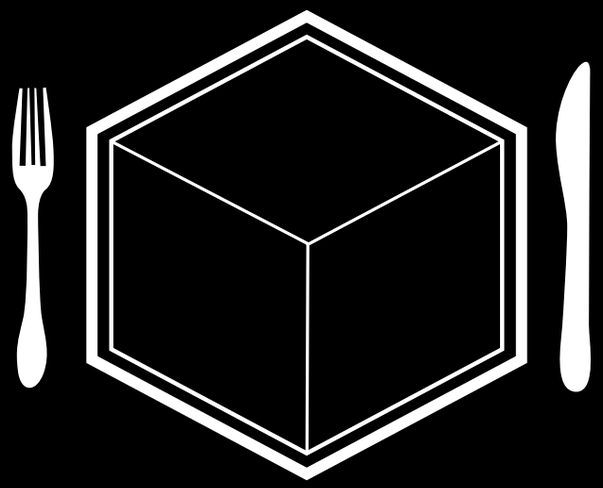


EATING IN THE ANTHROPOCENE

TRANSGENIC FISH, MUTAGENIC GRAPEFRUITS & SPACE POTATOES

28C3 CHAOS COMMUNICATION CONGRESS: BEHIND ENEMY LINES

@centgg
www.genomicgastronomy.com

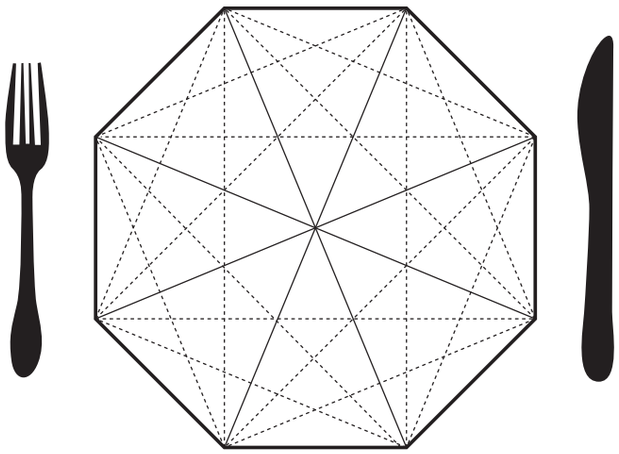
This List Available on the web:
www.genomicgastronomy.com/ccc

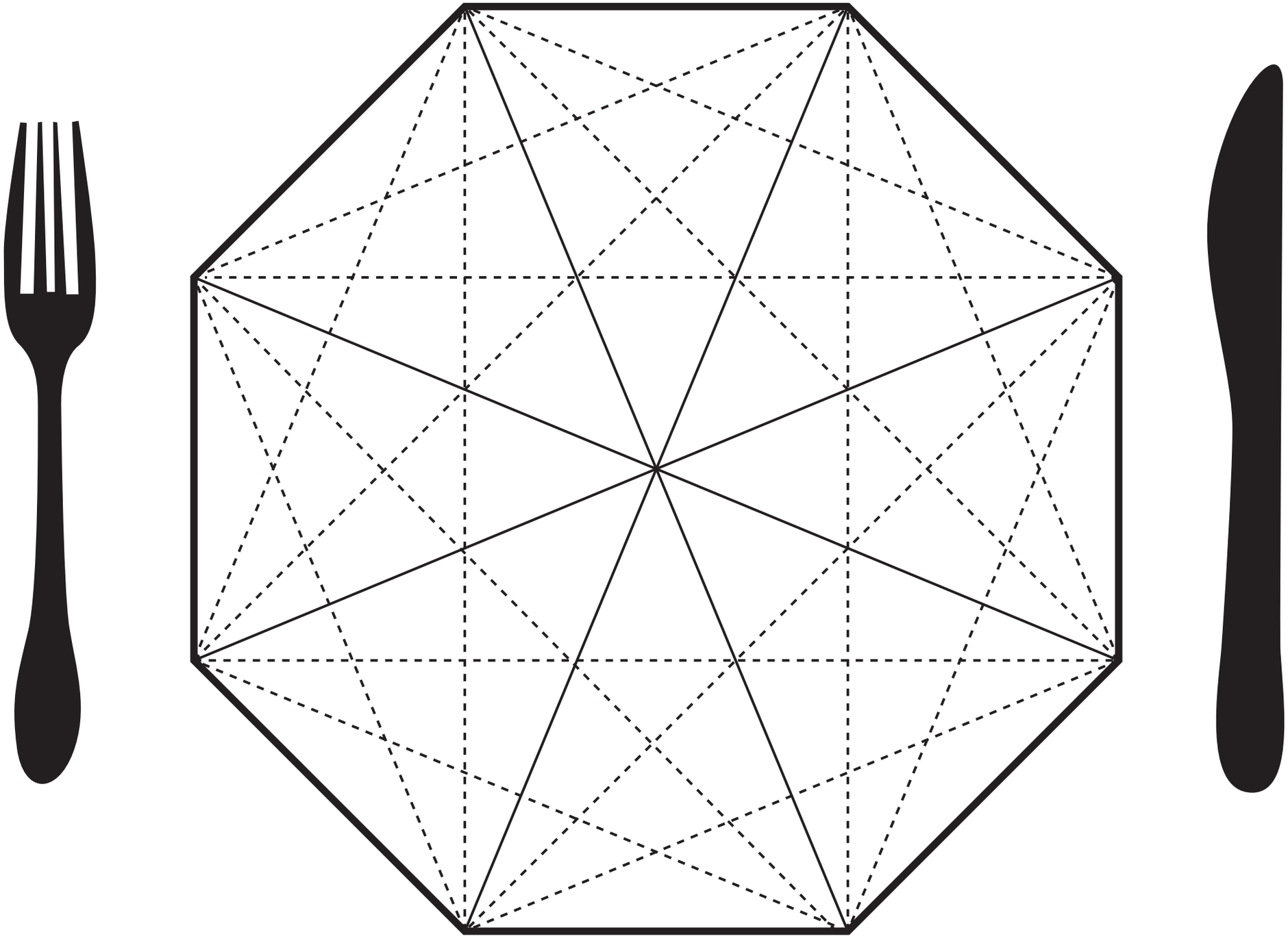
WIKIPEDIA ARTICLES:

http://en.wikipedia.org/wiki/Carrot
http://en.wikipedia.org/wiki/Fish_tomato
http://en.wikipedia.org/wiki/Mutation_breeding

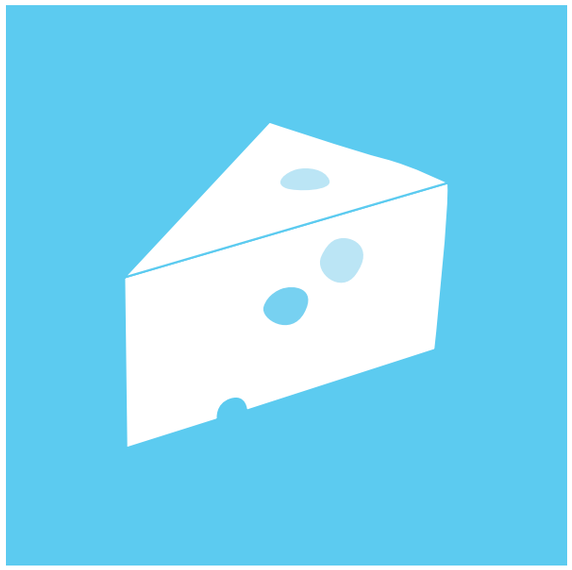
OTHER LINKS:

Permitted Habitats Map: http://postnatural.org/permitted_habitats.html
Butes / Beauties (Irish Potato That Survived the Famine)
http://irishseedsavers.ie/supporters/late-maincrop.php



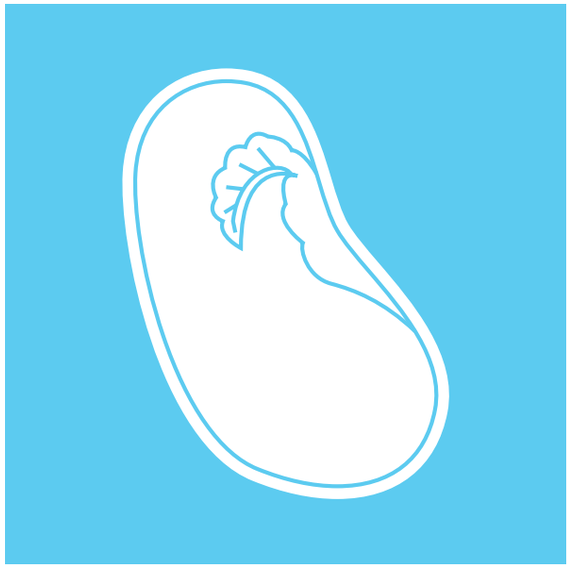


SOME BIOTECHNOLOGIES WE'VE BEEN EXPLORING:

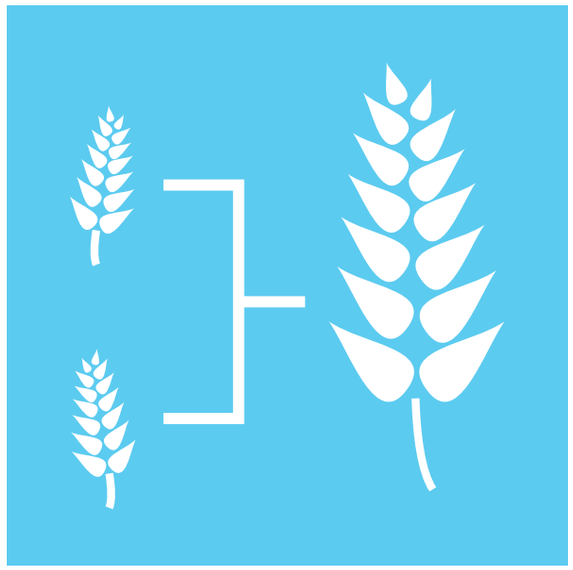


CHEESE MAKING

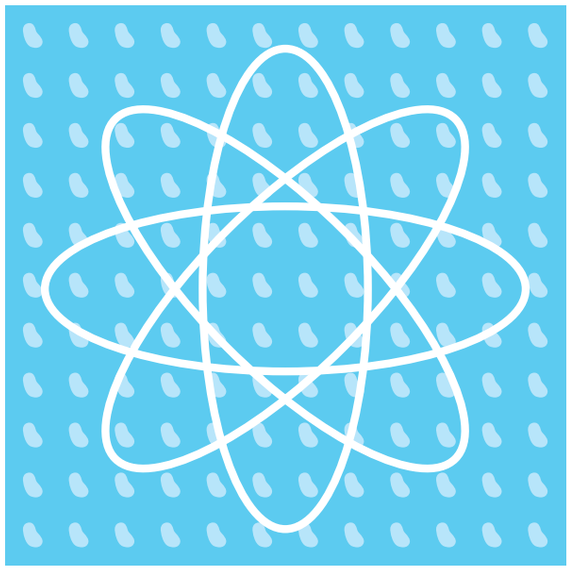
BREWING



SEED SAVING



SELECTIVE BREEDING



MUTAGENISIS

TRANSGENESIS

WE THINK FREEDOM OF INFORMATION SHOULD APPLY TO AGRONOMY, AGRICULTURE, GENETICS AND CUISINE.

HOW THIS RELATES TO COMPUTERS

→ BREEDING IS JUST VERY SLOW PROGRAMMING

→ COOKING IS MORE LIKE HACKING

→ EATING WITH INTENTIONALITY IS EVEN EASIER

WHY WE CARE

→ HUMANS ARE REPROGRAMMING THE BIOSPHERE EVERYDAY

→ WE ARE LEAVING MOST DECISIONS ABOUT THE AGRO-ECO-CULINARY SYSTEM IN THE HANDS OF THE FEW

→ LOSS OF GENETIC DIVERSITY (EVEN IN AGRICULTURE!) AND PRIVATIZATION OF THE COMMONS

flickr: Mirka23

(CC BY-NC 2.0)

TODAYS INGREDIENTS

1600s

ORANGE
CARROTS

1845 →

POTATO
FAMINE

1970-1984

MUTAGENIC
GRAPEFRUIT

1991

FISH
TOMATO

2010

BT
BRINJAL

GLOWING
SUSHI

2011

SMOG

FUTURE

CARROT
POTATO
GRAPEFRUIT
TOMATO
AUBERGINE
SUSHI
SMOG

wikipedia: File:Carrots_of_many_colors.jpg

WE HAVE ALWAYS BEEN BIO-HACKERS

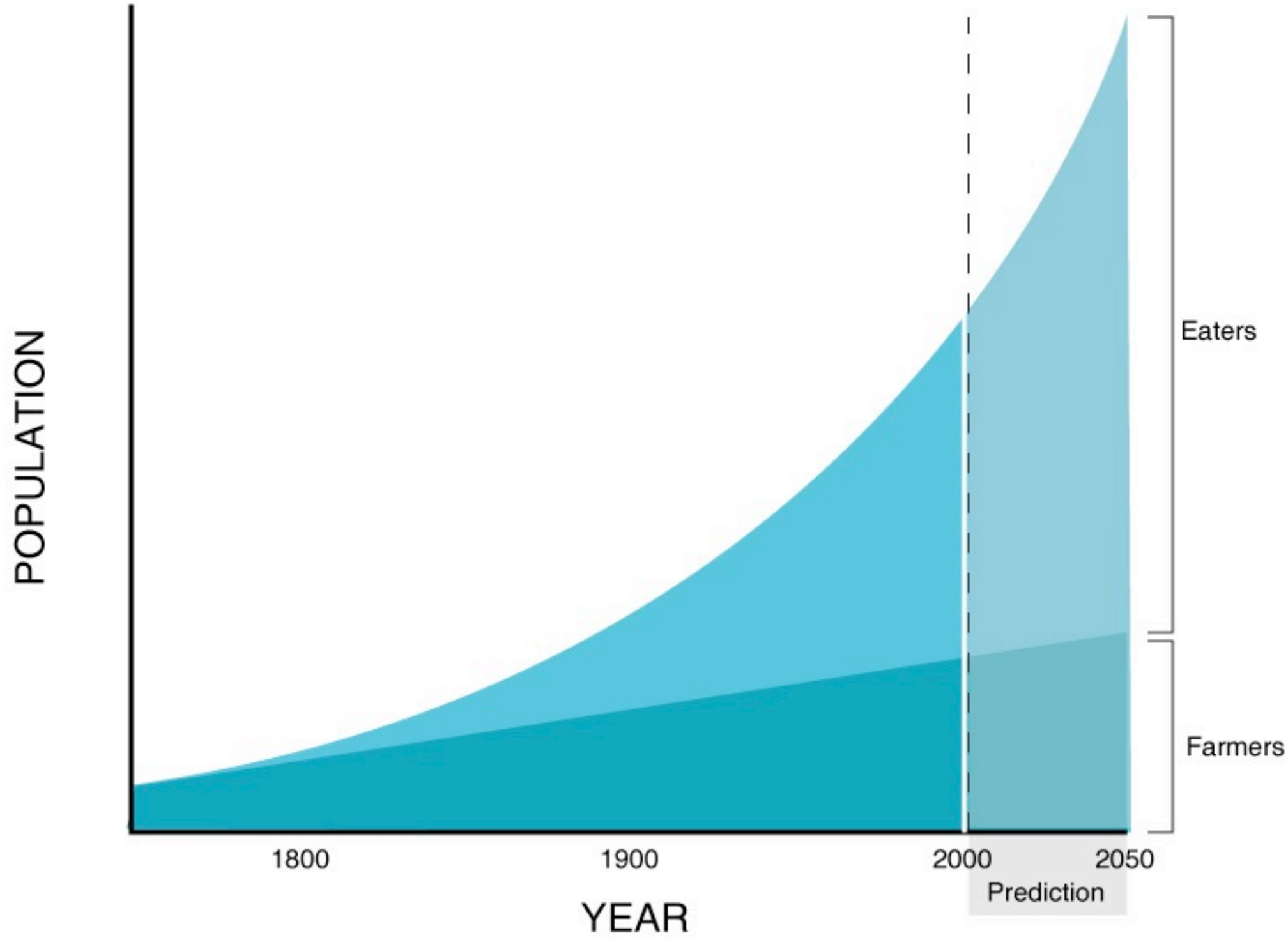
~~“NATURAL”~~

wikipedia: File:CarrotDiversityLg.jpg

ECOLOGY WITHOUT NATURE

~~“NATURAL”~~

wikipedia: File:CarrotDiversityLg.jpg


POPULATION
Eaters
Farmers
1800
1900
2000
2050
Prediction
YEAR

EATERS ARE AGENTS OF SELECTION.

wikipedia: File:Carrots_of_many_colors.jpg

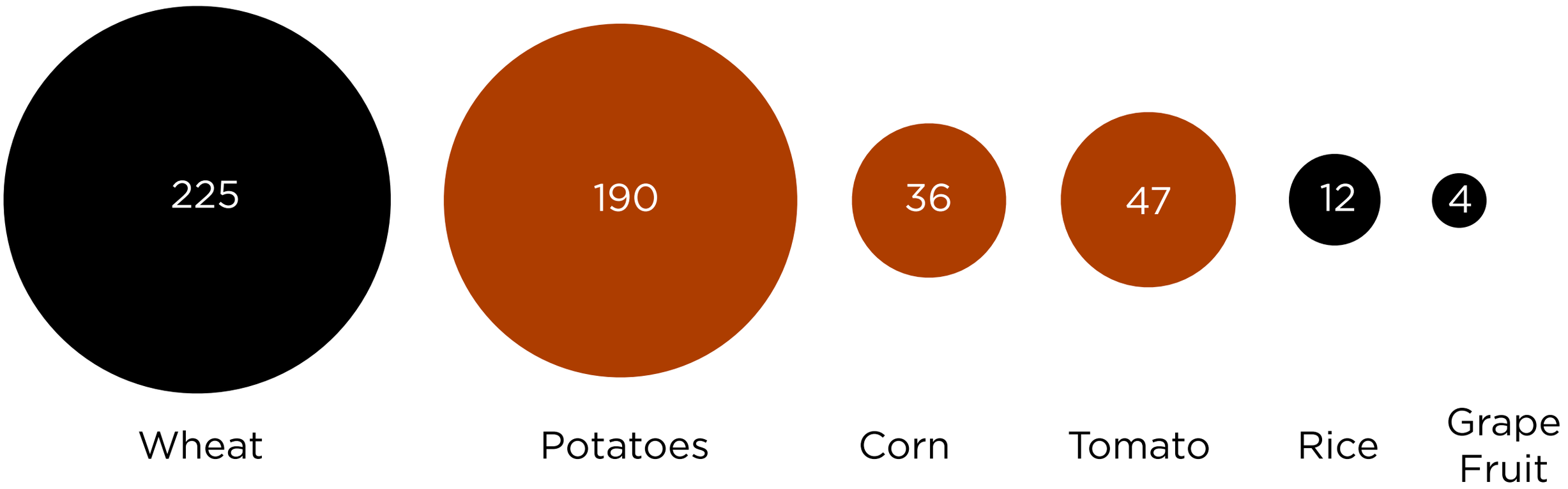
“...THE CHOICES WE FACE ARE NOT WHETHER OR NOT TO MODIFY THE ENVIRONMENT, BUT HOW.

CARROT
POTATO
GRAPEFRUIT
TOMATO
AUBERGINE
SUSHI
SMOG


The Columbian Exchange
NORTH AMERICA
EUROPE
AFRICA
AMERICAS TO EUROPE, AFRICA, AND ASIA
EUROPE, AFRICA, AND ASIA TO AMERICAS
Peanuts
Potatoes
Tomatoes
Corn
Turkeys
Pumpkins
Squash
Tobacco
Pineapples
Cacao
Beans
Vanilla
Honeybees
Sugar Cane
Bananas
Grapes
Peppers
Citrus Fruits
Sweet Potatoes
Onions
Olives
Turnips
Coffee Beans
Peaches, Pears
Grains
• Wheat
• Rice
• Barley
• Oats
Livestock
• Cattle
• Sheep
• Pigs
• Horses
Disease
• Smallpox
• Influenza
• Typhus
• Measles
• Malaria
• Diphtheria
• Whooping Cough

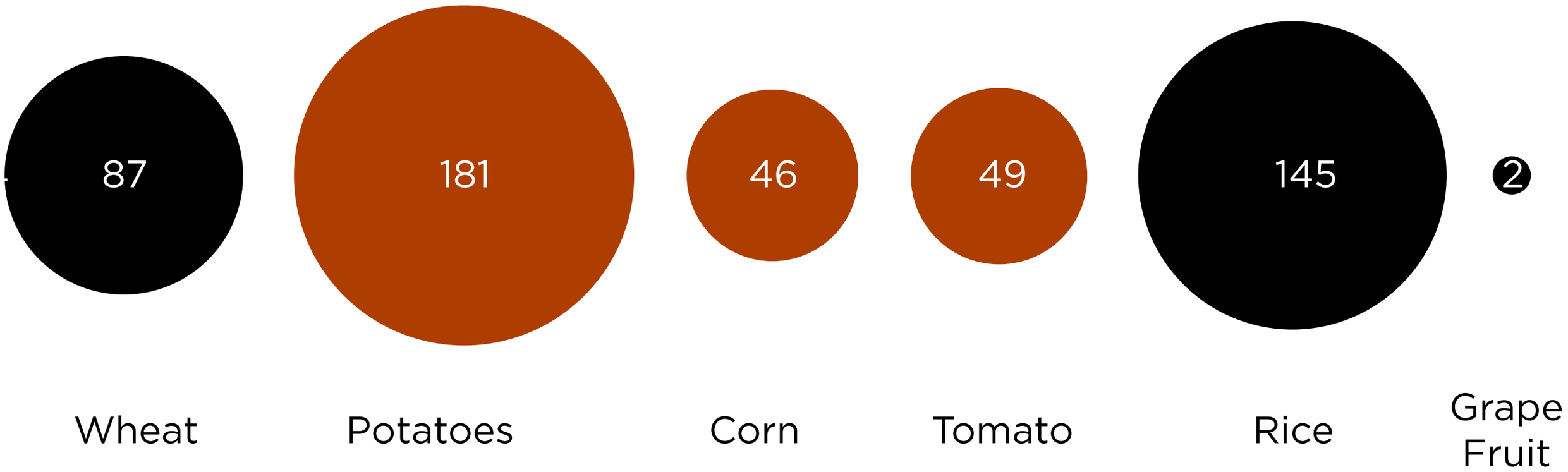
GERMANY EATS

(g / capita / day)



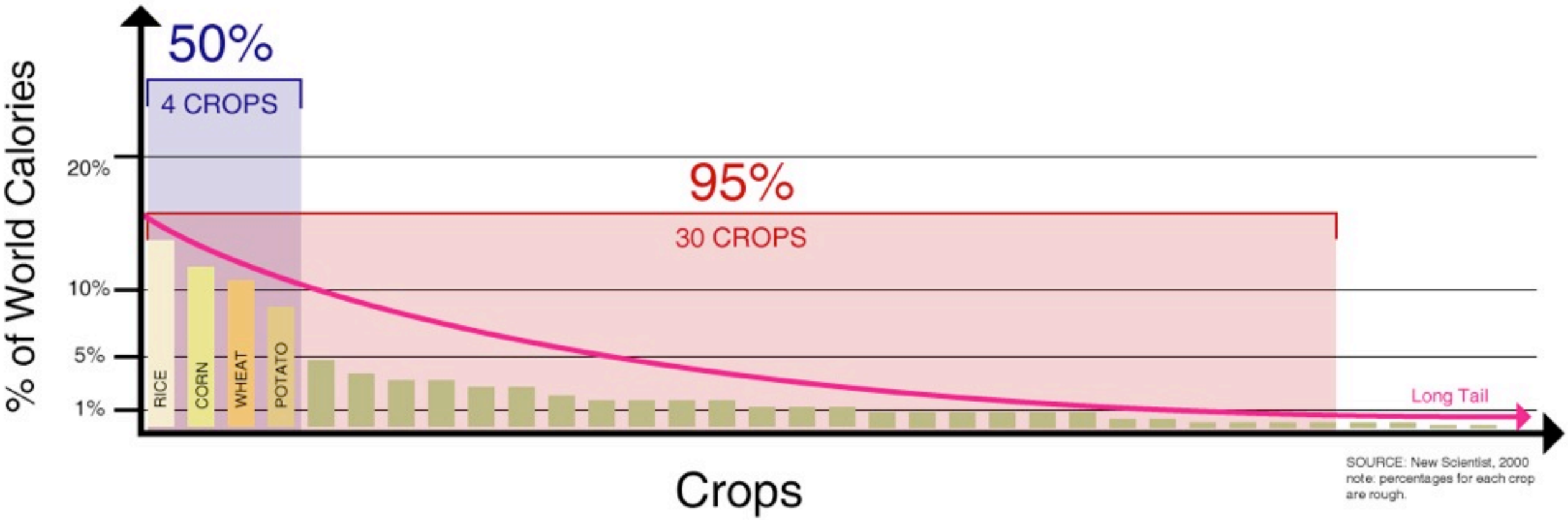
THE WORLD EATS

(g / capita / day)



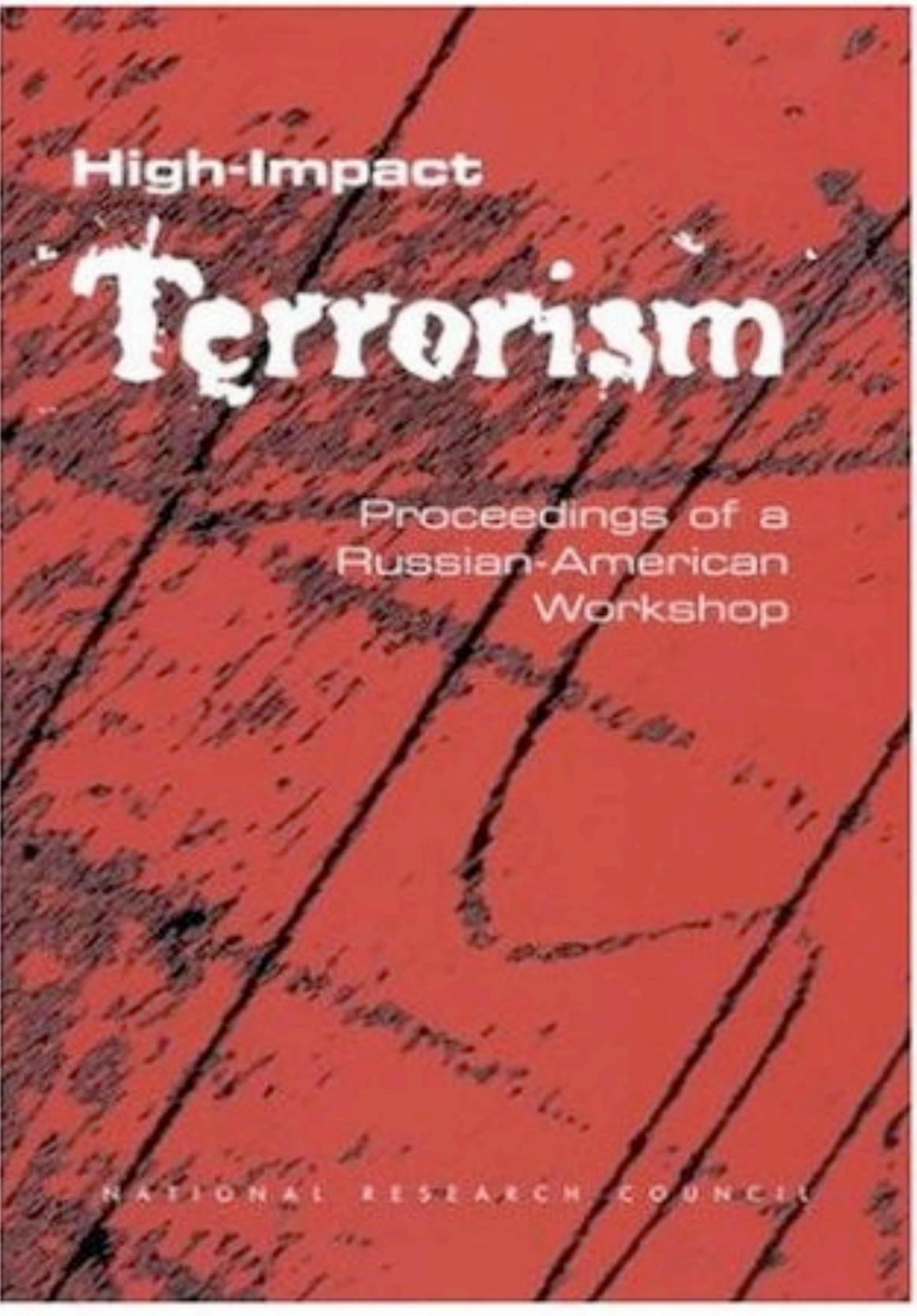
wikipedia: File:Pav_bhaji.jpg

Concentration of Varieites in Food Production



SOURCE: New Scientist, 2000
note: percentages for each crop are rough.

(Pre-1936, Ireland)



FOOD SECURITY & AGRO-TERRORISM

“Our Vulnerabilities to AgroTerrorism”

- Few states raise more than 30% of what their residents eat.
- Most cities have only a five-day food supply or less.
- On average, a person's food travels 1,300 miles from field to table.
- Current agricultural and food production trends make agroterrorism easier:
  - Concentration
  - Decreasing genetic diversity
  - Consolidation of support industries
  - Urbanization
  - Internationalization

BIO PUNK:
WIND UP GIRL

Potato varieties

CULTIVAR FETISHISM

...ough the potato cultivated in Andahuaylas belongs to just one botanical species, Solanum tuberosum, the tubers come in thousands of varieties with great differences in size, shape, colour, texture, cooking characteristics and taste. Here is a small sample of potato diversity:

1. Atahualpa
Bred in Peru, a high yielding variety good for both baking and frying

2. Nicola
Widely grown Dutch variety, one of the best for boiling, also good in salads

3. Russet Burbank
The classic American potato, excellent for baking and French fries

4. Lapin puikula
Grown in Finland for centuries, in fields bathed in the light of the midnight sun

5. Yukon Gold
A Canadian potato with buttery yellow flesh suitable for frying, boiling, mashing

6. Tubira
CIP-bred variety grown in West Africa. White flesh, pink skin

7. Vitelotte
A gourmet French variety prized for its deep blue skin and violet flesh

8. Royal Jersey
From the Isle of Jersey: the only British vegetable with an EU designation-of-origin

9. Kipfler
Hails from Germany. Elongated with cream flesh, popular in salads

10. Papa colorada
Brought to the Canary Islands by passing Spanish ships in 1567

11. Maris Bard
Bred in the United Kingdom, a white variety with a soft waxy texture good for boiling

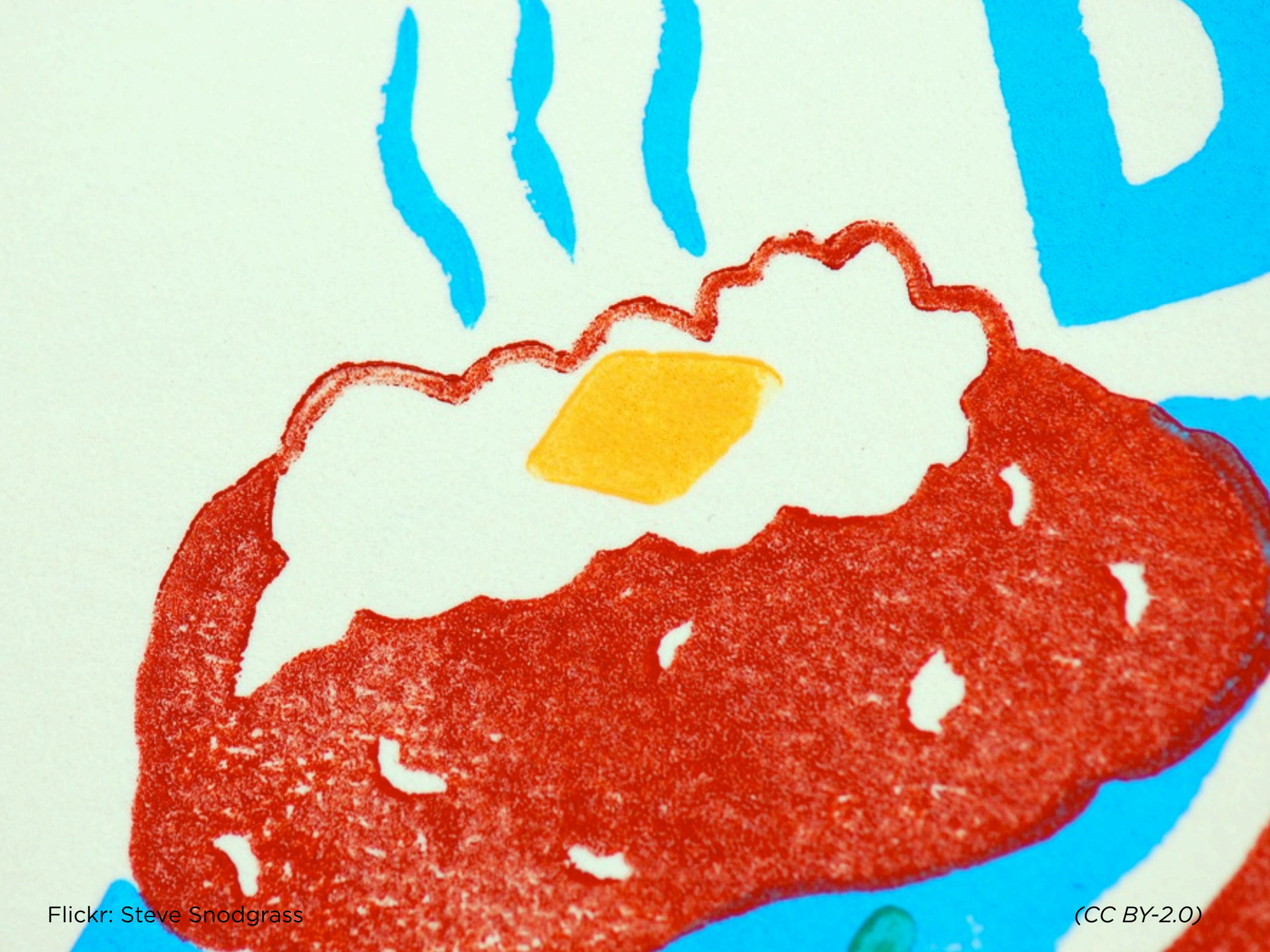
12. Désirée
Red-skinned, with yellow flesh and a distinctive flavour

13. Spunta
Another popular commercial tuber, good for boiling and roasting

14. Mondial
A Dutch potato with smooth good looks. Boils and mashes well

15. Unknown
One of more than 5 000 native varieties still grown in the Andes

CIP [1,6], NWAP HOLLAND [2,12,13,14], CANADIAN FOOD INSPECTION AGENCY [3,5,11], LAPIN KEITTIÖMESTARIT [4], ABSTRACT GOURMET [9], WIKIMEDIA [7,8,10], J-L GONTERRE [15]



Flickr: Steve Snodgrass *(CC BY-2.0)*


NET WT.
4 OZ.
(113g)
SALTED
BUTTER

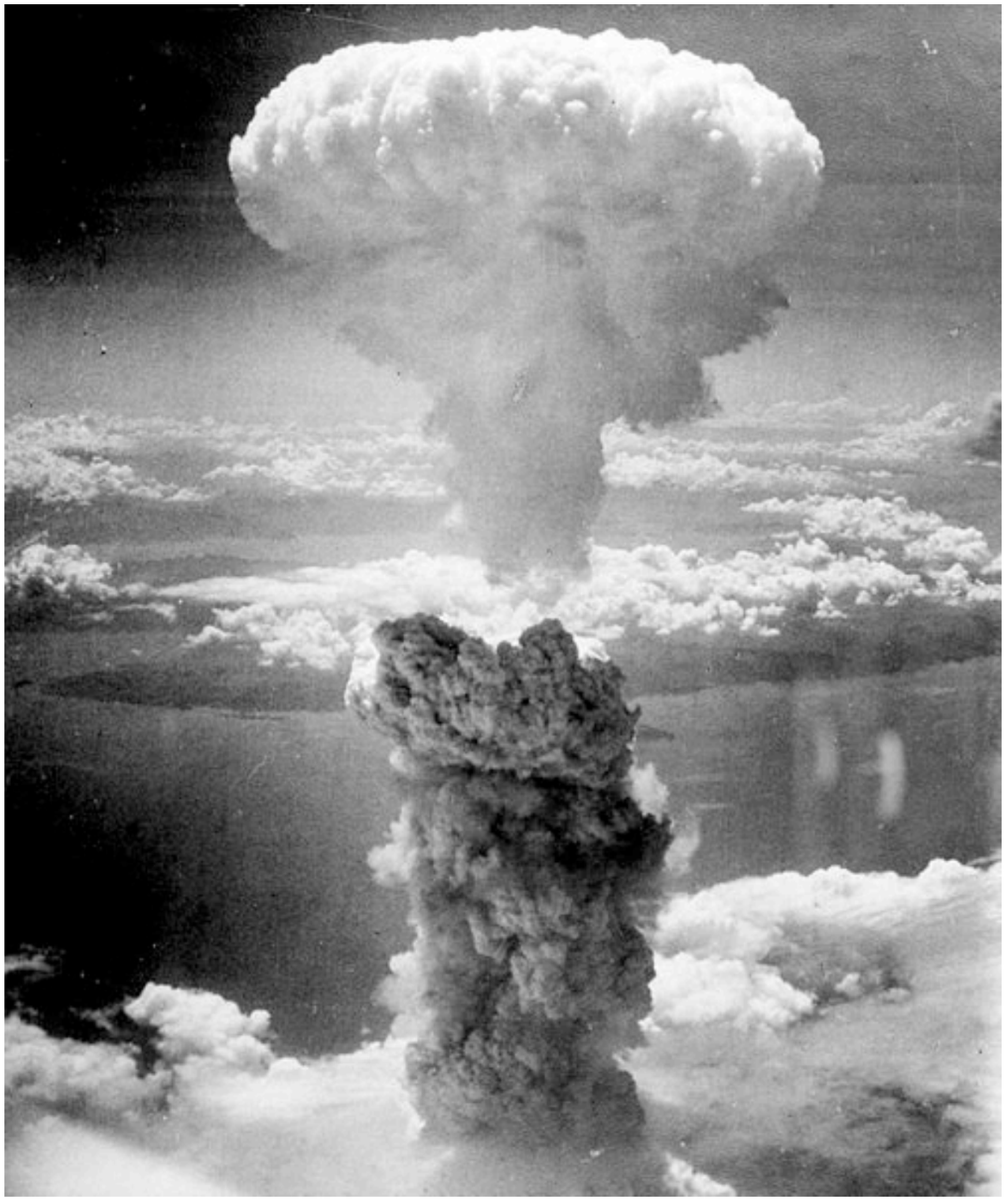
THINGS THAT START OFF AS NOVELTY ITEMS....

SPACE POTATO

STS135 Space Shuttle Atlantis Booster Rockets by Sarah Worthy. Licensed under Attribution-ShareAlike.

BEHIND ENEMY LINES

CARROT
POTATO
GRAPEFRUIT
TOMATO
AUBERGINE
SUSHI
SMOG



WHAT IS INNOVATION?
IS ALL INNOVATION GOOD?


ATOMS FOR PEACE
UNITED STATES OF AMERICA

Paige Johnson: Garden History Girl Blog

A gamma garden at Brookhaven National Labs, New York, c. 1958.

The Institute of Radiation Breeding, Hitachiohmiya, Japan

GARDEN WRITER BEVERLEY NICHOLS (1959)

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.

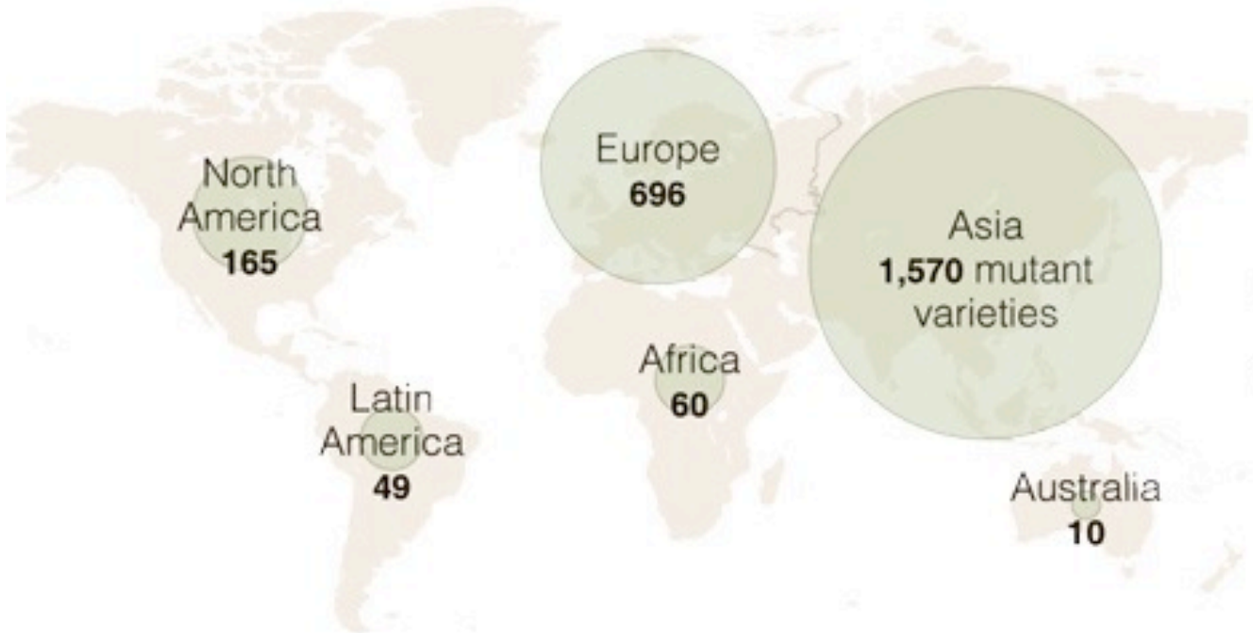
It holds a glittering promise in
its green leaves, the promise of
victory over famine.

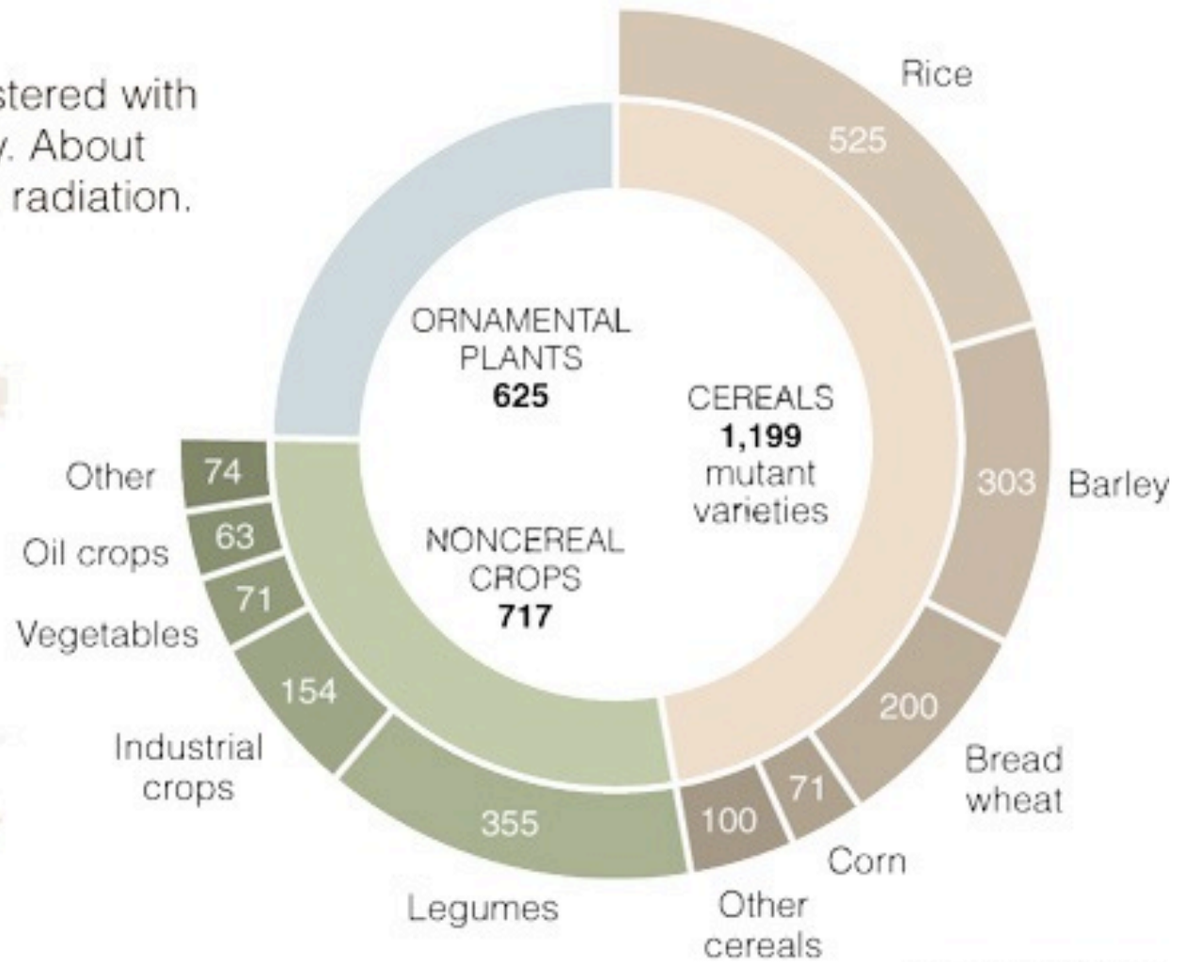
Quote found in this highly recommended article on Atomic Gardens:
http://gardenhistorygirl.blogspot.com/2010/12/atomic-gardens.html

HOPES AND DREAMS VS. FEARS AND NIGHTMARES

Here to Stay

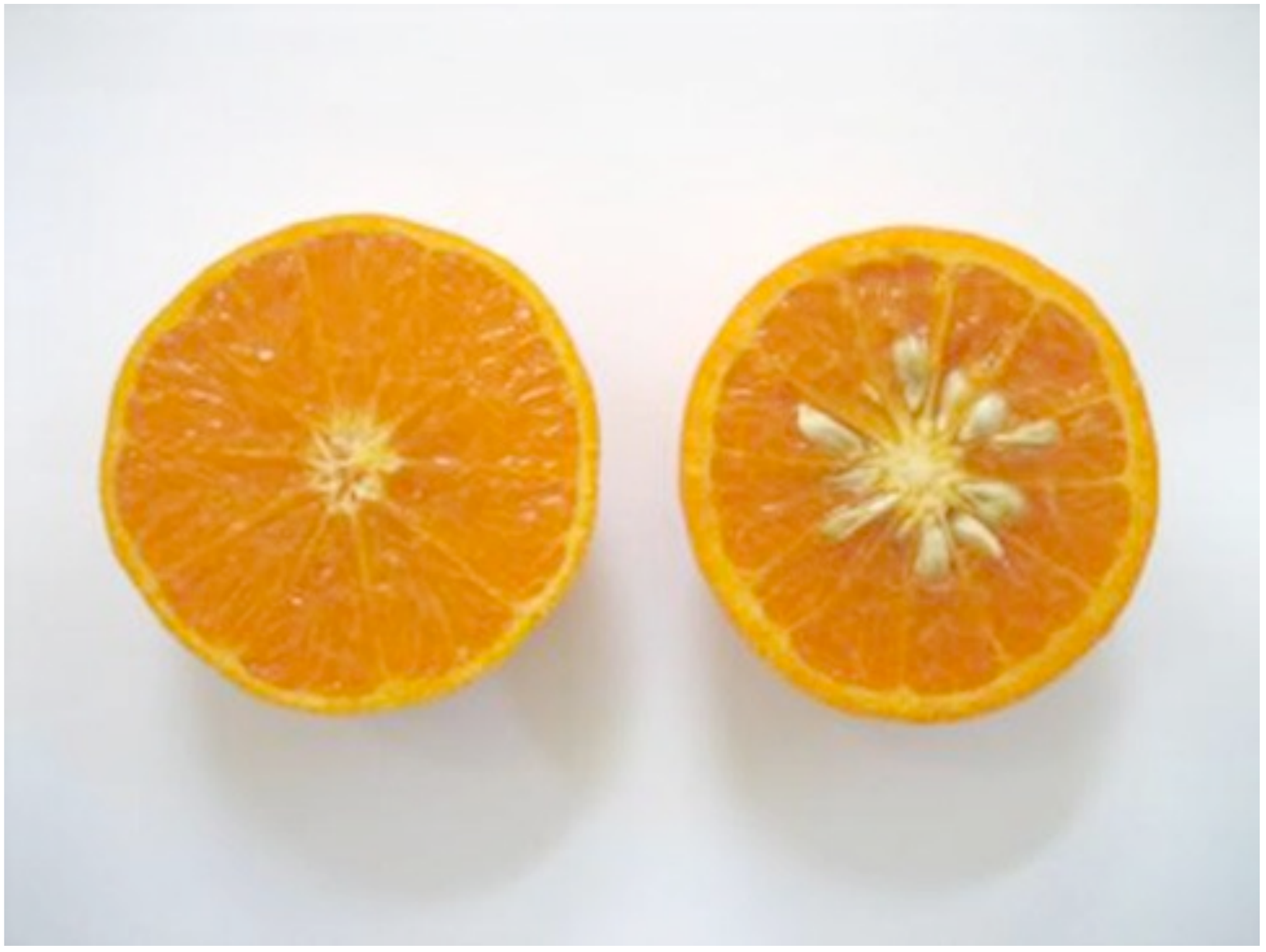
More than 2,500 mutant crop varieties have been officially registered with the United Nations and the International Atomic Energy Agency. About three-quarters of the varieties were directly induced by gamma radiation.





Source: F.A.O./I.A.E.A. Mutant Variety Database

THE NEW YORK TIMES



Credit: T. Williams, UC Riverside.

Joint FAO / IAEA Programme
Nuclear Techniques in Food and Agriculture
Mutation Enhanced Technologies for Agriculture (META)

- Mutant Varieties
  - Search Mutant Varieties
- Genetic Stocks
- Lab Protocols
- FAO/IAEA Plant Publications
- Plant Mutation Reports
- Plant Breeding Knowledge Base
- Plant Breeding Plant Breeding CRPs

Welcome to the Joint FAO/IAEA META Information Portal

The FAO/IAEA Programme's Database of Mutation Enhanced Technologies for Agriculture (META) is an information portal of commercially or officially released mutant varieties, mutant genetic stocks, and mutation research publications. It consists of the following five sub-databases:

Mutant Variety Database (MVGS): Information about commercially or officially released mutant varieties.
Mutant Genetic Stock Database (MGS): Information, registration, and request for mutant genetic stocks, including individual mutant lines, TILLING populations, and other mutant derived populations for gene mapping and cloning.
Laboratory Protocols - Information, forms and protocols for genotyping and mutagenesis services and positive control kits for mutation discovery. Protocols were optimized for our laboratory.
FAO/IAEA Publication Database (MRP): A repository for searching and downloading all publications produced by the Joint FAO/IAEA Programme in the field of plant breeding and genetics.
Plant Mutation Reports (PMR): Joint FAO/IAEA Publication which publishes (mini) reviews, short communications and

Global Food Security Situation


ORGANICALLY GROWN
ORGANICALLY GROWN
CERTIFIED ORGANIC
94285
USA
STAR GRAPEFRUIT
4288
Star Ruby
Grapefruit
Product of USA
4285
USA


Star Ruby
Grapefruit
Produce of USA
4288

Star Ruby

1970, United States, Citrus paradisi Macf., grapefruit

The mutant variety Star Ruby was officialy approved in 1970. It was developed by treatment with thermal neutrons (thN). Main improved attributes of mutant variety are red flesh like parent variety, but almost seedless (0-9 seeds instead of 40-60).

Publications

1.: Sigurbjörnsson, B. and Micke A., 1974. Phylosophy and accomplishements of mutation breeding. In: Polyploidy and Induced Mutations in Plant Breeding. IAEA, Vienna,pp. 303-343


Rio Red
SEAVIEW.
4285
USA

Rio Red

1984, United States, Citrus paradisi Macf., grapefruit

The mutant variety Rio Red was officialy approved in 1984. It was developed by treatmant of bud sticks with thermal neutrons (thN). Main improved attribute of mutant variety are fruit and juice color deeper red, wide adaptation.

Publications

1.: MBNL No: 37 Page 24

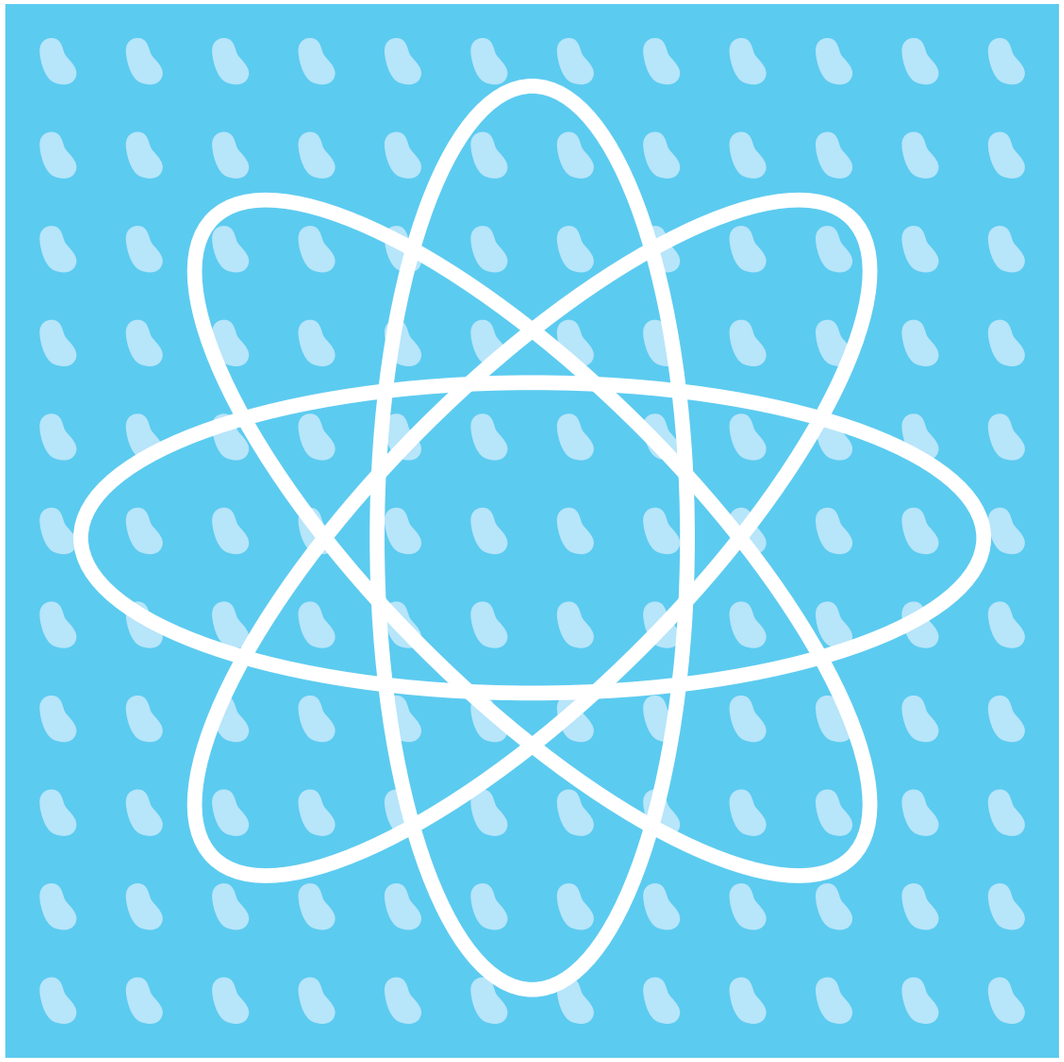
Links

- Show All Fields
- Edit Variety
- Search Database

ORGANICALLY GROWN

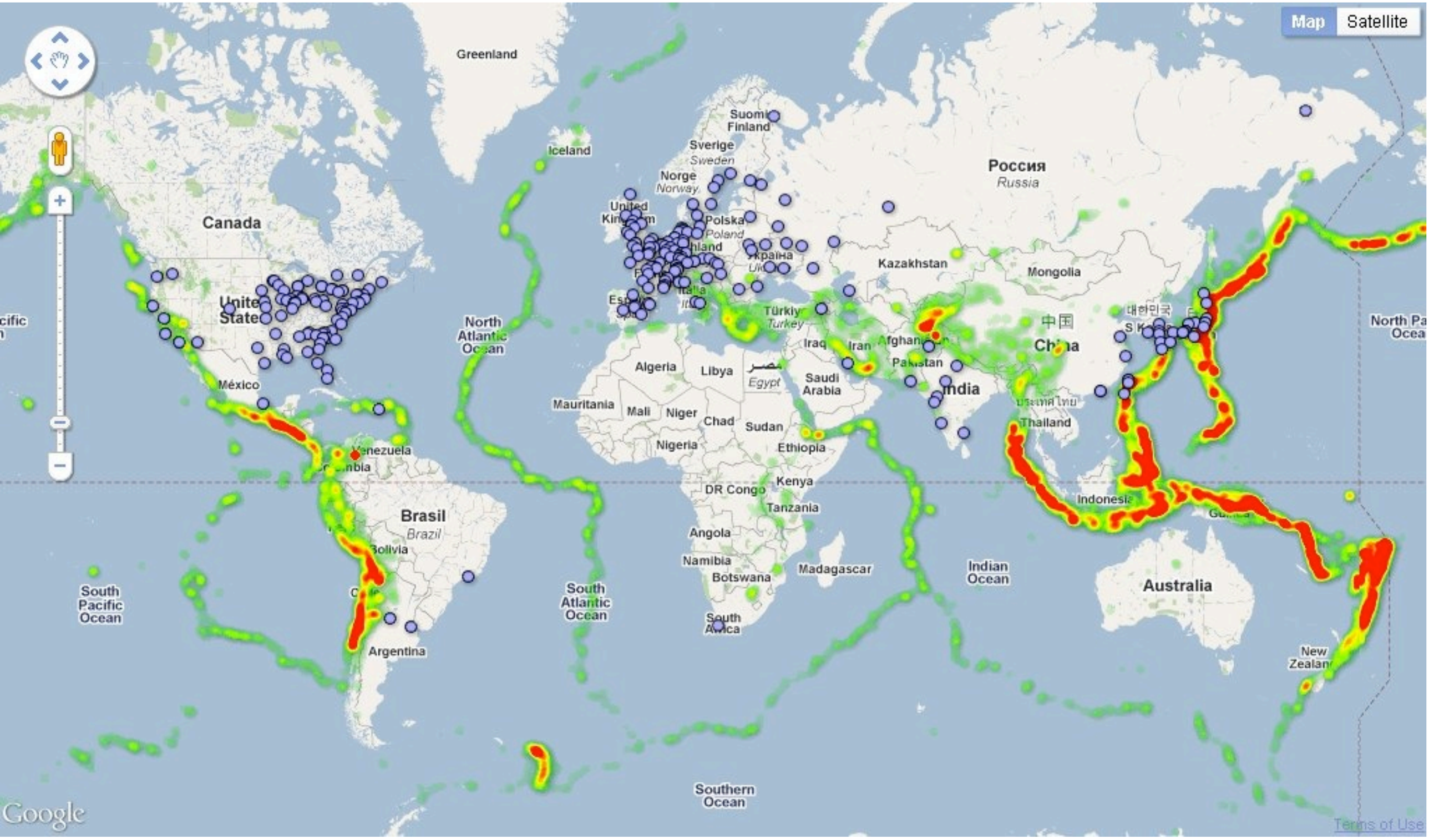
ORGANICALLY GROWN

STAR GRAPEFRUIT
USA
94285
CERTIFIED ORGANIC
RAINBOW VALLEY ORCHARDS



MUTAGENISIS

TRANSGENESIS


Map
Satellite
Greenland
Iceland
Canada
United States
México
Venezuela
Brasil
Brazil
Bolivia
Argentina
North Atlantic Ocean
South Atlantic Ocean
South Pacific Ocean
Southern Ocean
Indian Ocean
Suomi Finland
Sverige
Sweden
Norge
Norway
Polska
Poland
Україна
Россия
Russia
Kazakhstan
Mongolia
Türkiye
Turkey
Iraq
Iran
Afghanistan
Pakistan
China
India
Saudi Arabia
Egypt
Libya
Algeria
Mauritania
Mali
Niger
Chad
Sudan
Nigeria
Ethiopia
Kenya
DR Congo
Tanzania
Angola
Namibia
Botswana
Madagascar
South Africa
Thailand
Indonesia
Australia
New Zealand
Google
Terms of Use

LET'S LOOK FOR GERMANY

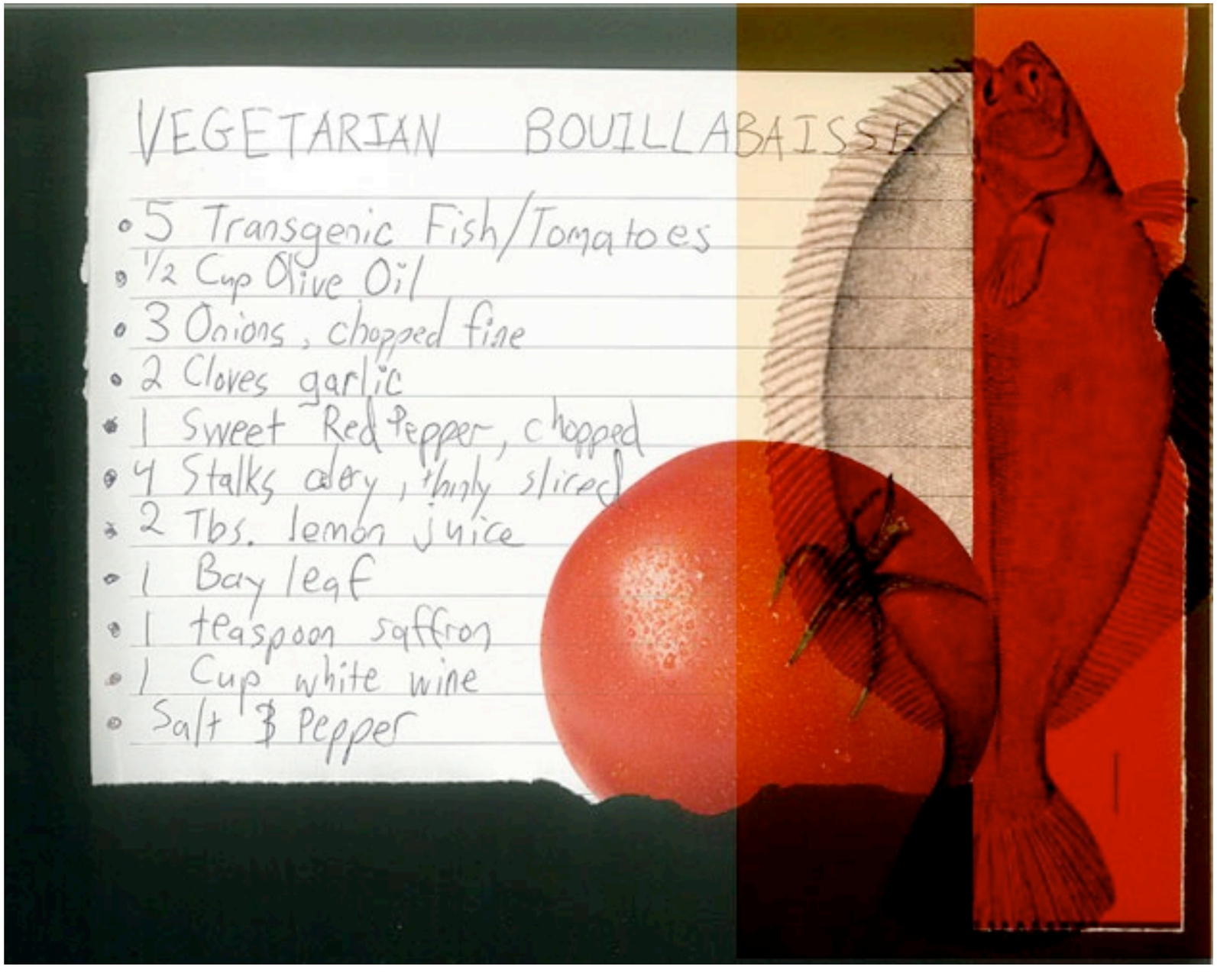
171 Matches in the M.E.T.A. database

(Mutation Enhanced Technologies for Agriculture)

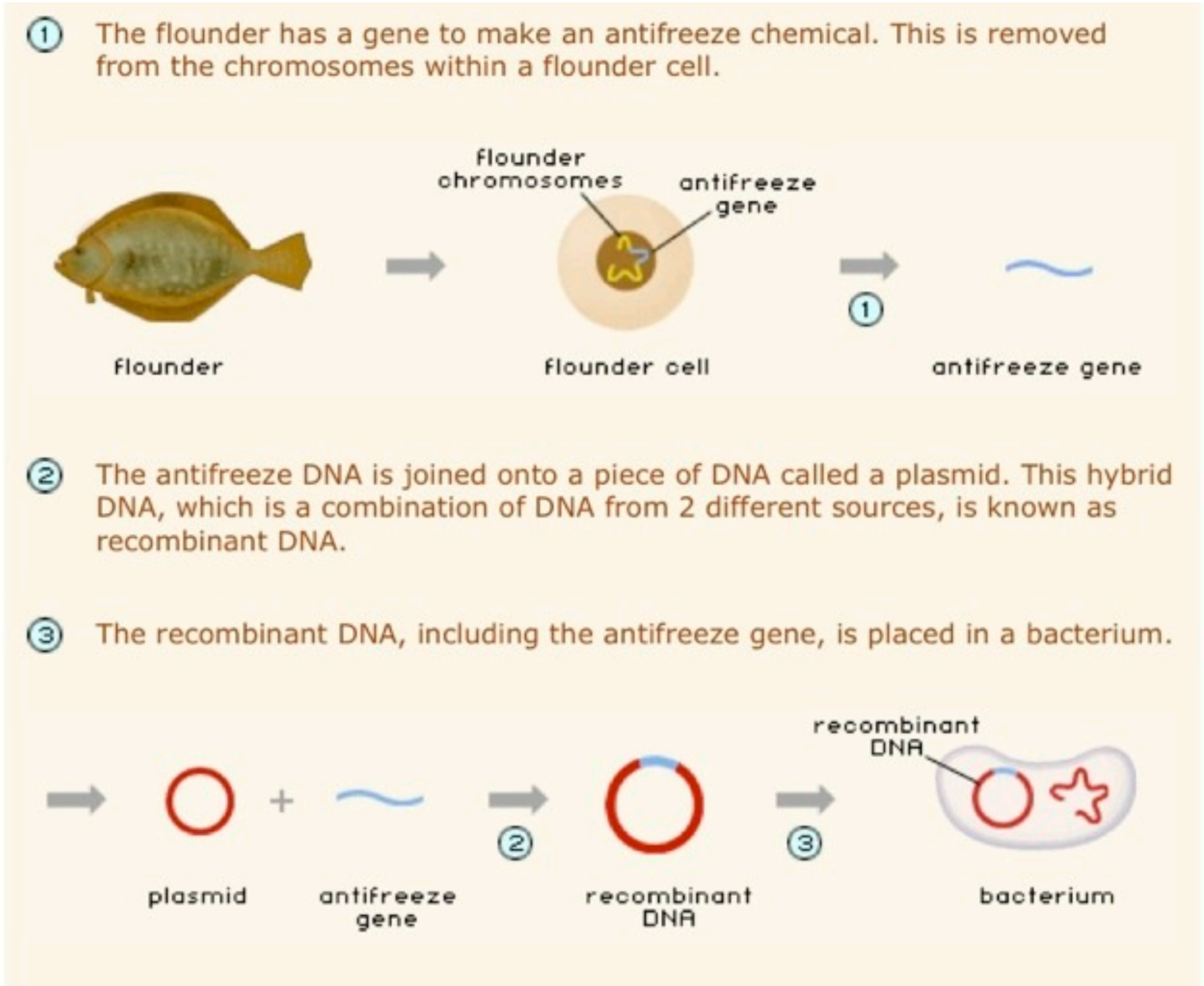
SPECIES	MUTANT NAME	APPROVAL YEAR	NAME OF THE INSTITUTES OR COMPANIES	IMPROVEMENT	DOSE
Barley	Felicitas	2005	Institute of Getreideforschung Bernburg	improved erectoid type	X-rays on Seeds (100 Gy)
Fava Bean	Tisesta	1991	Steuckardt, Dietrich, VEG Pflanzenprod.	improved plant architecture	Ethylmethane Sulphonate
Common Bean	Universal	1950	N/A	early maturity, high yield and good resistance to Colletotrichum lindemuthianum.	X-Rays (30 Gy)

CARROT
POTATO
GRAPEFRUIT
TOMATO
AUBERGINE
SUSHI
SMOG

WHERE DO FAILED GMOs GO TO DIE?



WHAT IS THE FISH TOMATO?



DID THE FISH TOMATO EVER EXIST?

Prepared by
Biotechnology Permits
Biotechnology, Biologics, and Environmental Protection
Animal and Plant Health Inspection Service
U.S. Department of Agriculture

_____
James W. Glosser
Administrator
Animal and Plant Health Inspection Service
Date:

Permit Number 91-079-01: tomato; antifreeze gene; staphylococcal Protein A

TABLE OF CONTENTS

WAS THE FISH TOMATO EVER GROWN OUTSIDE THE LAB?


7 ACADEMY AWARD® NOMINATIONS®
INCLUDING
BEST PICTURE
AL PACINO RUSSELL CROWE
THE INSIDER
"An edge-of-your-seat thriller!"
"Dynamic performances, strafing wit, and dramatic provocation."
"It is riveting and shocking and deeply moving."
DVD


JETS

PEOPLE ARE GOING TO DO UNEXPECTED THINGS WITH TECHNOLOGY.

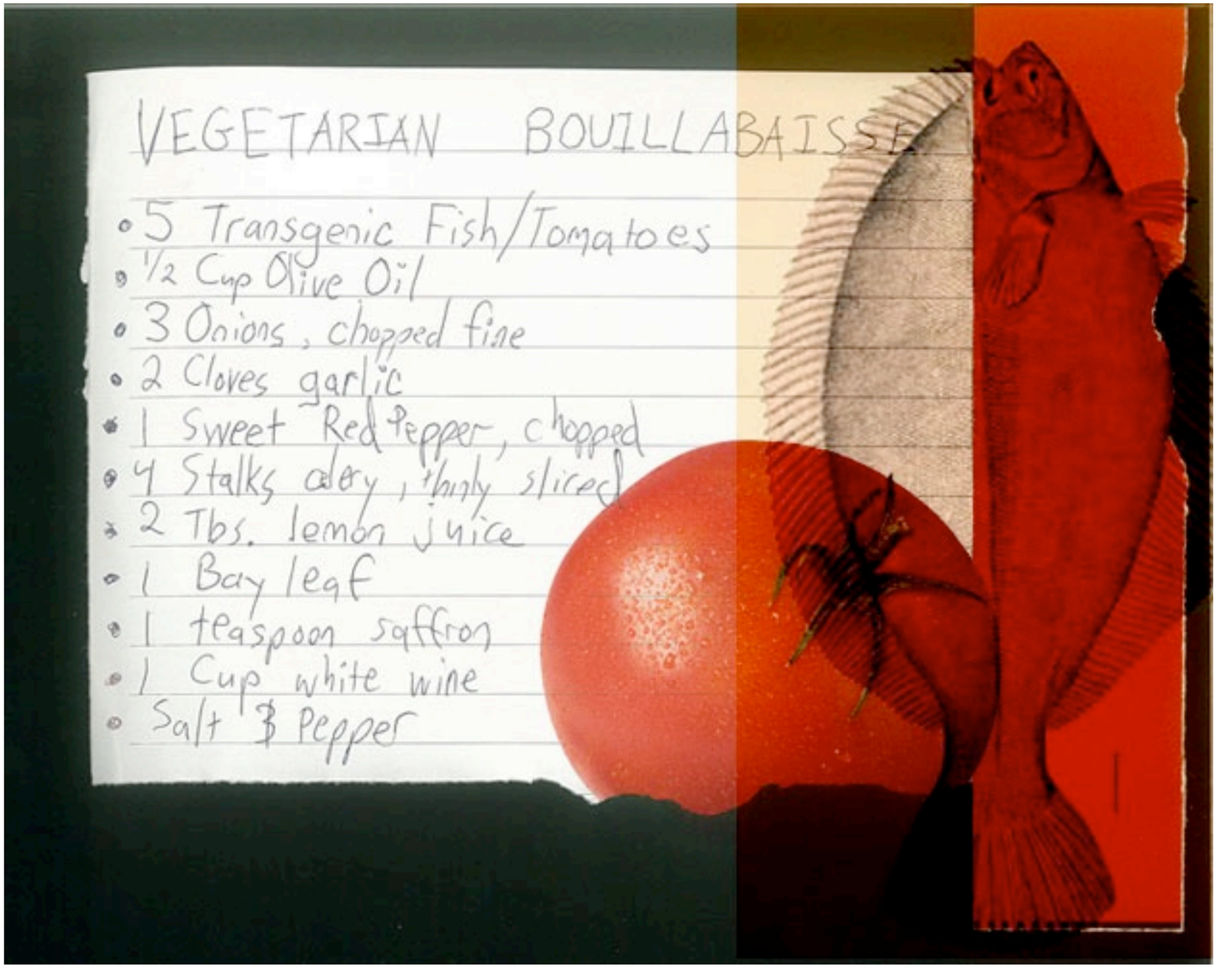
SOUP

Vegetarian Bouillabaisse with
Pa amb tomàquet, Aïoli & Pimentón

Spiral Wines Cabernet Sauvignon (Napa Valley)

Where is the Fish Tomato Now?

REENACTMENT OF SCIENCE



DATAMINING TRANSGENICS

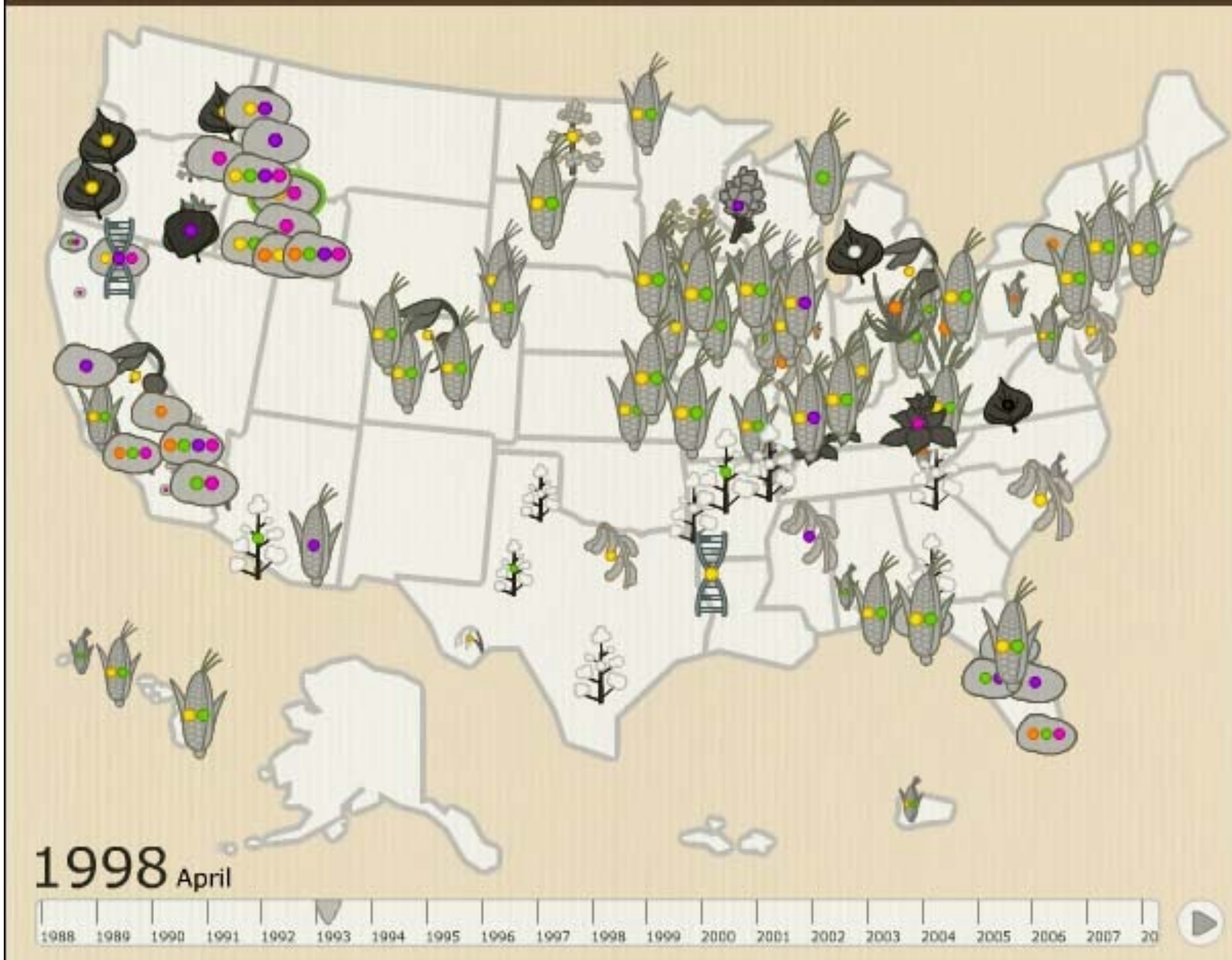
Transgenic Production and Cultural Resistance: A Seven-Point Plan

1. Demystify transgenic production and products
2. Neutralize public fear
3. Promote critical thinking
4. Undermine and attack Edenic utopian rhetoric
5. Open the halls of science
6. Dissolve cultural boundaries of specialization
7. Build respect for amateurism

Ch. 3 *Molecular Invasion*. Critical Art Ensemble. (2002)

CENTER FOR POSTNATURAL HISTORY

"That was then. This is now."



CBI | **Phenotype**

Article
potato

Genotype
CBI-CBI
PLRV-Replicase
PVY-Coat protein

Phenotype
Glyphosate Tolerant
Plrv Resistant
Pvy Resistant

Release states
ID,ME,ND,WI

Information availability
Confidential

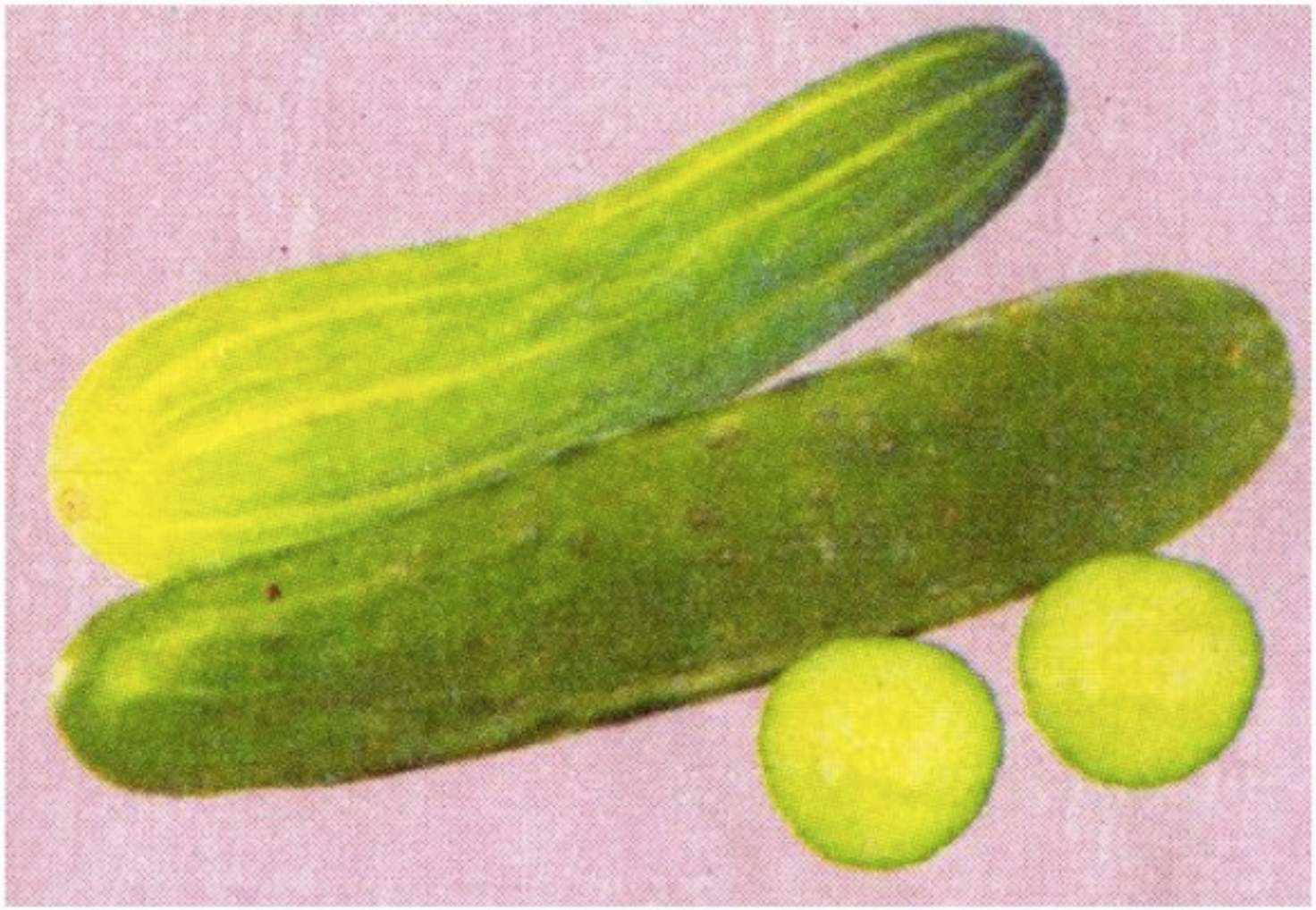
Release date
1998-03-17

Permit Number
98-076-15n

Institution
MONSANTO

PERMITTED HABITATS
Genetically modified organisms released for field tests from 1987 to 2008

HYPER SWEET & SOUR PICKLES



CUCUMBER B/PL/08/02-03

(Super Sweet) Pineapple Crisp

97-220-04n

Overly Aromatic Orange Marmalade

B/ES/08/02

Everything & Nothing Arancini

10-183-101r

Quick Energy Potato Bars

B/NL/04/04

Colorful Candied Geraniums

05-123-01n

Kentucky Fried Tofu

08-116-107n

European Commission
Joint Research Centre
Institute for Health and Consumer Protection

Deliberate releases and placing on the EU market of Genetically Modified Organisms - GMO Register

The purpose of this web site, managed by the Joint Research Centre of the European Commission on behalf of the Directorate General for the Environment is to publish information and to receive comments from the public regarding notifications about deliberate field trials and placing on the market of genetically modified organisms, as defined in Directive 2001/18/EC of the European Parliament and of the Council of 12 March 2001.

Click here for details

According to Article 31(2) of Directive 2001/18/EC, the Commission is also to establish one or several register(s), for the purpose of recording the information on genetic modifications in GMOs specified in Section A, point 7 of Annex IV to that Directive. The contents of this register is described in Commission Decision 2004/204/EC of 23rd February. Therefore, this website contains also the required information

Deliberate release into the environment of GMOs for any other purposes than placing on the market (experimental releases)

Plants

Other than plants

Placing on the market of GMOs as or in products (commercial releases)

All products

In order to view and print PDF files, you need the latest version of the free Adobe Acrobat Reader. Click on the link below to download and install the version for your computer.

Get Acrobat Reader

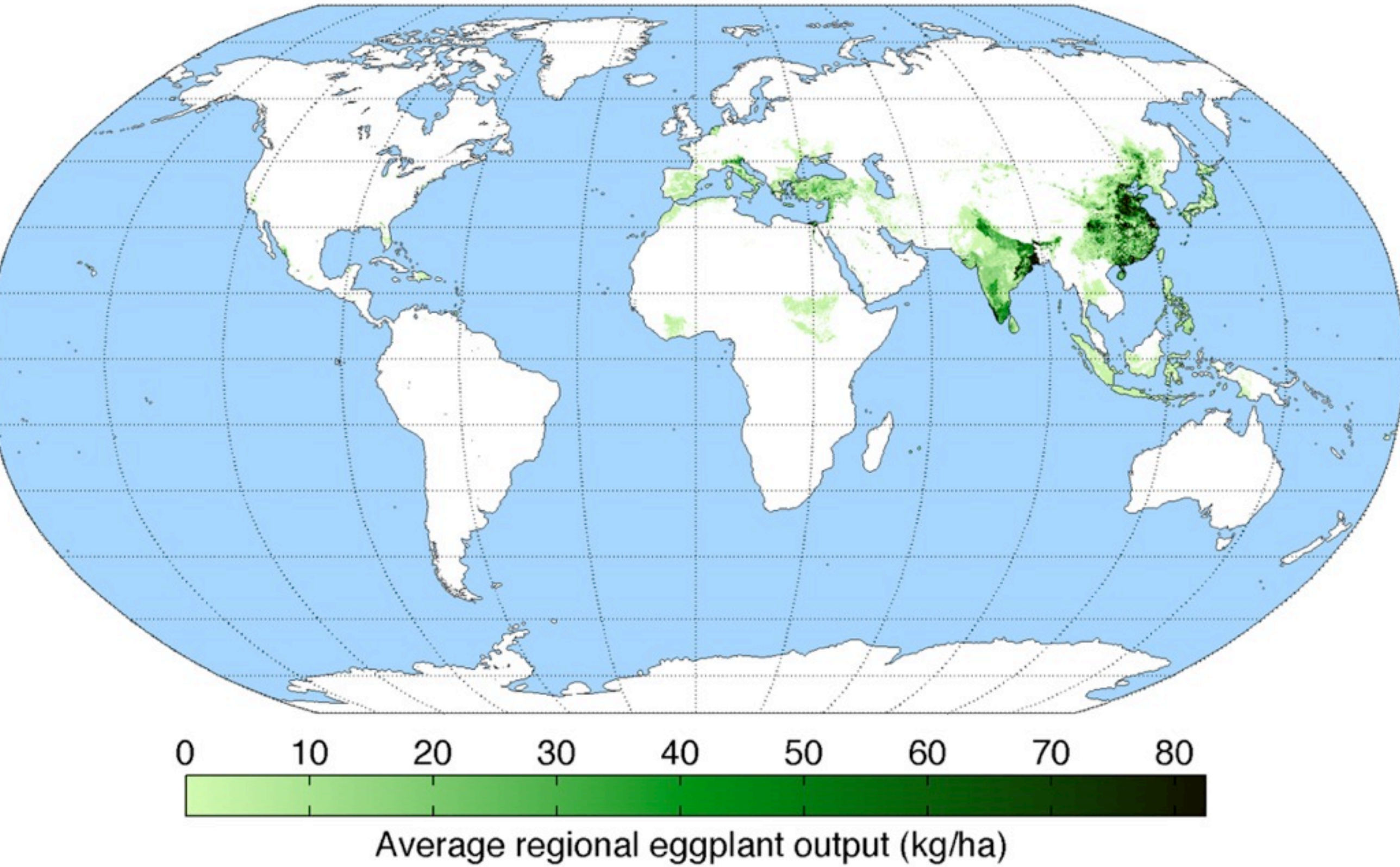
LET’S LOOK FOR GERMANY

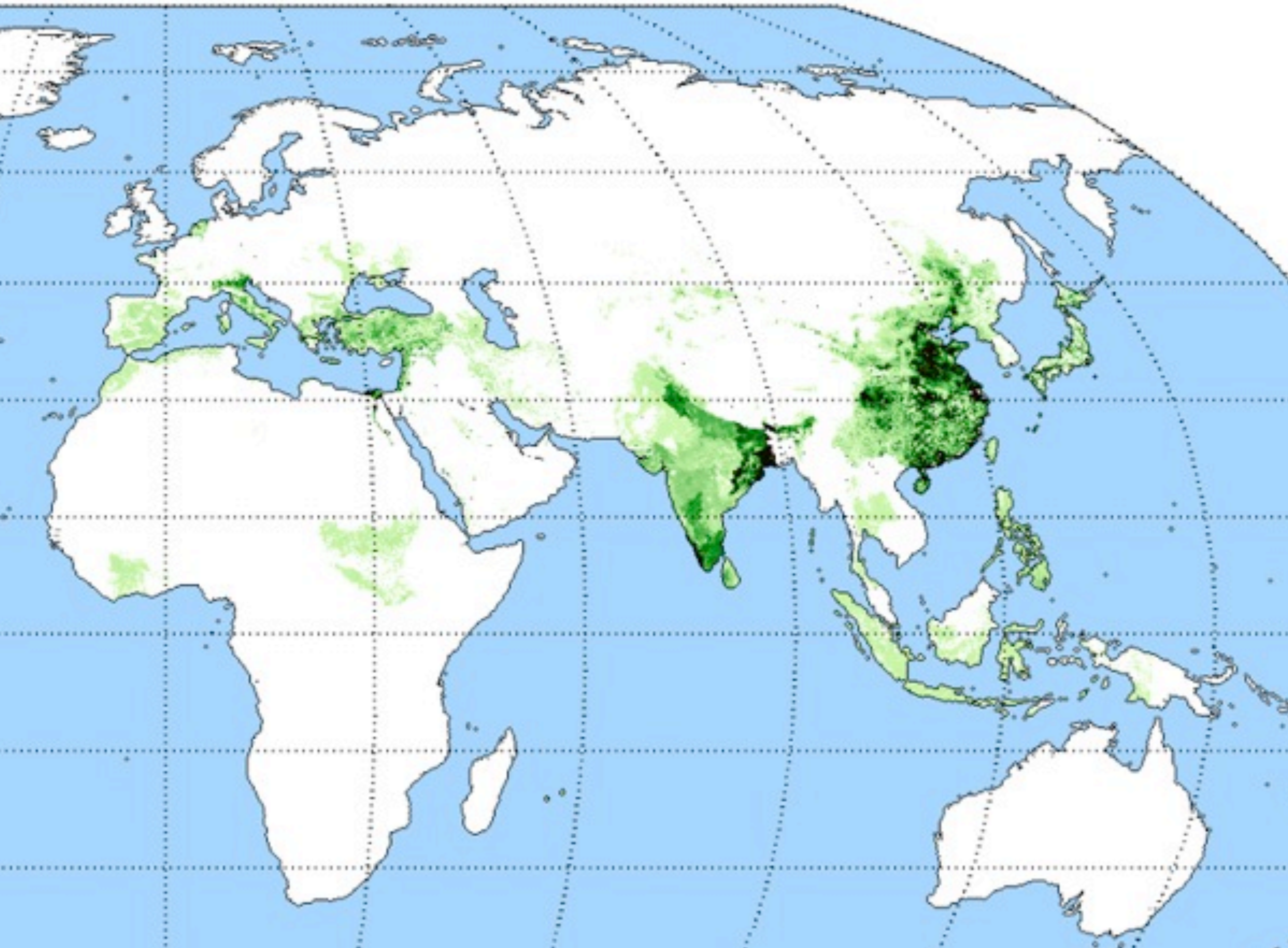
GERMANY:
80 Matches in the EU Database of deliberate releases

	NOTIFICATION NUMBERS	PUBLICATION YEAR	NAME OF THE INSTITUTES OR COMPANIES	PURPOSE OF STUDY	GENETIC MODIFICATION
Wheat	B/DE/10/209	2011	University of Rostock	Resistance to Smut & Other Fungi	KP4 bearing Genetically Modified Wheat
Sugar Beet	B/DE/10/211	2011	Monsanto Company	Resistance to Smut & Other Fungi	?
Potato	B/DE/08/197	2008	BASF Plant Science GmbH	?	altered starch metabolism under simplified procedure

CARROT
POTATO
GRAPEFRUIT
TOMATO
AUBERGINE
SUSHI
SMOG


WHEN SCIENTISTS PLAY GOD
Save Our Biodiversity
Save Our Soils
Sustaining Our Future Crops


0
10
20
30
40
50
60
70
80
Average regional eggplant output (kg/ha)



GO BACK

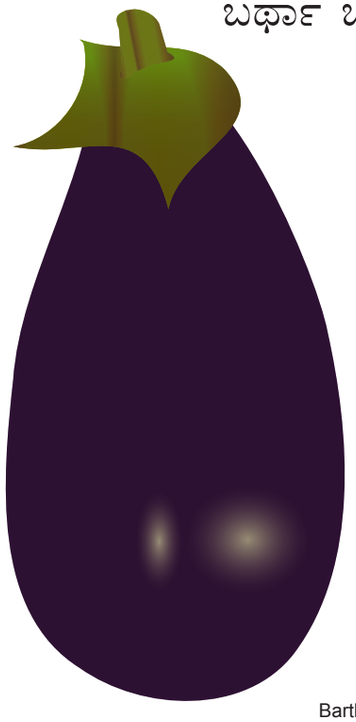
Monsanto

WHEN
SCIENTISTS
PLAY GOD
THE
RECREA
DISASTER

The Bt brinjal debate has featured technological worries relating to genetically modified crops, which appear relatively minor in comparison to the critical issue of who controls Indian agriculture and therefore who controls food security in India.

Bt Brinjal: Need to Refocus the Debate (2010)

ಬರ್ಥಾ ಬದ್ನೆಕಾಯಿ



Bartha badnekai

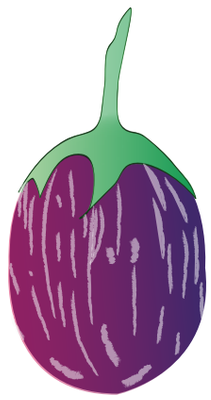
ಕರಾಪು ಬದ್ನೆಕಾಯಿ

Karupu badnekai

ಬಿಲಿ ಬದ್ನೆಕಾಯಿ

Bili badnekai

ಗುನ್ದು ಬದ್ನೆಕಾಯಿ



Gundu badnekai

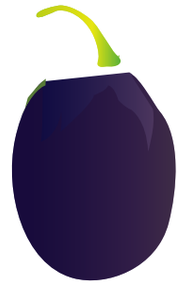
ಬೊತ್ತೆಲ್ಲ ಬದ್ನೆಕಾಯಿ

Medium Purple Bottle Brinjal

ಮುಲ್ಲು ಬದ್ನೆಕಾಯಿ

Mullu Badnekai

ಹೊಸ್ಕೊತೆ ಬದ್ನೆಕಾಯಿ



Hoskote badnekai

ಮತ್ತೆ ಗುಲ್ಲಾ

Matte Gulla

BIODIVERSITY OF THE KITCHEN

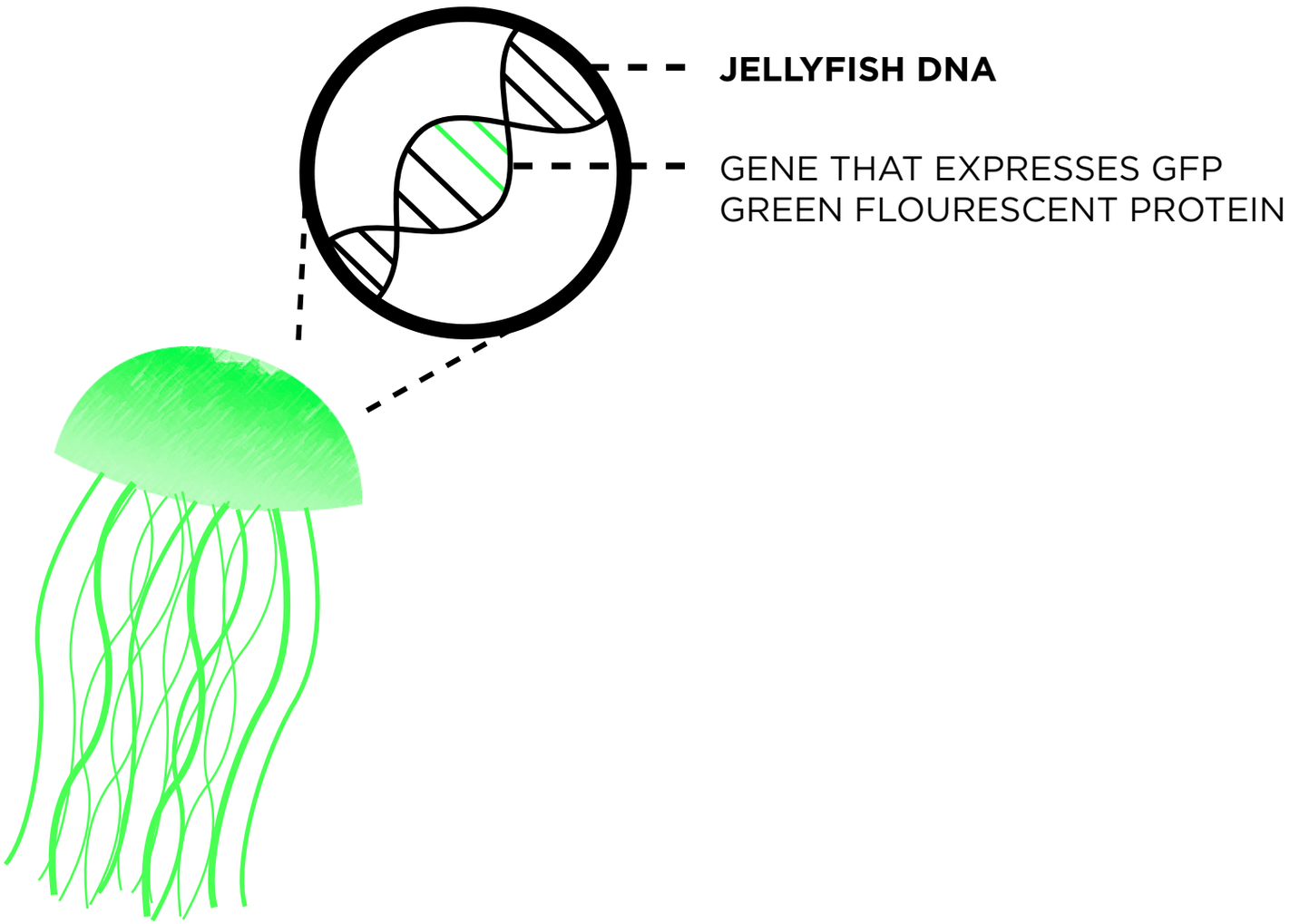
Images cc from flickr: .shyam. , rovingI, Charles Haynes

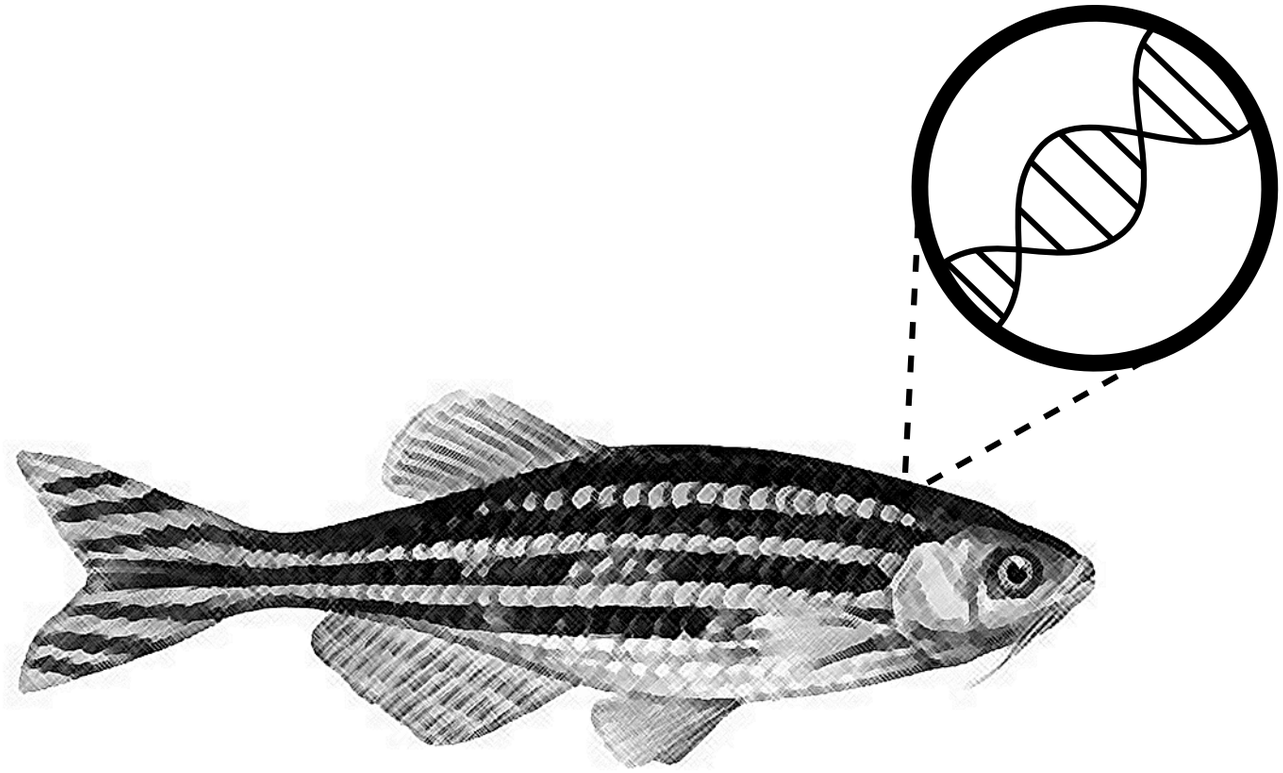
HOW FOOD SYSTEMS LEARN

"...who owns GM technology appears to be far more crucial an issue than its "GM"-ness

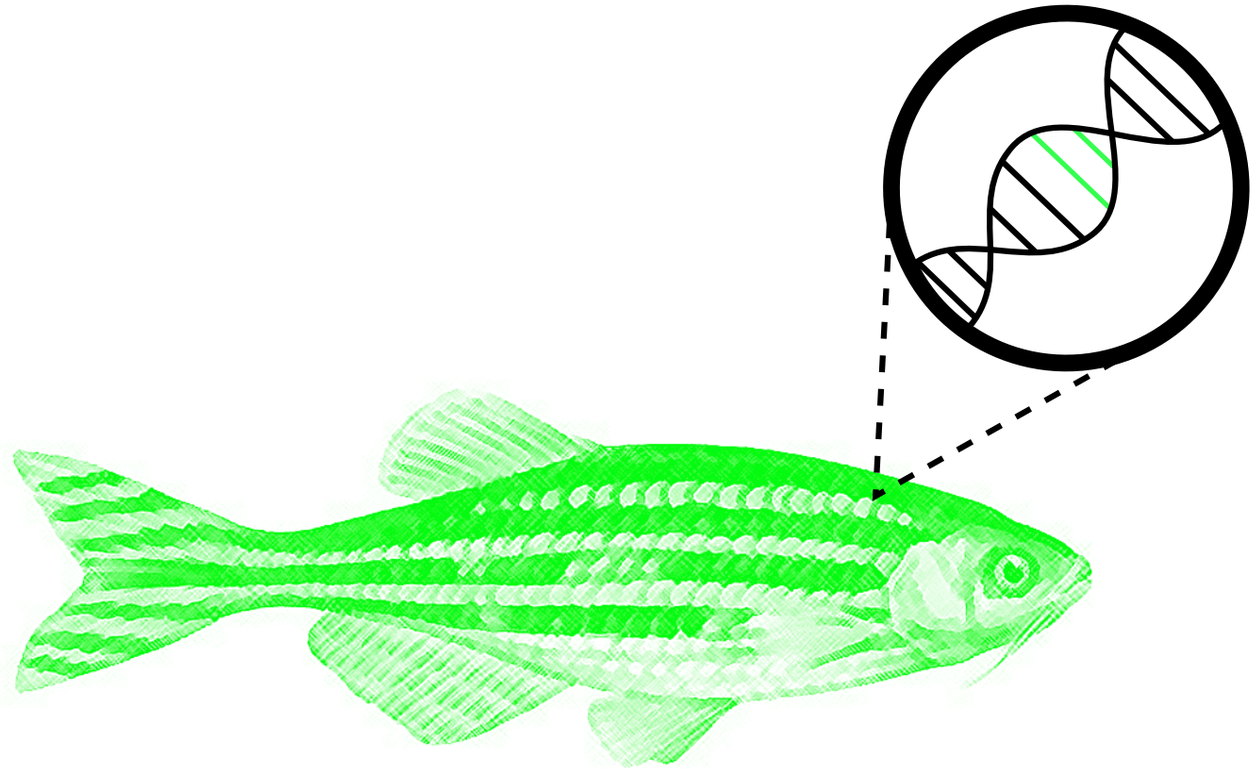
Bt Brinjal: Need to Refocus the Debate (2010)

CARROT
POTATO
GRAPEFRUIT
TOMATO
AUBERGINE
SUSHI
SMOG


JELLYFISH DNA
GENE THAT EXPRESSES GFP
GREEN FLOURESCENT PROTEIN



ZEBRA FISH



ZEBRA FISH
WITH GFP

PEOPLE ARE GOING TO DO UNEXPECTED THINGS WITH TECHNOLOGY.

GloFish™

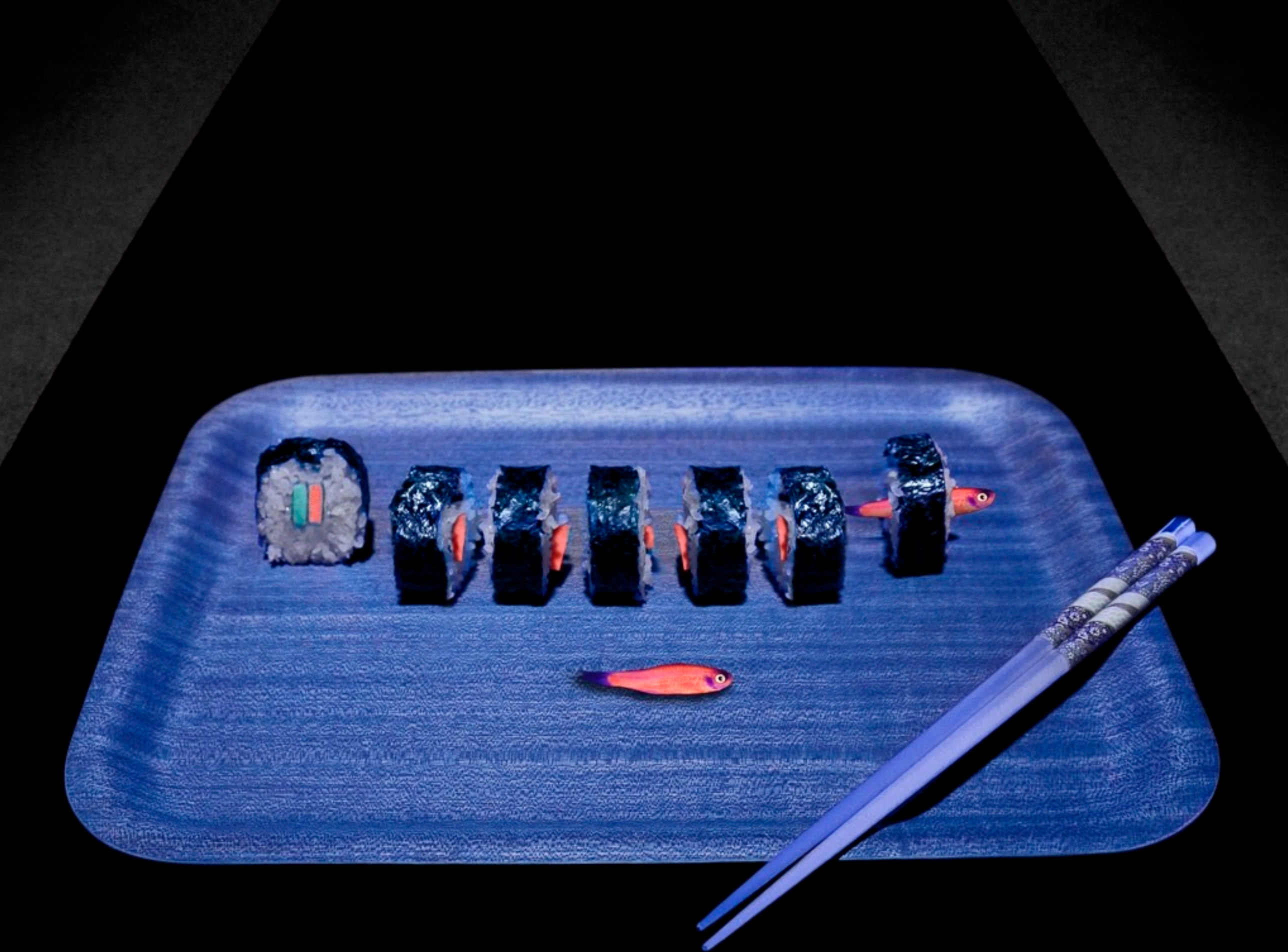


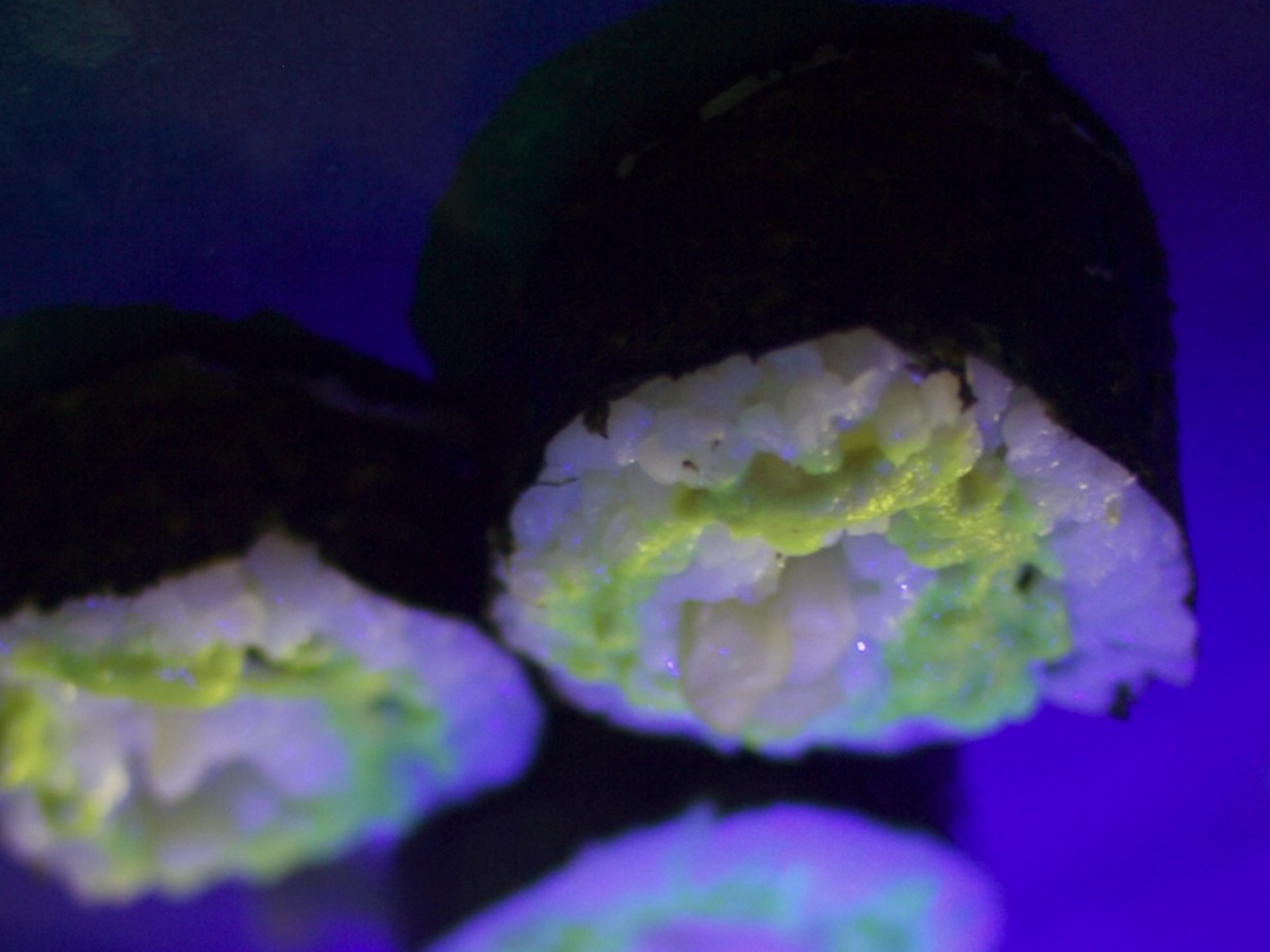






The Glowing Sushi Cooking Show
www.glowingsushi.com





GE salmon compared to normal one. AquaBounty

CARROT
POTATO
GRAPEFRUIT
TOMATO
AUBERGINE
SUSHI
SMOG

“Thanks to Eggs we are able to harvest the air.

...at the ‘stiff peak’ stage... [egg] foam is approaching 90% air.”

On Food and Cooking

RESILIENT BIO TECHNOLOGIES

RAW MILK VENDING MACHINE


DISTRIBUTEUR
DE LAIT CRU


krajinski park
radenskopolje
v naravi


MLEKOmat
NON-STOP
Pristno sveže mleko
IZ ZAVRHA POD ŠMARNO GORO
MLEKO
NON-STOP
MILK
KUHMILCH
LATTE
Natočimo
KER IMAMO RADI NARAVO.

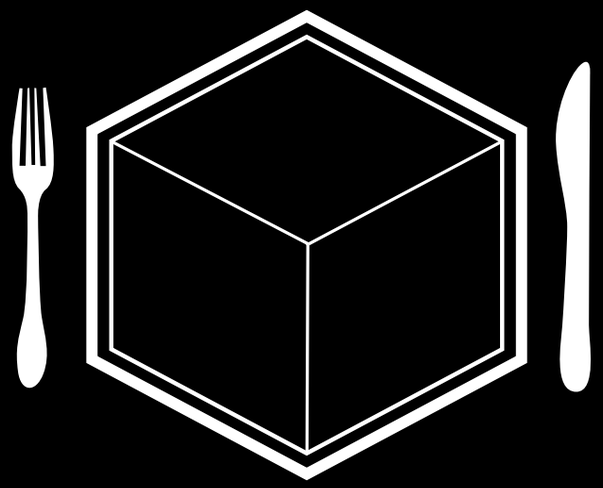
SUBSTITUTION THROUGH SIMULATION: **TUNA**

UTOPIAN CUISINE

INVASIVORISM

SEED SAVING

END



EATING IN THE ANTHROPOCENE

TRANSGENIC FISH, MUTAGENIC GRAPEFRUITS & SPACE POTATOES

28C3 CHAOS COMMUNICATION CONGRESS: BEHIND ENEMY LINES

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