What are GMOs and why ban them?

Genetically Modified Organisms are produced when scientists insert genes from various organisms (human, plant, animal, bacteria or virus) into plants. This technology differs fundamentally from traditional plant breeding in that it forces the exchange of genes across species barriers – an exchange that does not occur in nature.

For example, genetic engineers have inserted viral and fish genes into tomatoes, spider genes into goats, jellyfish & chicken genes into potatoes and even human genes into rice.

Most commonly, the introduced gene is " built" of DNA from viruses and bacteria, which are chosen because of their ability to infect the host plant, that is, to overcome its defense mechanisms against foreign DNA. For technical reasons, a gene with antibiotic resistance may also be added to genetically modified organisms. Once inserted, the engineered genes are passed on to future generations. They may mutate, recombine with viruses, or be transferred to closely-related plants, with unknown and largely unstudied consequences.

The main genetically engineered crops are corn, soy, canola and cotton, though hundreds of other genetically modified crops are being developed,. The main introduced characteristics are resistance to certain proprietary pesticides (such as Monsanto's Roundup) and the production in plants of insecticides. A new branch of genetic engineering, called "pharming," creates plants that produce pharmaceutical drugs and industrial chemicals.

Marin's ban does not apply to genetically modified organisms that are cultivated indoors for medical uses.

Reasons for banning GMOs

ECOLOGICAL IMPACTS

Increased Pesticide Use: Many crops have been engineered to withstand otherwise lethal doses of pesticides. Farmers using Roundup Ready soybeans use 2 to 5 times more pesticides than farmers of conventional soybeans. The increased use of pesticides threatens our waters and wildlife.

Super Weeds: Excess spraying has also created pesticide-resistant weeds in many American states and foreign countries. Such superweeds may displace native plants, destroy sensitive habitats, and disrupt ecosystems. In addition, herbicide-resistant plants could themselves become unstoppable weeds if they invade areas where

they are not wanted.
Danger to Beneficial Insects: A number of crops have been engineered to produce an insecticide in all their tissues, including the edible grain and roots. Lab and field studies have shown that these plants can kill non-target insects, such as butterflies and beneficial insects and microorganisms.

IMPACT ON AGRICULTURE

Contamination of Conventional Crops: Pollen from GMOs can travel great distances and cross-pollinate with other crops. Seeds of GMO can also spread and contaminate other crops. Contamination by GMOs will cost Marin's growing number of organic farmers their certification since Federal organic standards do not allow organic foods to contain GMOs. Moreover, Federal standards require "an adequate border" between organic crops and GMO crops, so even f a rms whose crops are not contaminated by GMOs will lose their organic certification if GMO crops are grown nearby.
Consumer Confidence: Consumer disquiet about GMOs is widespread in this country. There is concern that the FDA, EPA and USDA are not adequately regulating genetically engineered food crops. The potential for contamination by GE crops will undermine consumer confidence in the purity and wholesomeness of organic and conventionally farmed agricultural products.
Lack of Labelling: Because there is no requirement for GE foods to be labeled as such, Marin's reputation as a producer of high quality foods will suffer if there is not a clear ban on their use.

FOOD SAFETY AND SECURITY

Long-term Effects: Genetic engineering is a technology with unknown and potentially dangerous consequences, such as the creation of antibiotic resistant bacteria strains and introduction of new toxins and allergens into the food supply. We should wait until more is known about the long-term effects of GMOs before allowing their planting in Marin County.
Monopoly Control of Seeds: Food security is undermined by the strictly enforced monopolies held on genetically engineered seeds by the three chemical companies that now control nearly all the seed companies in the United States.