

Tribal Regulation of Genetically Engineered Organisms

Laying the Groundwork



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April 2017



National
Congress of
American
Indians



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“When we were strong in our foods on this continent, we were stronger people - we were healthier. And for Indigenous peoples it all starts with the food. When Indian Country lost its ability to feed itself, through whatever means, we lost that part of ourselves that supports our ability to thrive. It is only by regaining our foods will we be able to restore our health, our resilience as peoples and secure the stability and diversification within our own communities and local economies. But the challenges to secure that future require different approaches than those used in other communities and in predominately urban settings, if for no other reason than our unique legal status, the remote location of our lands upon which foods can be found, and the language, cultural traditions, and legal status of our communities. ”

- Janie Hipp Director, Indigenous Food and Agriculture Initiative, University of Arkansas School of Law¹

Introduction and Acknowledgements

In 2013, the Yurok Tribe, working with the Northern California Tribal Court Coalition (“NCTCC”) received a grant from the National Congress of American Indians (“NCAI”) Partnership for Tribal Governance Initiative (“PTG”) Government Reform project. Through this PTG grant, the Yurok Tribe, working with NCTCC, enacted legislation to ban genetically engineered organisms on Tribal lands, and has taken steps to similarly restrict pesticides from contaminating Tribal lands.

Specifically, on December 10, 2015, after several months of committee drafting and opportunity for public comment, the Yurok Tribal Council unanimously voted to enact the Yurok Tribe Genetically Engineered Organism (“GEO”) Ordinance.

The Tribal GEO Ordinance prohibits the propagation, raising, growing, spawning, incubating, or releasing genetically engineered organisms (such as growing GE crops or releasing genetically engineered salmon) within the Tribe’s territory and declares the Yurok Reservation to be a GE-free zone. While other Tribes, such as the Dine’ (Navajo) Nation, have declared GE-free zones by resolution, this ordinance appears to be the first of its kind in the nation.

The Yurok’s GEO ordinance came on the heels of the Federal Food and Drug Administration’s (FDA) approval of genetically engineered “AquAdvantage” salmon in November 2015.

¹ *From the report: Feeding Ourselves: Food access, health disparities and the pathways to healthy Native American communities (Echo Hawk Consulting, 2015)*
<https://nebula.wsimg.com/891e74d1afe847b92abe87b2a1df7c63?AccessKeyId=2EF8ECC329760AC5A98D&disposition=0&alloworigin=1>

On April 11, 2013, the Yurok Tribe enacted a resolution opposing genetically engineered salmon, and then secured a grant from the National Congress of American Indians (NCAI) to support the Tribe's work in continuing to protect its ancestral lands, including: waters, traditional learning and teaching systems, seeds, animal-based foods, medicinal plants, salmon, sacred places, and the health and well-being of the Tribe's families and villages. GE farms, whether they are cultivating fish or for fresh produce, have a huge, negative impact on watersheds the world over. The Yurok Tribe's homeland is on the Klamath River, where massive algal blooms, exacerbated by agricultural runoff and antiquated hydroelectric dams, turn the river toxic each summer.

The Yurok People have managed and relied upon the abundance of salmon on the Klamath River since time immemorial. The Tribe has a vital interest in the viability and survival of the wild, native Klamath River salmon species and all other traditional food resources.

"The Yurok People have the responsibility to care for our natural world, including the plants and animals we use for our foods and medicines. This Ordinance is a necessary step to protect our food sovereignty and to ensure the spiritual, cultural and physical health of the Yurok People. GE food production systems, which are inherently dependent on the overuse of herbicides, pesticides and antibiotics, are not our best interest." - James Dunlap, then Chairman of the Yurok Tribe.

The Ordinance allows for enforcement of violations through the Yurok Tribal Court.

"It is the inherent sovereign right of the Yurok People to grow plants from natural traditional seeds and to sustainably harvest plants, salmon and other fish, animals, and other life-giving foods and medicines, in order to sustain our families and communities as we have successfully done since time immemorial; our Court will enforce any violations of these inherent, and now codified, rights."

- Hon. Abby Abinanti, Yurok Chief Judge.

The Yurok Tribe continues to work with other Tribes in a regional collaborative as part of the NCTCC and the Tribe and NCTCC co-hosted a Northern California Tribal Food Sovereignty Conference - *Restoring the Balance: A Tribal Food Sovereignty Gathering* in Klamath California in April 2016. In 2016, NCTCC received a Seeds of Native Health grant from First Nations Development Institute ("FNDI") to continue with work started by the Yurok Tribe and NCTCC. Through the FNDI funding, NCTCC was able to complete work on local Tribal pesticide legislation, research and draft model codes and policy guides to regulating genetically engineered organisms, pesticides and other contaminants on Tribal lands, as well as host a series of Tribal Youth Food Sovereignty Camps in February and March of 2017, with additional technical assistance from Valerie Segrest.

This overview of Tribal Regulation of Genetically Engineered Organisms follows a question and answer format, for ease of reference, and is aimed to generally introduce Tribal communities to GE concerns and regulation.

What exactly is a GEO/GMO?

In a nutshell, a genetically engineered/modified organism (“GEO” or “GMO”) is an organism (generally a plant) which has had its DNA directly manipulated in a laboratory environment. It is “genetically engineered” (“GE”) to create qualities not usually existing in the existing species. This can include forcing DNA from one species into another species that would never naturally breed in nature. Cross-species (“transgenic”) genetic manipulation examples include gene-splicing between species, like crossing the genetics from a virus, bacteria, or even an animal, with those of a plant, such as combining fish DNA with tomato DNA to create frost-tolerant tomatoes.

What crops are GE and what foods are they in?

In the U.S., a staggering 88% - 99% of the following crops are GE: namely alfalfa, corn, soy, sugar, (from sugar beets) canola, papaya, and cotton.² Some zucchini and yellow squash are also GE, with new crops in the queue for introduction, such as the Simplot potato.

85-95% of processed, packaged foods in the U.S. contain GE ingredients, mostly in the form of corn, (corn oil, starch, sugar, syrup etc.) soy, sugar and canola. If these ingredients are listed, and are not organic or non-GMO verified, they are almost certainly GE. For example, if a non-organic ingredient listed on a package just says “sugar” it is likely from GE sugar beets. Cane sugar is not GE.

In the U.S., unlike in about 64 other developed countries, GE ingredients are not required to be labeled, and statewide labeling efforts have thus far failed because of the relentless ad campaigns paid for by agribusiness interests.

What is the difference between cross-breeding and hybridization and lab-created GEOs?

Plants that have been cross-pollinated (traditional hybridization) and animals that have been traditionally bred to achieve specific characteristics are NOT GE (genetically engineered in a lab). These untested creations are *not* what our ancestors did, or what responsible farmers do, namely cross-pollinate different varieties of the same plant to help naturally bring forth desirable characteristics. Farmer-tested cross-breeding is not the issue here.

Why is it so important to have regions where GE crops are restricted?

Refugia describes a region with unique geographic characteristics that can serve as a refuge for habitat and species or is critical for food security. For example, the long narrow fertile valleys surrounded by mountains in Southwest Oregon and the Himalayan

² <http://www.nongmoproject.org/learn-more/what-is-gmo/>

mountains are some of the last remaining significant regions that can serve as refugia for non-GE food crops.

Caution dictates that if genetically engineered crops prove to be unsafe, shouldn't we have regions left on Earth that have not been contaminated with these crops and other genetically engineered organisms?

Farmer, permaculture expert and organic seed exporter Don Tipping eloquently sums up the idea of Refugia, the realities of air-pollinated crops and why we should prioritize the rights of local small-scale family farms over foreign corporate interests in a short video available at: <https://youtu.be/tBV2lqvLVIM>.

Because of sacred and ancient ties to the land and its inhabitants, and because of the inability of state and local agencies to regulate on-reservation land use, Tribal and other Indigenous communities are uniquely positioned to create refugia from genetic contamination on a global scale.

As local counties and communities nationwide attempt to ban or phase out GE crops, powerful lobbying forces push through preemptive state legislation, effectively prohibiting local control. We have recently witnessed how Oregon, despite large public outcry, passed Senate Bill 863 as an "emergency" law. The equivalent of a state "Monsanto Protection Act," that law now prohibits counties and cities within the state from locally banning or regulating GEOs.

This rush to enact preemptive legislation is happening nationwide (and also globally, such as with the Trans-Pacific Partnership ("TPP")). For example, after a recent rash of earthquakes in Oklahoma, which the state admits were most likely due to natural gas hydraulic fracturing, ("fracking") the state (instead of rushing to regulate the earthquake- causing fracking) immediately acted to pass statewide preemption legislation stating that local communities are now banned from regulating fracking.

The Navajo Nation and some other indigenous communities have declared their territories to be GE-free zones and have called for other Tribal communities to join their efforts; in December 2015 the Yurok Tribe adopted the first Tribal GE Ordinance in the nation. This important enactment serves as a model and support to other Tribal communities nationwide to curb the spread of these organisms, particularly GE Salmon.

What is the problem with GE Salmon?

The Federal government approved genetically engineered salmon in 2015.³ AquaBounty is a company that seeks to produce a farmed salmon in the United States that has been genetically altered to grow faster than native salmon. If these 'frankenfish' were to escape into our waters, they could destroy our native salmonid populations through

³ <https://www.fda.gov/ForConsumers/ConsumerUpdates/ucm472487.htm>

interbreeding, competition for food and the introduction of parasites and disease as well as other unintended consequences.

In 2014, the State of California banned transgenic salmon from California waterways due to the above concerns, relieving some pressures on salmon-dependent cultures. However, because of the wide reach of the waterways outside of California, if the California Tribes do not also act to ban these transgenic salmon within Tribal territories and usual and accustomed fishing areas, it could potentially eventually no longer be able to harvest naturally-selected salmon.

NCAI, other Native organizations and Tribes have enacted resolutions opposing the FDA approval of transgenic salmon. Adopting legislation to ban these organisms and other GEOs is the logical next step for Tribes seeking to protect their cultural resources.

How Would a Tribal GEO Ordinance Affect the Tribal Membership?

The average gardener or farmer on the reservation will not be impacted. Because GE seeds are patented and carefully guarded, (a farmer can even be sued for patent infringement if his non-GE crops are contaminated with GE pollen that happens to land there) GE crop contracts are highly regulated by the biotech firms. Almost all farmers planting genetically engineered seed must sign a complex, legally binding, restrictive contract that is dozens of pages long. Syngenta and/or Monsanto do not contract with farmers to plant GE seeds in a restricted zone.

GE crops can put organic farmers out of business and even contaminate the average gardener's crops. Pollen from GE crops *can and will* cross-pollinate with related non-GE crops of farms and gardens and genetically contaminate them, potentially resulting in huge economic losses as occurred in Southern Oregon recently. The wind, pollen and our pollinators such as bees and birds do not recognize property or county/reservation lines.

Therefore, while Tribal legislation of GEOs is not addressing something that is a current immediate threat to most tribes in Northern California, it will prevent large multinational foreign chemical corporations from attempting to sell, distribute or release their seeds and salmon within the Tribal territory in the future, and creates a legal cause of action for doing so.

A GEO Ordinance will help to promote the inherent sovereign right of Tribes to secure food sovereignty and Tribal control, grow plants from natural traditional seeds, and to sustainably harvest plants, salmon and other fish, animals and other life-giving foods and medicines free from genetic contamination.

A GEO Ordinance also provides a mechanism to educate and protect Tribal communities as to the health and environmental hazards of genetically engineered foods, and work towards labeling and/or phasing out the sale and provision of such foods on Tribal lands. There is a concern, for example, of the WIC program providing infant formula that is largely based on GE ingredients that are grown to withstand increasingly high levels

of pesticides and herbicides, which (like glyphosate, found in Monsanto's weedkiller Roundup) have been recently declared a "probable carcinogen" by the World Health Organization.

Are GE foods safe?

Genetically engineered foods have never been proven safe. The FDA requires no pre-market health safety studies, and the only long term peer-reviewed animal study conducted involving GE corn sprayed with Monsanto's Roundup herbicide, found massive tumors, organ failure and premature death in rats. In addition, a growing body of peer-reviewed animal studies have linked these foods to allergies, organ toxicity, diabetes, cancer, autoimmune disorders, birth defects, high infant mortality rates, fertility problems, and sterility.⁴

The World Health Organization has recently issued a report (based on a Lancet-reported study⁵) declaring glyphosate, the main ingredient in Monsanto's Roundup, as a "probable carcinogen."⁶ "Roundup Ready" crops are created to endure (and sell) increasing levels of this probable carcinogen. Additionally, some farmers are encouraged to use Roundup to dry out crops (such as wheat) for harvesting. Consumers can buy and spray Roundup just about anywhere.

Clearly, more independent, long term studies are warranted. Crops engineered to withstand heavy applications of toxic herbicides contain chemical residues that research shows are even more harmful to children and other vulnerable populations than healthy adults.

The Consumers Union has called for mandatory pre-market safety testing of genetically engineered foods, a standard the U.S. fails to meet. A National Academy of Sciences report states that products of genetic engineering technology "carry the potential for introducing unintended compositional changes that may have adverse effects on human health."⁷

Even if GEOs are safe for human and animal consumption - what we do know is that this method of agriculture contaminates our local farms and gardens and jeopardizes our soil, water, food and crop integrity. Even if one is not convinced about human health or environmental concerns, U.S. GE crops are increasingly being rejected in world markets, with our farmers bearing the cost. These crops don't make sense in terms of global economic sustainability.

What environmental impacts do GE crops pose?

⁴ <http://www.qmoseralini.org/en/>

⁵ <http://www.thelancet.com/journals/lanonc/article/PIIS1470-2045%2815%2970134-8/fulltext>

⁶ <http://www.cancer.org/cancer/cancercauses/othercarcinogens/generalinformationaboutcarcinogens/known-and-probable-human-carcinogens>

⁷ http://www.nap.edu/openbook.php?record_id=10977&page=1

Genetically engineered agriculture is restricted or banned in over 60 countries worldwide. Corporations that cannot grow genetically engineered crops in their own countries come here. For example, Syngenta is a giant Swiss chemical corporation, but GEOs are banned in Switzerland, so they come to the U.S. and contract with landowners in remote regions to use the areas as secret labs for growing GE seed (such as their GE sugar beets) and as a dumping ground for toxic pesticides.

Pollen from genetically engineered plants contaminates not only crops, but also wild plants. Experimental bentgrass escaped its test plot and has now invaded natural fields several states away. The implications of this type of uncontrolled alteration of the genome are unknown, but statistically, intentional or inadvertent genetic drift is likely to cause severe damage to ecosystems over time.⁸

The agricultural practices required for GE crop production demand high levels of pesticides. GE seeds are coated with neonicotinoids. This insecticide is thought to be responsible for our rapidly declining bee populations and its use is restricted or banned in some Oregon counties. Genetically engineered agriculture damages the soil, compromises pollinators and their habitat, and pollutes water supplies.

Besides polluting the environment with herbicides and pesticides, genetically engineered crops are leading to biodiversity loss and the emergence of “super bugs”⁹ and “super weeds”¹⁰ that are threatening millions of acres of farmland, requiring the need for even more dangerous and toxic herbicides.¹¹

Genetically engineered crops, and the increasingly heavy load of toxic pesticides they are designed to endure, are endangering numerous critical species, including the honeybee,¹² frogs,¹³ birds,¹⁴ fish¹⁵ and the Monarch Butterfly.¹⁶

Obviously, our air and water are also impacted. The island of Molokai in Hawaii has had its air and water quality destroyed by Monsanto’s almost-2000-acre test facility.¹⁷ The same is true worldwide, with many areas around GE farms reporting bloody skin rashes, an uptick in asthma and toxic pesticides that leach into the groundwater.

⁸ [https://www.testbiotech.org/sites/default/files/Testbiotech Transgene Escape.pdf](https://www.testbiotech.org/sites/default/files/Testbiotech%20Transgene%20Escape.pdf)

⁹ <http://www.bloomberq.com/news/articles/2012-09-04/-rmountinq-evidence-of-buq-resistant-corn-seen-bv-epa>

¹⁰ <http://www.foodandwaterwatch.org/reports/superweeds/>

¹¹ <http://www.anh-usa.org/aqent-orange-on-our-crops/>

¹² http://www.extension.org/paques/65034/neonicotinoid-seed-treatments-and-honev-beehealth#.UhQINT_v8WA

¹³ <http://www.scientificamerican.com/article/common-herbicide-turns-male-froqs-into-females/>

¹⁴ [http://nationalzoo.si.edu/scbi/migratorvbirds/fact sheets/?id=8](http://nationalzoo.si.edu/scbi/migratorvbirds/fact%20sheets/?id=8)

¹⁵ <http://www.fws.gov/contaminants/Issues/Pesticides.cfm>

¹⁶ <http://www.bevondpesticides.org/dailvnewsbloq/2013/03/dramatic-monarch-butterflv-decline-tied-to-qe-cropland-and-unseasonable-weather/>

¹⁷ <http://www.theorganicprepper.ca/crimes-against-humanity-how-monsanto-is-turninq-a-hawaiian-island-into-a-petri-dish-complete-with-human-lab-rats-06132013>

Do we need GEOs to feed the world?

Do we need to embrace this modern technology because it is “superior” to conventional farming methods? Studies have proven that genetically engineered crops do not lead to greater crop yields. In fact, just the opposite is true. A recently released, peer-reviewed study published in the International Journal of Agricultural Sustainability found that conventional plant breeding, not genetic engineering, is responsible for yield increases in major U.S. crops.¹⁸

Even a recent report by the US Department of Agriculture states that genetically engineered crops have not increased yields. In fact, in some cases yields for these crops were lower than for their non-genetically engineered counterparts.¹⁹

*The United Nations has stated emphatically that only small, local, non-genetically engineered farms can feed the world.*²⁰

Even if there might be occasional higher yields with some genetically engineered crops, we cannot afford the risks to the health of our soil, water, food and crop integrity that accompany this method of agriculture.

A quick note about Golden Rice: a person can obtain the same amount (and better quality²¹) Vitamin A from eating one nutrient-dense sweet potato as he or she can get from eating kilos of nutrient poor GE rice.²² And without the yearly patent contracts and heavy pesticide and herbicide load accompanying GE crops. Again, only small, local, non-GE farms can best feed the world.

Do genetically engineered crops reduce the need for pesticides and herbicides?

No. Genetically engineered crops have dramatically increased the use of herbicides and pesticides. According to a new study by Food and Water Watch, the “total volume of glyphosate applied to the three biggest genetically engineered crops — corn, cotton and soybeans — increased 10-fold from 15 million pounds in 1996 to 159 million pounds in 2012” with the overall pesticide use rising by 26 percent from 2001 to 2010.²³

The report follows another such study by Washington State University research professor Charles Benbrook, that found that overall pesticide use increased by 404 million pounds, or about 7%, from 1996 and 2011. The use of genetically engineered crops is now driving up the volume of toxic herbicides needed each year by about 25 percent.

¹⁸ <http://www.tandfonline.com/toc/taqs20/current>

¹⁹ <http://www.reuters.com/article/2014/02/24/usda-qmo-report-idUSL1N0LT16M2014Q224>

²⁰ http://www.huffingtonpost.com/2013/12/17/un-report-organic-farming_n_4461577.html

²¹ <http://qmwwatch.org/index.php/news/archive/2013/15115-new-briefing-on-golden-rice-shows-many-better-alternatives>

²² https://www.organicconsumers.org/old_articles/patent/vitaminAhoax.php

²³ <http://www.foodandwaterwatch.org/reports/superweeds/>

What are Other Concerns About GEOs?

Some GE varieties of corn and other crops are engineered to produce their own pesticides and/or to be herbicide-resistant. No amount of soap and water can wash the built-in pesticides off. These crops can cross-pollinate to create chemical-resistant weeds and pests. When we ingest these plants and their derivatives, we are ingesting their pesticide and herbicide-resistant DNA, which is foreign to our body's digestive and immune systems.

No human health or safety testing has been done on these genetically altered foods.

In May 2009, the American Academy of Environmental Medicine urged all doctors to prescribe non-GE diets for everyone and explained that animal studies show that GE food is linked to infertility, immune problems, accelerated aging, organ damage, and gastrointestinal problems. They called for a moratorium on GEOs, and mandatory labeling.²⁴

Unfortunately, many of the ingredients used in most restaurants are genetically modified. 30,000 different GEOs exist on grocery store shelves (again, mostly because of how many processed foods contain soy, corn, beet sugar and canola derivatives).

What Can Our Tribe Do?

If your Tribal staff, leadership and community are concerned about protecting your lands, waters, foods and medicines from transgenic contamination, we encourage you to work to regulate GEOs on your reservations and other Tribal lands.

Copies of the final and model ordinances and policy guides can be found on NCTCC's website: www.nctcc.org under our Rights of Mother Earth program. For questions or further information about Tribal regulation of GEOs, contact Stephanie Dolan, NCTCC Executive Director, at 530.575.5818 or sdolan@nctcc.org

²⁴ <https://www.aemonline.org/gmo.php>