



OPEN QUESTIONS  
OPEN MOUTHS  
OPEN ENGAGEMENT

*The Center for Genomic Gastronomy* is just over a year old now. Our goal has been to ask open questions about human food systems, using our taste buds to direct us. Our journey as an organization is just starting, but we have collected here three of our early projects that ask what various things taste like.

**What does a Food System TASTE LIKE?**

*What kinds of plants, animals and laws support the cheese we eat?*

**What does Radiation Breeding TASTE LIKE?**

*What kind of Mutants do we eat everyday?*

**What do failed GMOs TASTE LIKE?**

*Where do GMOs go to Die?*

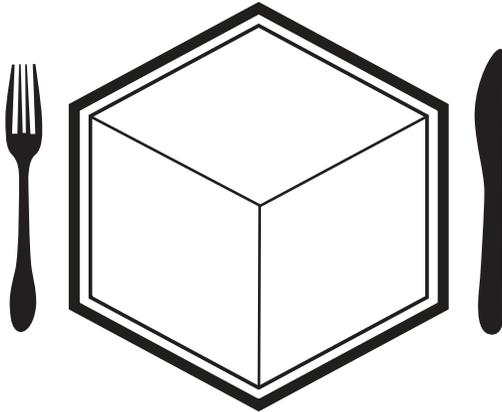
Each project offers a new way of tasting and thinking about the world around us. These are living investigations that will change and morph based on your suggestions and the new discoveries that researchers and members of the Center make.

Check back on our website to see how each of these projects changes in the coming months:

[genomicgastronomy.com](http://genomicgastronomy.com)



# WHAT IS GENOMIC GASTRONOMY ?



Genomic Gastronomy involves discovering, tasting, experiencing, researching, understanding and writing about the diverse genomes that constitute the human food systems on planet earth. In addition to preparing food and exploring the sensory qualities of foods, a Genomic Gastronomer examines the abundance, distribution, genetic provenance and cultural history of various genomes within our ever-evolving food systems.

Taste is not usually the go-to sensory mechanism we think of employing when trying to understand how the world works. Students of the Arts & Sciences spend a lot of time learning how to observe with their ears, eyes and hands to collect information and make decisions. The Center for Genomic Gastronomy encourages curious eaters to use taste as a tool for investigating difficult topics and emerging technologies.

What do things taste like? How are our food habits shaped? How do our food habits shape the complex systems that we rely on for sustenance? Putting something in your mouth to taste it is a choice, but how does one taste with intentionality?

We hope you enjoy our many projects and join us. Be curious about how the world tastes and how to taste the world.

HEATING UP  
COOLING DOWN  
» AND WHY WE «  
TASTE  
TECHNOLOGY

*“Any hot medium allows for less participation than a cool one, as a lecture makes for less participation than a seminar, and a book for less than dialogue. With print, many earlier forms were excluded from life and art, and many were given strange new intensity. But our own time is crowded with examples of the principle that the hot form excludes, and the cool one includes. When ballerinas began to dance on their toes a century ago, it was felt that the art of the ballet had acquired a new “spirituality”. With this new intensity, male figures were excluded from ballet. The role of women had also become fragmented with the advent of industrial specialist and the explosion of home functions into laundries, bakers and hospitals on the periphery of the community. Intensity or high definition engenders why any intense experience must be “forgotten,” “censored,” and reduced to a very cool state before it can be “learned” or assimilated. The Freudian “censor” is less of a moral function than an indispensable condition of learning. Were we to accept fully and directly every shock to our various structures of awareness, we would soon be nervous wrecks, doing double-takes and pressing panic buttons every minute. The “censor” protects our central system of values, as it does our physical nervous system by simply cooling off the onset of experience a great deal. For many people, this cooling system brings on a life-long state of psychic rigor mortis, or of somnambulism, particularly observable in periods of new technology.”*

- McLuhan, UNDERSTANDING MEDIA

# WHAT DO GMO'S TASTE LIKE?

## OPEN QUESTIONS

### ❏ DOES THE CENTER FOR GENOMIC GASTRONOMY SUPPORT GENETICALLY MODIFIED FOOD?

▲ That is not a very interesting question, because it demands a Yes or No answer. We have found that “Polar questions” present an exclusive disjunction or “XOR” and tend to create polarized conversations leading to dead ends.

### ❏ WHAT KIND OF QUESTION WOULD YOU ASK INSTEAD?

▲ One non-polar question we have asked is “What do GMOs taste like?” This has led us down all kinds of previously unexplored pathways of tasting, learning and critical reflection. All three projects collected here began by initially asking what GMOs taste like.

» In searching for canonical GMOs to taste we discovered that some of these organisms can not be tasted because no one knows where they are (the Fish Tomato called for in our Vegetarian Bouillabaisse recipe)

» In trying to understand the history of transgenesis in agriculture, we ran across the less-discussed history of mutagenesis in agriculture.

» In addition to very specific requirements on transgenic foods, the EU has an entire body of food laws that the U.S. ignores, and U.S. sells a wide range of processed cheese products that incorporate any of a wide variety of less expensive ingredients.



*Let these heavyweight champions of the cheese world battle for the attention of your mouth and ears! These two cheeses are at the top of their game: industrial fungibility and efficiency vs. geographic and cultural exclusivity!*

## ROUND 1

# CHEESE WRESTLING

**The Velveeta Stealer**

**S. The Roquefort Rock**

What does a Food System TASTE LIKE?

*What kinds of plants, animals and laws support the cheese we eat?*

DESCRIPTION: In this project different kinds of cheese compete for taste and sound supremacy in the mind of the eater. Participants are blindfolded and given small pieces of cheese to eat while listening to a description of the cheeses including the kind of regulatory regimes that influence the production of these cheeses.



# VEGETARIAN BOUILLABAISSÉ

DESCRIPTION: Vegetarian Bouillabaisse is a recipe that calls for the infamous but elusive forgotten fruit: the frost-tolerant FISH TOMATO. Although canonical in the history of Agricultural Biotechnology, this ingredient has somehow slipped through the cracks of history, much like its original creator DNA Plant Technology.

In the process of tracking down a Fish Tomato and cooking a Vegetarian Bouillabaisse soup we hope to make public the processes that led to the creation, hype and abandonment of this genome and to dispel popular myths surrounding it. Cultural probes created as part of this process will be designed to engender debate about scientific production and communication, biotechnology, and cultural amnesia.

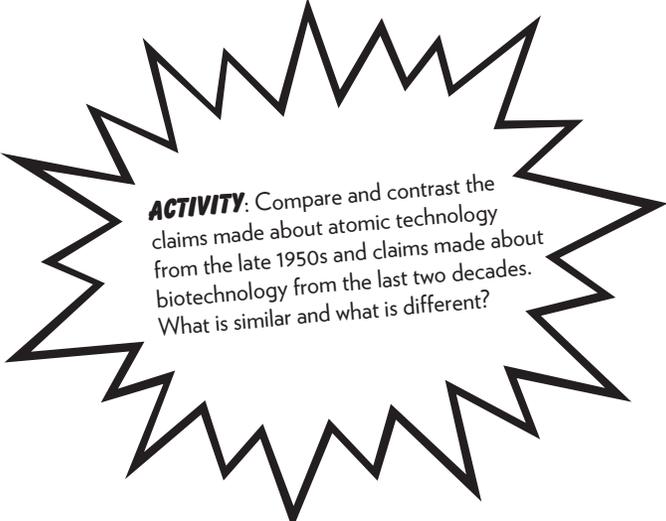
Researchers at the Center believe that germplasm or seeds from the Fish Tomato are in storage somewhere on the planet. Once this biological material has been found, the Center can grow, test and cook with this plant. Up until now no lab or field trial data (that we know about) regarding the Fish Tomato has been released publicly. However, since this food product was never commercialized the data does not need to be Confidential Business Information (CBI), and with your help we think we can track down the location of this genome.



If you find any leads about the whereabouts of the *fish tomato* or the history of *DNA Plant Technology* please email them to us at [info@genomicgastronomy.com](mailto:info@genomicgastronomy.com) or contribute to either of these wikipedia pages:

[http://en.wikipedia.org/wiki/DNA\\_Plant\\_Technology](http://en.wikipedia.org/wiki/DNA_Plant_Technology)  
[http://en.wikipedia.org/wiki/Fish\\_tomato](http://en.wikipedia.org/wiki/Fish_tomato)

# MUTAGENIC MEALS



**ACTIVITY:** Compare and contrast the claims made about atomic technology from the late 1950s and claims made about biotechnology from the last two decades. What is similar and what is different?

- WHAT DOES RADIATION BREEDING TASTE LIKE?
- WHAT KINDS OF RECIPES CAN BE MADE BECAUSE OF RADIATION BREEDING?
- WHAT KINDS OF MUTANTS DO WE EAT EVERYDAY?



Search for your own varieties:  
<http://mvgs.iaea.org/Search.aspx>

**DESCRIPTION:** This is a series of curated meals using ingredients that have been created through the process of Mutagenesis, especially radiation breeding. The first step is to find or create a list of plants that were mutagenically altered, and that are commercially available. (The Center is currently pursuing research in the U.S., but is happy to curate a Mutagenic Meal in other countries that would be willing to host our research). In order to help in that process we have begun a wikipedia page on Mutation breeding.  
[http://en.wikipedia.org/wiki/Mutation\\_breeding](http://en.wikipedia.org/wiki/Mutation_breeding)

The application of chemicals or radiation to seeds in order to generate mutations and (hopefully) new viable cultivars, is not well known. However, there are increasingly historians, scientists and artists that are interested in this history and relating it to contemporary issues and debates.

The Mutagenic Meals series attempts to assemble and cook with commercially available mutagenic plants in order to make this invisible culinary history, visible, tastable and discussable.

For more about Rio Star Ruby Red Grapefruit and mutagenic Mitcham peppermint see: Ahloowali, B.S. (2004). "Global impact of mutation-derived varieties". *Euphytica* 135: 187–204.  
<http://www.iaea.org/programmes/nafa/d2/global-impact.pdf>

## **GARDEN WRITER BEVERLEY NICHOLS QUOTED FROM 1959**

---

*Quote found in this highly recommended article on Atomic Gardens:  
<http://gardenhistorygirl.blogspot.com/2010/12/atomic-gardens.html>*

Yesterday I held in my hands the most sensational plant in Britain.

It is the only one of its kind. Nothing of its sort has ever been seen in the country before.

To me it had all the romance of something from outer space.

It is the first 'atomic' peanut.

It is a lush, green plant and gives you a strange, almost alarming sense of thrusting power and lusty health.

It holds a glittering promise in its green leaves, the promise of victory over famine.

### RECIPE

#### Mutagenic Grapefruit & Peppermint Sorbet

1 c. water  
1 c. white sugar  
2 tbsp. peppermint oil  
1 c. Ruby Red grapefruit juice

Mix sugar, peppermint oil and water in small pot. Bring to a boil, then lower the heat to a simmer until sugar dissolves. Remove from heat, cover and set aside to cool. Add Ruby Red grapefruit juice, puree in a blender and transfer mixture to a shallow dish; cover and freeze until firm.

Puree again in a blender, transfer to a small bowl; cover and freeze.

Take out of freezer and serve.

## GLOSSARY

All content cc from wikipedia unless otherwise noted

\* **Gastronomy** - Etymologically, the word "gastronomy" is derived from Ancient Greek γαστήρ (gastér) "stomach", and νόμος (nómos) "laws that govern", and therefore literally means "the art or law of regulating the stomach." The term is purposely all-encompassing: it subsumes all of cooking technique, nutritional facts, food science, and everything that has to do with palatability plus applications of taste and smell as human ingestion of foodstuffs goes.

\* **GMO** - A genetically modified organism (GMO) or genetically engineered organism (GEO) is an organism whose genetic material has been altered using genetic engineering techniques.

\* **Genome** - is the sum total of all an individual organism's genes.

\* **Germplasm** - A germplasm is a collection of genetic resources for an organism. For plants, the germplasm may be stored as a seed collection or, for trees, in a nursery.

\* **Heirloom** - An heirloom plant, heirloom variety, or (especially in the UK) heirloom vegetable is a cultivar that was commonly grown during earlier periods in human history, but which is not used in modern large-scale agriculture. Many heirloom vegetables have kept their traits through open pollination, while fruit varieties such as apples have been propagated over the centuries through grafts and cuttings. The trend of growing heirloom plants in gardens has been growing in popularity in the United States and Europe over the last decade.

\* **Hybrid Seed** - In agriculture and gardening, hybrid seed is seed produced by cross-pollinated plants. Hybrids are bred to improve the characteristics of the resulting plants, such as better yield, greater uniformity, improved color, disease resistance, and so forth. All of the hybrid seeds planted by the farmer will be the same hybrid, which causes the first generation of seed from the hybrids planted to be inbred. This is why hybrid seed is generally not saved from subsequent generations and is purchased for each planting.

\* **Mutation Breeding** is the process of exposing seeds to chemicals or radiation in order to generate mutants with desirable traits to be bred with other cultivars. Plants created using mutagenesis are sometimes called mutagenic plants or mutagenic seeds

\* **Open Pollination** - is pollination by insects, birds, wind, or other natural mechanisms, and contrasts with cleistogamy, closed pollination, which is one of the many types of self pollination. Open pollination also contrasts with controlled pollination, which is controlled so that all seeds of a crop are descended from parents with known traits, and are therefore more likely to have the desired traits.

\* **Protected Geographical Status (PGS)** is a legal framework defined in European Union law to protect the names of regional foods. Protected Designation of Origin (PDO), Protected Geographical Indication (PGI) and Traditional Speciality Guaranteed (TSG) are geographical indications, or more precisely regimes, within the framework. The law (enforced within the EU and being gradually expanded internationally via bilateral agreements of the EU with non-EU countries) ensures that only products genuinely originating in that region are allowed in commerce



The Center for Genomic Gastronomy is an independent research institute engaged in exploring, examining and understanding the genomes and biotechnologies that make up the human food systems of planet earth. We are dedicated to the advancement of knowledge at the intersection of food, culture, ecology and technology. The Center presents its research through public lectures, research publications, meals and exhibitions.

[genomicgastronomy.com](http://genomicgastronomy.com)