is, that we trouble
not them, which from among the Gentiles are turned to God:
20 But that we write unto them, that they abstain from pollutions of
idols, and from fornication, and from things strangled, and from
blood.
C. I Corinthians 6:19-20 19 What? know ye not that your body
is the temple of the Holy Ghost which is in you, which ye have of God,
and ye are not your own?
20 For ye are bought with a price: therefore glorify God in your
body, and in your spirit, which are God's.
D. Food is the basis of spiritual rituals to most religions of the world
1. Food has communal, social, personal and spiritual importance to
human life in all cultures
2. (I believe) that’s why the enemy of the soul of man works so hard
to defile it
3.Many religions incorporate food into their worship
4. Our deepest and even most essential connection to the food that
sustains all of humanity is threatened by the conversion of food- from
an intricate plant/culture system to a cold-blooded profit center-
a. the transformation of what we love and are nourished by –
into a product line engineered to maximize revenue -at all costs
1.a. It may cost us our health and our blessings from God
b. Besides the obvious health issues- bio-engineered food is a
challenge to our spiritual, moral and religious lives. (SEE SHEET ON
GENESIS ORIGEN STORY)
II. How does Bio-genetic Engineering Work?
A. A gene, (piece of DNA) from one source is isolated, removed
and then “pasted” into the DNA of another target. Example scientists
are taking the DNA of a fish and inserting it into a tomato’s DNA
B. The process involves the insertion of a package of material:
the foreign genes themselves, and a vector to carry them.
1. This is due to the protective barrier of the target organism. (God
designed)
2. Scientists use viruses to invade the target
a. Bio-techs attach a piece of DNA to a viral vector and then
insert the virus (vector) into the recipient organism, so it can
infect that organism, thus delivering the new DNA fragment into the
DNA of the target organism.
b. Because this process of “cutting and pasting” at a
submicroscopic level can be difficult to keep track of, scientists
often “mark the vectors” with anti-biotic-resistant genes so that
normal cells can be distinguished from genetically engineered cells.
c. The cells are covered with antibiotics and those cells that
have successfully incorporated the foreign DNA and the resistance
genes from the vector grow, while those that haven’t been modified
die.
d. There is increasing controversy- the use of viral vectors
sometimes called promoters are lengths of genetic material found in
all genes: it is the promoter that enables a gene to “express itself”,
or to actually make the protein that it is capable of making.
e. Most often used is the cauliflower mosaic virus CaMV
III. Potential hazards of the Cauliflower mosaic virus CaMV
1. Could activate dormant viruses in the target host
2. Could combine with viruses already present in the target host
3. Since they are now anti-biotic resistant, abnormal results may
not be able to be determined or controlled
4. Very little research by independent scientists is being done
a. What research has occurred has scientists citing a physical
similarity between CaMV and the HIV virus.
b. An example of an especially disastrous viral combination and
appears to be theoretically possible
IV. Labels
A. NO REQUIREMENT IN THE UNITED STATES TO LABEL GMO FOODS
1. Can not tell just by looking at the food
2. worse news- many of the growers and brand names we have come to
trust for providing us with fresh quality produce are now co-owned by
Monsanto, DuPont, & Dow
a. These mega companies have spent billions of dollars buying up
as many seed companies as possible to sell their genetically
engineered seeds
b. Seed companies continue business as usual- only NOW they are
selling Gen-Seeds.
3. In the U.S. genetically engineered crops have not been segregated
from the normal ones so food producers are not positive one way or the
other
C. Because of the financially disastrous failure of the Flavr
Savr Tomato in 1994, manufacturers aren’t risking their market by
informing the public about their GMO foods
1. labeling is totally voluntary in the U.S.
2. Monsanto is playing both sides of the street, producing chemicals
that kill plants and plants that resist being killed by chemicals.
a. by creating food crops that are resistant to herbicides, you
create a niche market for yourself and increase profits for the
herbicide manufacturer. (of course if you own the herbicide as well,
then you create a closed-loop market for yourself)
1a. these crops are called Roundup Ready (Roundup is quite toxic
affecting the soil and water, and also the habitat for wildlife as it
kills everything except genetically engineered foods.)
2b. Although Environmental Defense and Al Gore have portrayed
glyphosate- the active ingredient in Roundup as safer than other
herbicides it is the 3rd most common cause of illness among
agriculture workers in California.
I. What are they trying to produce?
A. Herbicide tolerant plants- designed to survive sprayings of
weed killers. Just like every other industry in the world,
agriculture is attempting to eliminate the need for workers. Using
chemicals is their answer.
1. Monsanto came up with “The Innovator Canola” however, the seeds
did not produce consistently and an unexpected gene showed up.
2. Monsanto sold 60,000 seed bags across Canada before pulling off the market
a. proves that scientists can’t predict the outcome of gen seeds
b. Ecologist magazine reported, “A number of different viral-resistant
transgenic plants engineered with a viral gene actually showed
increased propensity to generate new, often super infectious viruses
by recombination..”
B. Frost resistant plants
1. Genes from an arctic fish that code for an antifreeze
protein have been integrated into tomatoes in an attempt to confer
resistance to frost. Believe that frost-resistant tomatoes could
retain their texture after being frozen.
2. Another attempt was the ice-minus bacterium. First genetically
modified organisms to be released into the agricultural ecosystem.
a. Ice requires a regularly shaped surface on which to crystallize
b. Lindow (@ Berkeley Univ. spliced out the gene responsible for
giving the bacterium Pseudomonas syringae a regular surface. This
“ice-minus” bacterium was sprayed on strawberries. It worked
preventing ice from forming on the plants and avoiding frost damage.
1a. While these transgenic frost-resistant organisms continue to be
produced and used, serious concerns remain regarding the ecological
consequences of dispersing transgenes into the environment.. If they
grow rampantly, they could disrupt ice formation where not sprayed…A
lab created bacterium which prevents ice formation from occurring…
C. Pesticide resistant plants. Bt or Bacillus thuringiensis is a
bacterium whose proteins are an insecticide. (Caterpillars, beetles
and fly larvae are targeted.) Non-targeted insects could be affected
by natural ways and means of nature’s processes.
1. Initially only sprayed on the plants, now scientists are
engineering plants to grow with the gene in them.
2. Approved by the EPA in 1995, Monsanto’s New leaf potato was
released to market. (EPA does not regulate food products, however
since this food product contains a genetically engineered pesticide
within it, it is regulated.) A $250 million dollar market
called the biopesticide market.
3. New generations of Bt crops and sprays are being developed in
anticipation of the decreasing efficiency of Bt due to insect
development of resistance.
a. Aventis’s brand of Bt corn, called StarLink uses a different
Bt protein that will retain its efficacy in a transgenic crop system
that is inundated solely with Cry1A toxins, (the usual Bt toxin) where
resistance might develop.
4. Val Giddings, vice president of the Food and Agricultural Division
of the Biotechnology Industry Organization, calls concerns about pest
resistance “bogus,” claiming that technology will keep “well ahead of
evolution of insect resistance for 100 years or more.
a. Given the fact that the entire international medical
community has been unable to stay ahead of anti-biotic resistant
organisms, that seems unlikely
(In Sept. of 2000, it was discovered that StarLink corn had been
intermixed with the human food supply, even though this was only
approved for animal feed because of its potential for causing allergic
reactions in people. While initially thought to be confined to one
company’s taco shells, StarLink corn soon turned up in hundreds of
food products on U.S. grocery shelves. Our food-distribution system
simply doesn’t have the safeguards in place to protect us.
D. THE TERMINATOR is a technique in which genetically altered
plants are programmed to kill their own seeds. (More than 1.4 billion
farmers around the globe rely on saved seed. The terminator seeds
forces them to have to buy more seeds each crop season. This creates
the dependence on big seed companies they want.
1. Developed by The USDA and Delta& Pine Land Patent #5,723,765.
There are now more than 30 terminator patents held by every major
player in the agriculture field.
2. Outraged that public resources and money were used to develop this
technology which so blatantly serves private interests, more than
7,000 people have written to the USDA in opposition.
a. sterile seed pollen can drift from field to field, carried by
the wind or insects, rendering nearby crops sterile.
In may of 1999, New Hampshire became 1st state to ban the use of
terminator technology
E. rBGH or recombinant Bovine Growth Hormone or rBST- recombinant
Bovine Somatotropin is a gen. eng. Hormone that tricks a cow’s body
into producing more milk than it otherwise would. (Developed by
Monsanto)
1. Milk from cows treated with rBGH has been know to be contaminated
with pus from udder infections, with antibiotics administered to stem
those infections and with high levels of insulin-like growth factor
(IGF-1), which has been liked to human breast and gastrointestinal
cancers. (IGF-1 is a hormone protein that is present in humans and
helps cells divide. Of course, high levels of cell division and
growth are undesirable.)
a. the high levels of IGF-1 found in milk from rBGH cows shows
that more precautions should have been taken before permitting the
release of this substance into the food supply.
b. Former FDA employee Dr. Richard Burroughs was fired after
ordering toxicology and immunology tests on rBGH.. He had this to
say, “I was told that I was slowing down the approval process. It used
to be that we had a review process at the FDA. Now we have an
approval process. I don’t think the FDA is doing good honest reviews
anymore. They’ve become an extension of the drug industry.”
II. Dangers of the technology
A. Gene Jumping =Genes do not necessarily remain in organisms,
they can flow through natural cross-pollenization to related
organisms, or move between unrelated organisms using viruses and some
bacteria as vectors. This process is known as horizontal gene
transfer. (Super weeds can result with herbicide resistance,
pesticide resistance or viruses in them)
-Scientists that are creating new species of plants are endangering
the planet PERIOD.
B. Antibiotic resistance.
1. The use of antibiotics in bio tech plants can create resistance to
these antibiotics in animals and humans.(also to bacteria they
encounter in the human digestive system)*