Co-existence of Conventional, Organic and GM Crops

Can it be done? And how?

EXCERPT FROM ORGANIC CONSUMERS ASSOCIATION LETTER DISSEMINATED BEFORE MARCH 2004 VOTE IN BUTTE COUNTY

Dear Friends,

While the rest of the country focuses on one presidential candidate or another, Measure D represents Biodemocracy in action. Rarely do we have the opportunity to change the

Contamination is spreading so quickly that we have <u>little time to waste before our entire food supply is lost forever</u>…

You have the opportunity to lay the foundation for a statewide ban on GE crops. California's future is organic!

Yours in organics,

Organic Consumers Association

www.organicconsumers.org

One of the most divisive issues regarding genetic engineering is the suggestion that a choice must be made between EITHER "organic agriculture" OR "GMOs".

As long as these issues are polarized into "all is permitted" or "nothing is permitted", rational social discussion is impossible. Dualism (right versus wrong) is the enemy of compromise.

Co-existence

development of best management practices used to minimize adventitious presence of unwanted material and effectively enable different production systems to co-exist to ensure sustainability and viability of all production systems. General concept of co-existence is well established in California with conventional, organic and IPM systems working together
(and GE based on examples like Don Cameron!)

US Organic Sales Figures and Estimates

- 1990 - $1 billion
- 1996 - $3.3 billion
- 2000 - $7.8 billion
- 2005 - $20 billion (estimated)
- Organic sales increases have been 20% or more annually since 1990

In 2001 organic acreage (cropland and pastureland) was 0.3% of U.S. agricultural acreage; >2% for some vegetables (most recent figures available at ers.usda.gov/publications/aib780a.pdf)

F.J. Chip Sundstrom
CCIA

ddress http://www.berkeley.edu/news/media/releases/2006/04/03_organic.shtml

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Press Release

Berkeley students and staff fill their bowls with organic fixings from the new all-organic salad bar at the Crossroads dining complex. *(Steve McConnell photos)*

New organic dining option a first for U.S. campuses

By Liese Greensfelder, Media Relations | 03 April 2006

BERKELEY – At 10:30 a.m. today (Monday, April 3), students at University of California, Berkeley's Crossroads dining commons will march into history when they load up their plates with lettuce, tomatoes and vinaigrette dressing. The organic salads they sit down to eat will be the first ever to be prepared in a certified organic kitchen on an American college campus, according to the country's leading organic certifying

Done Local intranet

CA organic acreage and production

	Total acres 2004[1]	Organic acres 2004[2]	GE Acres 2004 estimates[3]
Alfalfa	130,000	4920(~3.78%)	0 (not available)
Field Corn	540,000	383 (~0.07%)	300,000 (~57%)
Upland Cotton	560,000	273 (~0.01%)	260,000 (~54%)
Gross Value ($)	**31.8 billion**	**752 million (~ 2%)**	

[1] http://www.nass.usda.gov:8080/QuickStats/PullData_US

[2] http://www.cdfa.ca.gov/is/i&c/docs/2004CountyReport.pdf

[3] Martin Lemon, Monsanto, personal communication.

Reasons to grow organic crops

- The market is expanding for organic products (~20%/year since 1991)
- EPA has a mandate to reduce pesticide use
- Consumers have concerns about environment and pesticides residues
- Reduces soil erosion (3 billion tons of soil erode from US cropland every year)
- More than 2,000 California farms and handlers produce $800 million in products and it is economically viable

P. Ronald UC Davis

Why the need for National Organic Standards?

- Until 2001, there were 33 private and 11 state certifiers--each with a slightly different set of standards--varying levels of implementation and enforcement.
- Exporting organic product is difficult when standards are different.
- One standard easier for consumers.

P. Ronald UC Davis

National Organic Program

- Up to 2001, 33 private/11 state certifiers--each with different sets of standards--varying levels of implementation and enforcement.
- 1990--Congress passes Organic Foods Production Act (OFPA). Mandates creation of national organic standards.
- 1991-1997 National Organic Standards Board established – develop recommendations for USDA.
- Dec. 16, 1997--USDA announces proposed rules for organic production.

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Organic agriculture is a production system that:

- Places a priority on health of crops, animals, farmers, environment, and consumers
- Doesn't use synthetic pesticides and fertilizers
- Focuses on improving soil fertility through use of organic matter and cover crops
- Supports and enhances abundance of beneficial insects
- Must have 3 years with no prohibited material and be inspected on an annual basis by a USDA accredited certifier to be certified organic

P. Ronald UC Davis

Why is a GE crop a co-existence issue for an organic farmer?

SOURCE: AMS National Organic Program Q&A

To be Certified Organic (by USDA) , a Farm Plan must be approved…

- with distinct, defined boundaries/buffers
- with tillage & cultivation practices that maintain & improve soil condition
- with crop rotations, cover crops & application of plant & animal materials for soil fertility
- with inputs according to National List (§205.601 and 205.602 NOP) & 3 yr. field history

F.J. Chip Sundstrom
CCIA

...And what genetic modification input methods are PERMITTED? (§ 205.2 National Organic Program)

- they "...include the use of <u>traditional breeding, conjugation, fermentation, hybridization, in vitro fertilization, or tissue culture</u>."

F.J. Chip Sundstrom
CCIA

…And what genetic modification input methods are PROHIBITED? (§ 205.2 National Organic Program)

"A variety of methods…are not considered compatible with organic production. Such methods include cell fusion, micro- and macro- encapsulation, & recombinant DNA technology (including gene deletion, gene doubling, introducing a foreign gene, & changing the positions of genes when achieved by recombinant DNA technology)."

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Are there tolerances for GE in organic products?

From NOP preamble…

- **Organic Production is a <u>PROCESS</u> certification NOT a <u>PRODUCT</u> certification – it allows for Adventitious Presence (AP) of certain excluded methods.**

- **"As long as an organic operation has not <u>used</u> excluded methods and <u>takes reasonable steps</u> to avoid contact with the products of excluded methods …<u>unintentional presence of products of excluded methods should not affect status of an organic product or operation</u>."**

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- **Pesticides: "When residue testing detects prohibited substances at levels that are greater than 5% of the EPA's tolerance for the specific pesticide residue detected…the agricultural product must not be sold or labeled, or represented as organically produced."**

- **GMOs: At the present time there are no specified tolerances for GMOs in organic products. Organic products are not 'guaranteed' GMO-free, although some organic farmers sign contracts guaranteeing GMO-free**

Capital Press, September 16, 2005

Communicate to avoid pesticide drift, winemaker says

By MATEUSZ PERKOWSKI
Freelance Writer

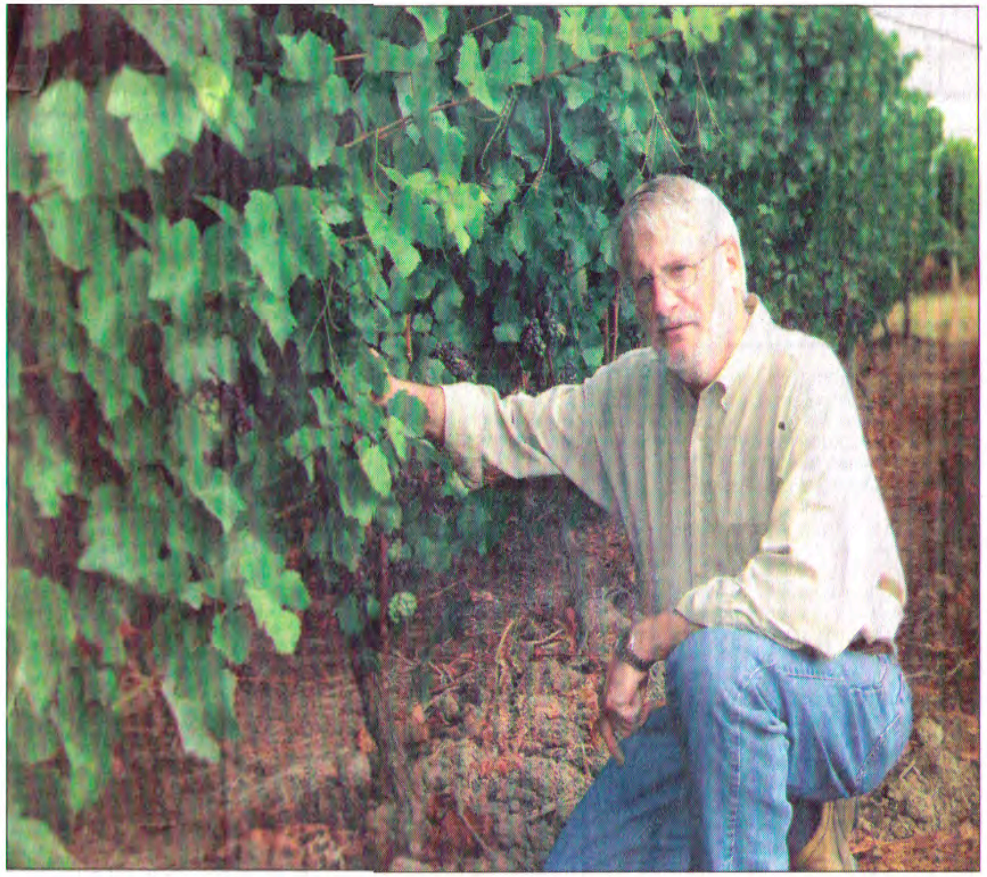
Fifteen years ago, David Adelsheim received some bad news. His vineyard manager had noticed that a section of his vineyard, located near Newberg, Ore., was producing vines with badly distorted leaves.

"Instead of being a full leaf shape, they might have been only half-a-leaf shape, or they were smaller and fanned together," said Adelsheim. All the symptoms pointed to one thing: the plants had been damaged by an herbicide.

As it turned out, a neighbor had sprayed half an acre of his land that was overgrown with blackberry bushes with a growth regulator herbicide containing 2,4-D. Aside from killing the blackberries, some of the herbicide had drifted onto the rows of grapevines growing only 15 feet away.

Roughly five acres were affected by the drift, which was about a third of Adelsheim Vineyards at the time. The first several rows were the most badly damaged, but even grapevines 30 rows down were showing some deformation. Because the neighbor had sprayed in mid-spring – after the grape bud break but prior to bloom – much of the year's crop had been aborted, and the remaining vines were too damaged to ripen any grapes.

In the decade and a half since then, Adelsheim Vineyards has managed to overcome the injury caused by the incident – the company has expanded to 180 acres, and the five acres ravaged by the herbicide have largely recovered. Nonetheless, Adelsheim said the effects of the



MATEUSZ PERKOWSKI/For the Capital Press

David Adelseheim examines some grapes at his vineyards near Newberg, Ore. Fifteen years ago, herbicide drift damaged several acres of his grapevines, and Adelsheim said the affected plants have never fully recovered.

Co-existence brings up concerns about pollen (gene) flow?

Factors Affecting Pollen Flow

Distance between plants
Temperature
Humidity
Wind direction
Insects involved in pollination
Plant variety
"Nicking": synchrony of flowering
Duration of pollen viability
Stamen receptivity

Is anything known about pollen (gene) flow?

Crop Type	Mode of Pollination	Means of Movement	Seed Prod Isolation Distance	Measured Pollen Movement Distance
Canola	Predom selfing; 30% outcrossing	Wind and Insects	>1320 ft (0.25 mi)	~2 mi
Corn	Almost exclusively outcrossing	Wind	660 ft (0.125 mi)	~2 mi
Cotton	Predom selfing; outcrossing in presence of insects	Insects	1320 ft (0.25 mi)	N.A.
Soybean	Self pollinating (99%)	Physical touching	5 ft	N.A.
Wheat	Self pollinating (99.9%)	Physical touching	5 ft	>160 ft

Will an organic farmer automatically lose his accreditation if his crop is found contaminated with a GE crop?

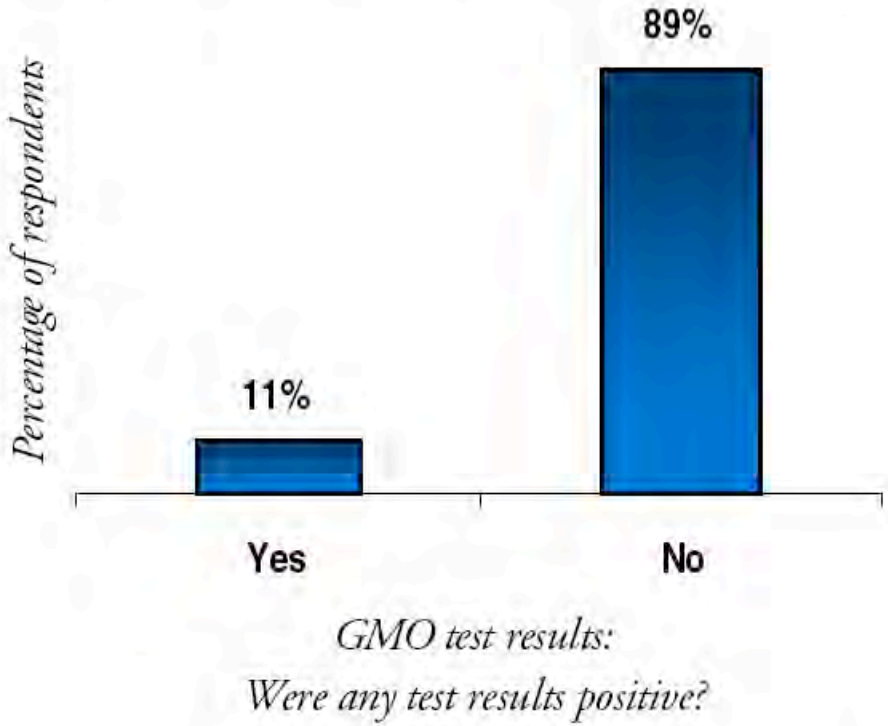
No.

"As long as an organic operation has not used excluded methods and takes reasonable steps to avoid contact with the products of excluded methods, as detailed in their approved organic system plan, the unintentional presence of the products of excluded methods should not affect the status of an organic product or operation."

SOURCE: AMS National Organic Program Q&A

Q. Did any of these seed, input, or organic products test positive for GMO contamination?

Figure 7.6--Results of GMO testing. 233 respondents.

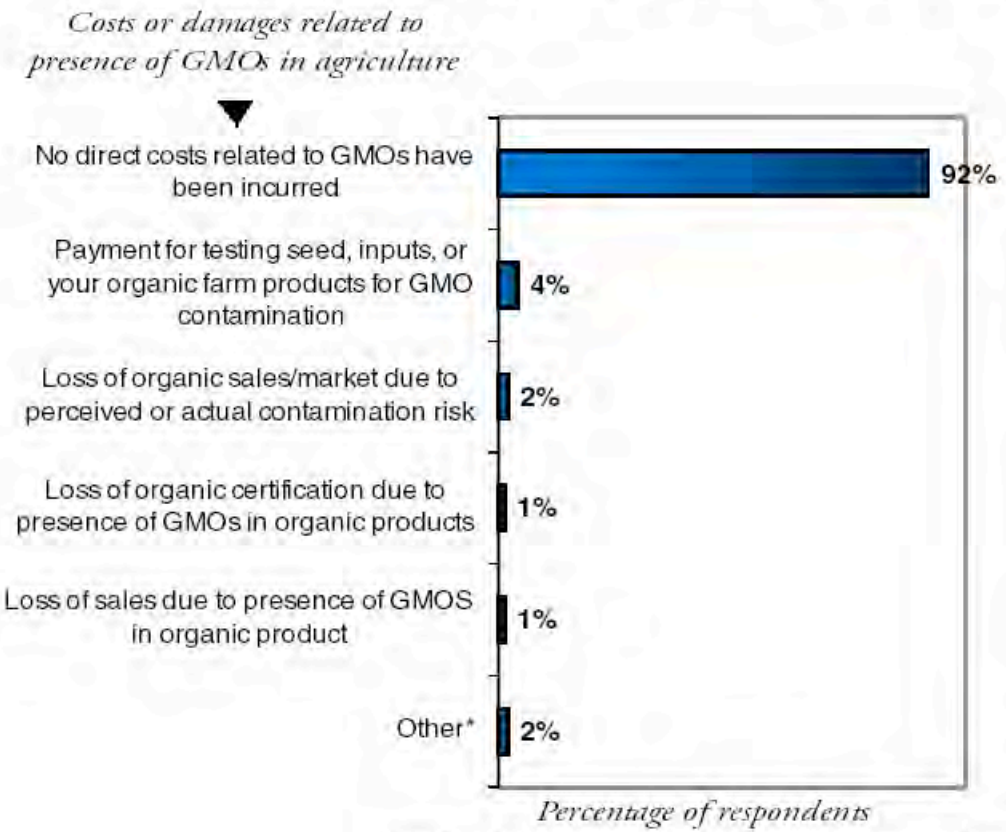


- 11% of those who have had GMO testing done received a positive test result.
- This represents 2% of the total respondent population.

OFRF 4th National Organic Farmers' Survey Results *2004*

Q. Has your organic farm operation borne any direct costs or damages related to the presence of GMOs in agriculture?

Figure 7.7 --Direct costs or damages incurred by GMOs. 938 respondents.



OFRF 4th National Organic Farmers' Survey Results

EU Directive 2001/18 makes biotech production and co-existence rules compulsory

500-1000 hectares of GE corn and GE grape rootstocks for Fanleaf virus protection grown in France in 2005

SOURCE: "Co-existence project kicked-off", European Biotechnology News, Vol. 4, 2005