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Essay 1

The Role of Evidence in Public Policy

The safety of Genetically Engineered (GE) foods has become increasingly debated since their introduction into the animal food production industry in 1996. Despite an overwhelming body of scientific evidence and expert consensus ascribing safety and efficiency, GE foods (both in commercial livestock and consumer products) have developed stigma in a subset of the population. (Eenennaam and Young, pg. 4255-6) Minority opinions should not be dismissed outright but must be debated in the scientific community in avoidance of dogma before influencing public policy, lest policy be made in err to the detriment of the society as a whole.

Genetically Engineered crops were developed as a cheap and reliable food source for many common ruminant animals such as cows, pigs, and sheep. In essence, a bacterial gene responsible for the secretion of a natural pesticide was added to the genetic material of various crops such as corn and wheat. The modified plant is then able to secrete the pesticide increasing yields. The GE crops are then fed to farm animals which are a common foodstuff in a first-world diet. According to a recent review in the *Journal of Animal Science* by Eenennaam and Young, "Numerous experimental studies have consistently revealed that the performance and health of GE-fed animals are comparable with those fed isogenic non-GE crop lines." (Eenennaam and Young, pg. 4255) Despite the growing body of evidence for GE food safety, a small minority has rejected animals fed these crops and indeed the crops themselves. If this minority becomes majority and works to ban GE crops, how might that effect the population as a whole.

Eenennaam and Young suggest the alternative (GE-free foods) will become increasingly expensive to produce given the nature of pest control in large scale food production. (Eenennaam and Young, pg. 4256) A ban on GE crops would most likely increase the cost of production on many food products with varying implications on the health status of the public. Should this sacrifice be made, and how would it be justified?

In *Letter to the Grand Dushess Christina of Tuscany*, Galileo Galilei explains how scientific evidence arises, "...in discussions of physical problems we ought to begin not from the authority of scriptural passages but from senseexperiences and necessary demonstrations..." (Galilei) In other words, evidence starts with demonstrated and observed phenomenon of nature not from any sort of dogma. In terms of the scientific consensus on GE food safety, Eenennaam and Young concluded, "No study has revealed any differences in the nutritional profile of animal products derived from GE-fed animals." (Eenennaam and Young, pg. 4255) Of course, science is a continuous process and without absolute proof. Therefore, some method of disproof must be allowed. To this Galileo suggests, "...before a physical proposition is condemned it must be shown to be not rigorously demonstrated-and this is to be done not by those who hold the proposition to be true, but by those who judge it to be false." (Galilei) Those who have rejected GE crops for their own reasons are responsible for the production of evidence of danger. Without sufficient evidence, rejection of GE crops is dogmatic by definition and therefore to be dismissed. Given that the consensus of the scientific community is in support of GE crops, what right does the dogmatic minority have to influence public policy and by extension the majority?

John Stuart Mill presents a compelling argument for support of minority opinions in his work *On Liberty,* "We can never be sure that the opinion we are endeavouring to stifle is a false opinion; and if we were sure, stifling it would be an evil still." (Mill, pg. 31) Since humans are by nature fallible, outright rejection of any opposing discussion could be suppressing truth. Even prevailing opinions can be in err, and conversely, a single dissenting voice might be the truth as presented by nature. (Mill, pg. 32) The rejection of GE foods should not be dismissed outright by this demonstration. However, given the complicated and sometimes convoluted nature of scientific discipline, how is society to determine the best course of action for determining public policy in light of controversy? Mill writes,

> "That simple minds, having been taught the obvious grounds of the truths inculcated on them, may trust to authority for the rest, and being aware that they have neither knowledge nor talent to resolve every difficulty which can be raised, may repose in the assurance that all those which have been raised have been or can be answered, by those who are specially trained to the task." (Mill, pg. 70)

GE food safety should be debated among experts and not in the annals of governmental policy. Eenennaam and Young are considered experts in the field of Animal Science as demonstrated by the acceptance of their paper in the peer reviewed *Journal of Animal Science*. In the sixteen years since widespread adoption of GE crops, not a single study has presented evidence of their harmful effects. (Eenennaam and Young, pg. 4255) This might be considered the "assurance of those who are specially trained to the task" that GE foods are indeed safe. Until the minority can

present adequate evidence of the danger of GE foods, the consensus of the experts shall remain unmoved. If such counter evidence is presented, and a consensus cannot be reached, the debate may very well move into policy debate and become subject to the scrutinizing of each culture.

Regardless of the actual safety of genetically engineered food based animal products, public policy should not be influenced solely by an outspoken minority without first possessing at least some semblance of verisimilitude from the scientific community. Without quality, evidence-based research and general expert consensus, public policy might be effected with great devastation to the population. Even then, evidence only reduces the risk of danger. In this instance of debate, GE foods have both a scientifically supported safety record and approval of the experts. Public policy should reflect that fact. In short, scientific evidence should be the gatekeeper between dogma and policy.

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Bibliography

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