

A Bill of Goods: Agricultural Policy, Trade and Technology Innovation Since the Mid-1990s

Upper Midwest Organic Farming Conference
La Crosse Wisconsin
February 26-28, 2004

mōses

Charles M. Benbrook Ph.D.
Consultant to the Organic Center

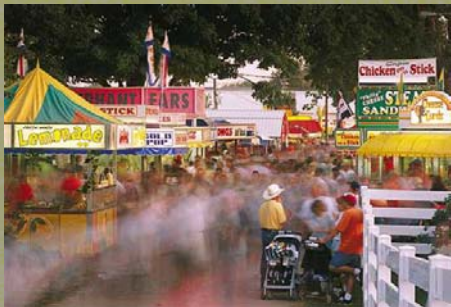


Photo by Jim Richardson
National Geographic May 2002



The economic performance of the food system depends too much on the exploitation of:

- Natural resources, farm animals and landscapes
- Farmers, workers, competitors, and rural neighbors
- The federal treasury, via subsidies and tax breaks

The U.S. food system: Four Legs

- Farmers and ranchers
- Input industries that sell farmers the tools of their trade
- Food handlers, shippers, and manufacturers
- Retailers, food service and restaurants

The U.S. Food System

...is an accomplice in the erosion of personal health and well-being via excess consumption of calories, fat, sugar and salt.

The U.S. food system

....is not doing its fair share to improve environmental quality.

.... in some regions large scale animal operations and related infrastructure are a blight upon the land and a divisive curse within rural communities.

The U.S. food system

...takes a 'no questions asked' attitude when it comes to expecting the world to accept our technologies, subsidies, surpluses, exports and policy priorities.





Photo by Jim Richardson
National Geographic May 2002

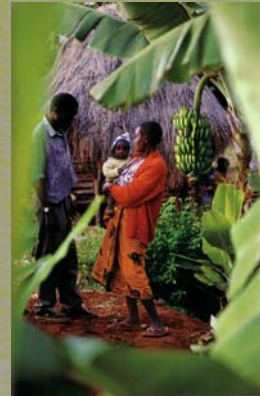


Photo by Jim Richardson
National Geographic May 2002



Photo by Jim Richardson
National Geographic May 2002

Favorite Myths About Technology

Silver Bullet



PESTS
DISEASE
ANIMAL HEALTH PROBLEMS
FERTILITY PROBLEMS

MECHANICAL
CHEMICAL
GENETIC
BIOLOGICAL

PROBLEMS

SOLUTIONS

SilverBullet

Stress in factory farms → Subtherapeutic antibiotics
 Reduced milk production → BGH
 Weed management → Herbicide tolerant crops
 Vitamin A deficiency → Golden rice

PROBLEMS

SOLUTIONS



THE MYTHOLOGY



Define an agronomic or food industry problem, and there is a machine waiting to be invented to make it manageable.



California Farmer January 2004



THE OPTIMIZER

Tills 8 acres per hour
 Eliminates four to six tillage passes
 Cuts fuel consumption 50-70 %
 Cuts time spent tilling by two-thirds or more
 Cuts PM-10 dust emissions by about 80 %



THE OPTIMIZER

Twenty-five years in the making
 18 feet wide, 45 feet long
 50,000 pounds
 450 horsepower tractor to pull it
 Yours for only \$160,000

THE MYTHOLOGY



A bigger and faster machine always and irrevocably makes people more productive.



Badger Common Tater February 2004

Chemical Technology



SilverBullet

STARTING NOW, THE BEST IN
INSECT AND DISEASE
CONTROL FOR POTATOES
IS AS EASY AS
UNSCREWING A CAP.



The World Without Lorsban



THE MYTHOLOGY



For every new bug or pathogen, there will be a newly discovered pesticide or drug that prevents excessive economic loss and/or disease in the population.

The modern way to deal with a biological problem is with a chemical solution.

THE MYTHOLOGY



Smart use of chemistry can free us from Mother Nature.



THE MYTHOLOGY



Soil fertility and productivity can be maintained by replacing the N-P-K nutrients each year and keeping pH balanced.

Genetic Technology



THE MYTHOLOGY

Engineered crops which produce pesticide in every cell, season long, reduce pesticide use.

Crops genetically engineered to withstand over-the-top applications of herbicides will reduce herbicide use.

Genetic engineering of plants is no different than classical plant breeding.

THE MYTHOLOGY



Genetic engineering techniques are precise.

Genetic engineering will speed up progress in the development of improved varieties.

Today's genetically engineered crops are "substantially equivalent" to conventional varieties, and hence safe.



Impacts of Genetically Engineered Crops on Pesticide Use in the United States: The First Eight Years

Charles M. Benbrook
BioTech InfoNet
Technical Paper Number 6
November 2003

<http://www.biotech-info.net/technicalpaper6.html>

THE FACTS

In first two years, RR soybeans reduced herbicide use marginally. But in 1998, the average acre of RR soybeans was treated with 0.07 pounds MORE herbicide than conventional acres...and in 1999, the difference rose to 0.19...and then, 0.34 in 2000.

THE FACTS

This shift resulted from:

Farmers applying more glyphosate per acre, with the average rate increasing from 0.79 to 0.9+ pounds

Average herbicide use on non-RR acres went down from 1.23 pounds per acre to 1.05 pounds, as a result of wider use of low-dose chemistry and regulatory changes.

PRODUCTION

The Top 10 Weeds

Weed scientists of the NCAA rank their weeds BY ANDREW BURCHETT

Farm Journal February 2004

1 Waterhemp. With 100,000 or so seeds per plant, extended emergence and biotypes that resist acetolactate synthase (ALS) inhibitors, triazines and PPO inhibitors, it's no surprise this weed got the most votes for No. 1. Waterhemp continues to dominate summer crop fields in the central region of the U.S. Some say it is becoming resistant or tolerant to glyphosate herbicide. No-tillers facing waterhemp have to be timely and aware of resistance issues if they don't want to end up with seven-footers.

2 Common lambsquarters. This weed scored most consistently from the mid-Atlantic to South Dakota, making it a close No. 2. This early germinator is tough in wet, cool springs. Post-applied herbicides, including glyphosate, don't always knock it down, and it's widely resistant to triazines. These characteristics make it a tough weed in no-till systems.

PRODUCTION

The Top 10 Weeds

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Farm Journal February 2004

3 Giant foxtail. In rankings dominated by broadleaves, giant foxtail is the No. 1 grass. Its abundance in Midwest corn and soybean rotations and its ability to creep in fields where no soil residuals are used placed it squarely in third.

4 Velvetleaf. Another corn and soybean nemesis, velvetleaf has been making regular deposits to the soil seed bank for many years. It's a big, hairy opponent that's hard to rule out completely once it's established.

PRODUCTION

The Top 10 Weeds

Weed scientists of the NCAA rank their weeds BY ANDREW BURCHETT

Farm Journal February 2004

5 Giant ragweed. Early emergence and the ability to adapt to Midwest crop production systems make giant ragweed a contender. It also has a knack for scoring over most herbicide defenses sooner or later.

6 Morningglory species. This scrappy weed family has a deep bench, with a gang of first cousins that includes pitted and tall morningglory and ivyleaf. One weed scientist notes it can be "controlled" with glyphosate but has thrived since Roundup Ready soybeans became popular.

PRODUCTION

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Farm Journal February 2004

7 Kochia. This spoiler takes on corn, oats, soybeans, sunflowers, wheat and about any crop planted in the western plains. It has biotypes resistant to atrazine and ALS inhibitors and is able to withstand drought.

8 Common cocklebur. This weed is known to double-team soybeans—small patches can completely choke the crop. It's not always as severe in corn, but it is known to resist ALS inhibitors.

PRODUCTION

The Top 10 Weeds

Weed scientists of the NCAA rank their weeds BY ANDREW BURCHETT

9 Horseweed. This weed got some double votes cast in Eastern states—one as a weed and one as a glyphosate-resistant weed. Where it's not resistant, farmers don't think much about it, but resistant biotypes continue to roll out of the Delmarva into the eastern Corn Belt, Tennessee, Arkansas and Mississippi.

10 Woolly cupgrass. Although this weed is no big deal in many areas, where it shows up in force, it can outcompete No. 3-ranked giant foxtail. It starts emerging early and can sprout from 4' deep. 

Six of 10 made worse by RR technology!!

JOURNAL OF AGRICULTURAL AND FOOD CHEMISTRY

J. Agric. Food Chem. 2004, 52, 879-883 879

Response of Selected Horseweed (*Coryza canadensis* (L.) Cronq.) Populations to Glyphosate

CHRISTOPHER L. MAN, THOMAS C. MUELLER,* ROBERT M. HAYES, AND JOHN B. WILKERSON

Department of Plant Science, The University of Tennessee, 2431 The Johnson Drive, 212 Ellington Plant Science Building, and Biosystems Engineering & Environmental Science, 308 Agricultural Engineering B, 2906 E. J. Chapman Drive, Knoxville, Tennessee, 37996

Horseweed (*Coryza canadensis* (L.) Cronq.) seed was collected in Illinois, Indiana, Kentucky, Mississippi, Missouri, and Ohio to determine susceptibility of different horseweed biotypes to glyphosate. Horseweed resistant to glyphosate was found in Mississippi, Ohio, and western Tennessee. In a separate experiment examining Tennessee biotypes, a dose response curve demonstrated that four times as much glyphosate was needed to achieve a 50% fresh weight reduction (GR₅₀) in resistant biotypes when compared to a susceptible biotype. Resistant biotypes from Tennessee displayed a GR₅₀ of 1.6 kg/ha as compared to a GR₅₀ of 0.4 kg/ha in a susceptible horseweed population. Although growth was reduced, the resistant plants did not completely die and could potentially produce seed. Variation in glyphosate resistance was found among the populations tested.

KEYWORDS: glyphosate; glyphosate resistance; horseweed; *Coryza canadensis*; horseweed distribution

THE FACTS

In the last three years, weed management on RR soybean acres required an estimated 66 million more pounds of herbicide, compared to conventional varieties.

THE FACTS

Over the first eight years of commercial use, herbicide tolerant corn, cotton and soy have increased herbicide use an estimated 70.2 million pounds.

THE MYTHOLOGY



Herbicide tolerant technology is efficient and good for farmers because it has reduced their herbicide costs.

THE FACTS

Although herbicide costs HAVE gone down for most farmers, most of the money has been shifted to cover the rising soybean seed costs.

THE FACTS

MORE IMPORTANTLY, the cost saving to farmers has nothing to do with the efficiency of the system and everything to do with the impact of glyphosate going off-patent.

The Cost of Food



THE MYTHOLOGY

Americans pay less for food than citizens of any other country.

Food is cheaper in the U.S. than anywhere else.

Food is a great bargain in the U.S.



Ranking of Thirty-Four Countries by Percent of Per Capita Income Spent on Food, Smallest to Largest Share, Late 1990s

Rank	Country	Per Capita Income (U.S. Dollars)	Percent per Capita Income Spent on Food
1	US	31,872	9.2%
2	Canada	26,251	11.7%
3	Sweden	22,636	13.1%
4	Japan	24,898	14.0%
5	Australia	24,774	15.1%
6	New Zealand	19,014	15.7%
7	UK	22,091	16.2%
8	Italy	22,122	16.6%
9	Spain	18,465	17.7%
10	Hungary	13,439	22.0%
11	Brazil	2,051	22.7%
12	Chile	8,624	24.6%
13	Uruguay	8,590	25.9%
14	Finland	8,132	25.6%
15	Mexico	8,287	26.6%
16	Thailand	6,132	28.4%
17	Nicaragua	5,495	29.4%
18	Peru	4,924	31.2%
19	Korea, Republic	15,712	31.6%
20	Argentina	12,777	32.8%
21	Guatemala	3,561	34.8%
22	Col	4,795	36.7%
23	Bolivia	2,155	42.4%
24	Indonesia	6,251	46.7%
25	Venez	1,824	49.3%
26	France	1,814	47.0%
27	Spain	3,709	48.1%
28	Philippines	3,805	48.4%
29	Hol	751	53.3%
30	Bangladesh	1,483	56.1%
31	Nepal	1,217	57.6%
32	Vietnam	956	61.1%
33	Burma-Lao	466	62.1%
34	Thailand	501	73.4%

Data Source: UNDP World Development Report 2000/2001

Ranking of Thirty-Four Countries by Daily Expenditures Per 1000 Calories, Least to Largest Expenditures, Late 1990s

Rank	Country	Percent of Per Capita Income Spent on Food	Per Capita Income (US Dollars)	Per Capita Food Expenditures per Day	Per Capita Calories Consumed per Day	Daily Expenditures per Person for Each 1,000 Calories Consumed
1	Sri Lanka	62.1%	468	9.75	1969	0.25
2	Hol	59.3%	263	4.49	2429	0.46
3	Canada	58.1%	891	1.81	1954	0.64
4	Kenya	46.8%	1,022	1.38	2038	0.61
5	Japan	41.2%	8,855	1.56	2479	0.61
6	India	37.9%	1,711	2.36	2066	0.61
7	Pakistan	47.0%	1,632	2.36	2061	0.66
8	Indonesia	36.6%	2,761	2.51	2062	0.70
9	Bangladesh	56.1%	1,483	2.28	2122	1.07
10	Nepal	59.2%	2,155	2.71	2218	1.04
11	Guatemala	34.8%	3,561	3.72	2050	1.27
12	Spain	46.1%	1,483	4.51	1736	1.25
13	Brazil	22.7%	2,051	4.32	1806	1.56
14	Peru	31.9%	4,924	1.93	2593	1.51
15	Col	36.7%	4,795	4.77	2280	1.24
16	Kenya	31.6%	8,287	5.02	1649	1.97
17	Chile	23.9%	8,624	5.44	2018	1.91
18	Thailand	26.6%	8,436	4.49	2062	1.84
19	Uruguay	25.9%	8,590	4.60	2259	1.89
20	Uruguay	25.9%	8,450	5.85	2038	2.06
21	Hungary	22.0%	11,439	1.99	1922	2.12
22	Philippines	48.4%	3,805	5.90	2374	2.12
23	US	9.2%	31,872	6.50	3726	2.28
24	Romania	45.7%	6,041	7.87	2383	2.28
25	New Zealand	15.7%	19,014	7.91	3187	2.28
26	Kenya	17.7%	18,280	8.62	3324	2.51
27	Sweden	13.1%	22,636	8.21	3146	2.81
28	Canada	11.7%	26,251	8.43	3176	2.64
29	Italy	16.6%	22,122	10.88	3074	2.91
30	UK	16.4%	22,091	9.51	3249	2.96
31	Guatemala	15.1%	28,253	11.03	3182	3.47
32	Argentina	17.7%	12,777	11.81	3274	3.47
33	Spain	14.9%	20,888	10.15	2799	3.68
34	Korea, Republic	15.4%	19,014	11.58	3024	4.21

Data Sources: UNDP World Development Report 2000/2001; International Evidence on Food Consumption Patterns, ERS Technical Bulletin No. (TB1904), October 2003

Agricultural Trade



THE MYTHOLOGY

The export market is the key to the financial prosperity of the American farmer.

- Markets just have not behaved as USDA planned.
- More on this later when we discuss policy.

Agricultural Trade



THE MYTHOLOGY

Trade agreements like NAFTA and GATT will open markets, expand trade, and increase economic well-being for citizens in all countries.

- Mexican real wages declined, 1.3 million ag sector jobs lost
- Income inequality has worsened
- Subsidized U.S. corn pulled rug from Mexican corn market

THE MYTHOLOGY



Overbearing worker safety and environmental rules are undermining international competitiveness.

Trade policies supported by Cargill, ADM and Conagra are good for America and the American farmer.

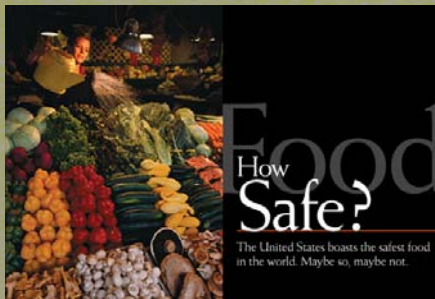


Photo by Jim Richardson
National Geographic May 2002

Food Safety



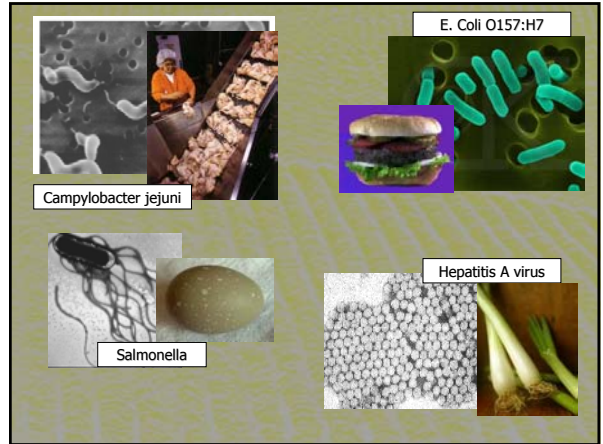
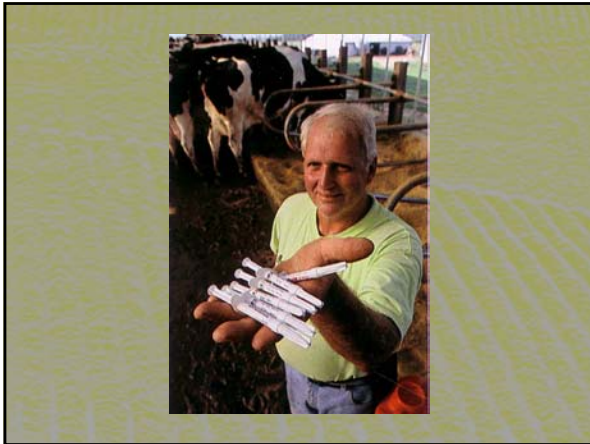
THE MYTHOLOGY

The U.S. food supply is the safest in the world.

Potential risks in the food system

- Pesticide residues
- Animal drug and hormone residues
- Food borne pathogens and parasites of animal origin
- Microbial contamination
- Natural toxins expressed by plants
- Antibiotic resistant bacteria
- Mycotoxins (aflatoxin)
- Transmissible spongiform encephalopathy (e.g. BSE)
- Mercury (other heavy metals), dioxins, other contaminants





Virologists call for vaccination in bid to beat bird flu epidemic

Nature | Vol. 427 | 12 Feb 2004 p. 573

Feedstuffs
THE WEEKLY NEWSPAPER FOR AGRIBUSINESS

BSE confirmed in U.S. dairy cow
Finding results in immediate investigation, traceback effort

By SALLY SCHUFF
Feedstuffs Washington Editor

During several television interviews following the pre-Christmas diagnosis, Veneman emphasized that USDA believes the U.S. meat supply is safe.

Source: Schuff, S. Feedstuffs, Volume 75, Number 53, December 29, 2003

The Ag Policy 'Bill of Goods'

Setting the Stage for the 1996 Farm Bill

"Ending Agricultural Entitlements: How to Fix Farm Policy"

F. Runge, T. Penny, J. Schnittker

"[without vision and change]...we are condemned to continue the recurrent exercise in government waste represented by our farm programs" F. Runge

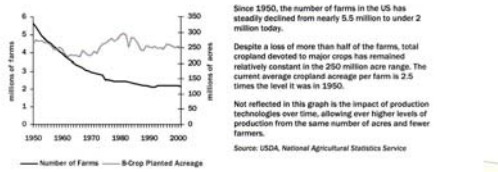
"The U.S. has spent billions of dollars on these [export] subsidies, the benefits of which flow indirectly, and only marginally, to farmers, while reducing export earnings because of give-away prices." F. Runge

Rethinking US Agricultural Policy:
Changing Course to Secure Farmer Livelihoods Worldwide

Darryll E. Ray
Daniel G. De La Torre Ugarte
Kelly J. Tiller

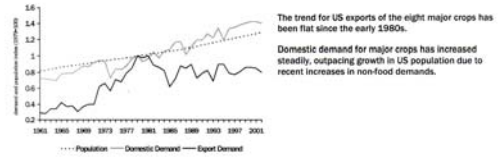
Agricultural Policy Analysis Center
The University of Tennessee

Figure 1
Number of US Farms and US Cropland Planted to the Eight Major Crops, 1950-2001



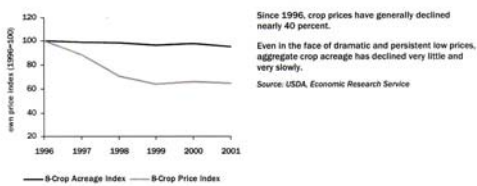
Source: Daryl Ray et al., "Rethinking US Agricultural Policy: Changing Course to Secure Farmer Livelihoods Worldwide," Agricultural Policy Analysis Center, Univ. of Tennessee, 2003.

Figure 7
Indexed US Domestic and Export Demand for the Eight Major Crops and US Population, 1961-2002 (1979=100)



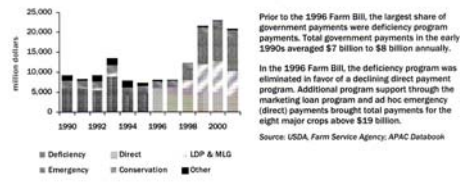
Source: Daryl Ray et al., "Rethinking US Agricultural Policy: Changing Course to Secure Farmer Livelihoods Worldwide," Agricultural Policy Analysis Center, Univ. of Tennessee, 2003.

Figure 8
Indexed US Market Price and Acreage for the Eight Major Crops (1996=100)



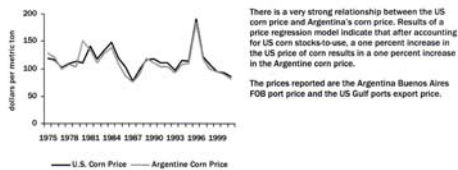
Source: Daryl Ray et al., "Rethinking US Agricultural Policy: Changing Course to Secure Farmer Livelihoods Worldwide," Agricultural Policy Analysis Center, Univ. of Tennessee, 2003.

Figure 9
US Government Commodity Payments by Program, 1990-2001



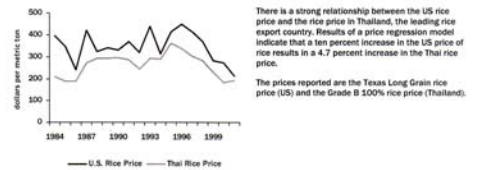
Source: Daryl Ray et al., "Rethinking US Agricultural Policy: Changing Course to Secure Farmer Livelihoods Worldwide," Agricultural Policy Analysis Center, Univ. of Tennessee, 2003.

Figure 10
US Corn Price and Argentina Corn Price



Source: Daryl Ray et al., "Rethinking US Agricultural Policy: Changing Course to Secure Farmer Livelihoods Worldwide," Agricultural Policy Analysis Center, Univ. of Tennessee, 2003.

Figure 11
US Rice Price and Thailand Rice Price



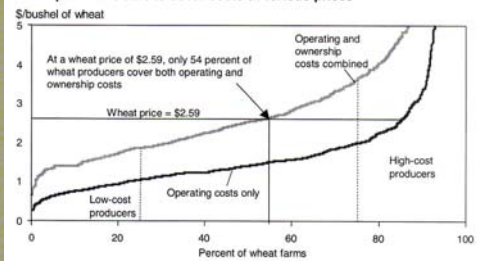
Source: Daryl Ray et al., "Rethinking US Agricultural Policy: Changing Course to Secure Farmer Livelihoods Worldwide," Agricultural Policy Analysis Center, Univ. of Tennessee, 2003.

Table 3. Per-Unit Market Prices, Total Average Cost of Production, and Government Payments for Selected Crops for 2000 and 2001

	Corn		Soybeans		Wheat	
	2000	2001	2000	2001	2000	2001
Price	1.77	1.84	4.45	4.15	2.46	2.76
Total Avg. Cost of Production	2.72	2.39	6.20	6.14	4.62	5.31
Average Gross Income	-0.95	-0.55	-1.75	-1.99	-2.16	-2.55
Government Payments	0.79	0.58	1.19	1.26	1.85	1.53
Average Net Income	-0.16	0.03	-0.56	-0.73	-0.31	-1.02

Source: Daryl Ray et al., "Rethinking US Agricultural Policy: Changing Course to Secure Farmer Livelihoods Worldwide," Agricultural Policy Analysis Center, Univ. of Tennessee, 2003.

The distribution of unit production costs reveals the share of wheat producers able to cover costs at various prices



Low-cost producers are the 25 percent of producers with the lowest combined operating and ownership costs. High-cost producers are the 25 percent with the highest combined costs.
Source: USDA's Agricultural Resource Management Survey-1998 Wheat.

Source: McBride, W.D., "Production Costs Critical to Farming Decisions," Economic Research Service/USDA, Amber Waves, Volume 1, Issue 4

THE MYTHOLOGY



The goal of U.S. farm policy is to preserve the family farm system of agriculture.

"The farm bill will strengthen the farm economy over the long term. It helps farmer independence, and preserves the farm way of life for generations. It helps America's farmers, and therefore it helps America."

—President Bush, May 13



THE FACTS

The percentage of acres and total agricultural output on large or very large farms has grown steadily and now accounts for about two-thirds of total production.

Dairy Policy: Muddling Toward a Sustainable Lose-Lose Strategy



Sound Science



THE MYTHOLOGY

USDA regulations and policies are always based on sound science.

Scientific Integrity in Policymaking

An Investigation into the Bush
Administration's Misuse of Science



Union of Concerned Scientists
February 2004

http://www.ucsusa.org/global_environment/rsi/index.html

Scientific Integrity in Policymaking

UCS Report, Executive summary

"A growing number of scientists, policy makers, and technical specialists both inside and outside the government allege that the current Bush administration has suppressed or distorted the scientific analyses of federal agencies to bring these results in line with administration policy."

Scientific Integrity in Policymaking

UCS Report, Executive summary

"There is a well-established pattern of suppression and distortion of scientific findings...these actions have consequences for human health, public safety, and community well-being."

Incidents involve air pollutants...reproductive health, drug resistant bacteria, endangered species..."

Scientific Integrity in Policymaking

UCS Report, Appendix B

USDA "Sensitive Issue" List

This document accompanied a directive to USDA staff scientists to seek prior approval before publishing any research or speaking publicly on the following issues.

Scientific Integrity in Policymaking

UCS Report, Appendix B

USDA "Sensitive Issue" List

1. Creation of transgenic food or feed organisms by genetic engineering
2. Studies of genetically engineered organisms in the field
3. Cloning of animals by somatic cell nuclear transfer
5. Dioxin research
6. Plant, microbial and animal patent policy

Scientific Integrity in Policymaking

UCS Report, Appendix B

USDA "Sensitive Issue" List

7. Agricultural practices with negative health and environmental consequences, e.g., global climate change; contamination of water by hazardous materials (nutrients, pesticides, and pathogens); animal feeding operations or crop production practices that negatively impact soil, water, or air quality
11. Mega doses of nutrients that may be beneficial to human health/nutrition

Scientific Integrity in Policymaking

UCS Report, Appendix B

USDA "Sensitive Issue" List

13. Harmful microorganisms and their products (e.g. aflatoxin, mycotoxin, fumonisin, Salmonella, E.Coli) in agricultural commodities
14. Pesticides or animal drugs in foods above approved tolerance levels
15. All transmissible encephalopathy (TSE) research including BSE research
16. Herbicide-resistant crop plant research

Scientific Integrity in Policymaking

UCS Report, Appendix B

USDA "Sensitive Issue" List

17. Animal well-being/animal use
18. Biological items that may affect trade and export negotiations, e.g. fire blight in apples, TCK smut, karnal bunt, insect infestations in export products
19. Methyl bromide topics that relate to policy and/or regulatory items
22. Antibiotic/Antimicrobial resistance

Scientific Integrity in Policymaking

UCS Report, Appendix B

USDA "Sensitive Issue" List

28. Emerging diseases or pest research that relates to policy and/or regulatory actions
10. Research findings and recommendations that are contrary to current dietary guidelines or may be used in food labeling

U.S. Scientist Tells of Pressure to Lift Bans on Food Imports

"A senior scientist at the Department of Agriculture says its scientific experts have been pressured by top officials to approve products for Americans to eat before their safety can be confirmed.... [pressure] by Ms. Veneman's office to approve cattle from Mexico at risk of tuberculosis, pears from China with fungus problems and, in August, boneless meat from Canadian cattle, calves, sheep and goats, as well as hunters' kills"

Source: McNeil, D.G., *New York Times*, Feb. 24, 2004



Food panel calls for beefed up response to mad cow disease

"There is no question that there are many, many more out there"

Ulrich Kihm, Chair (Swiss) of International panel of experts invited to review the US response to BSE

"You'd need to test a very large sample of fallen stock to get a good idea of the real situation. It should be more like 800,000 to 3 million animals – 40,000 is ridiculous"

Marc Savey, Research Director, French Food Safety Agency

Nature|Vol. 427|12 Feb 2004 p. 575



Food panel calls for beefed up response to mad cow disease

"Many of the panel's recommendations are based on the European model and overlook scientific evidence that clearly demonstrates the long-standing firewalls in place in our country have been effective."

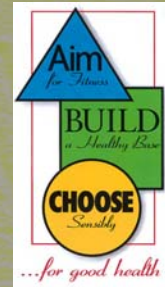
Statement issued by The National Cattlemen's Beef Association

Nature|Vol. 427|12 Feb 2004 p. 575

USDA's Food Guide Pyramid



USDA's Dietary Guidelines for Americans 2000, 5th edition

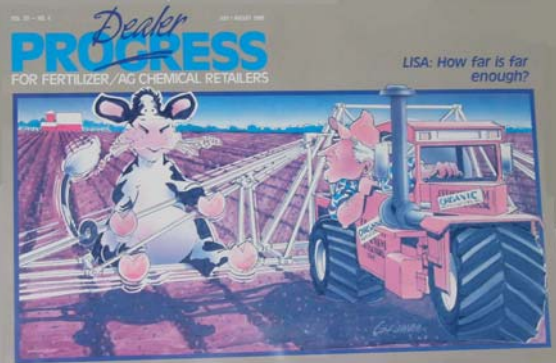


USDA is slated to revise the Dietary Guidelines for Americans in 2005.

"The term 'sound science' has become a misnomer and now nearly translates into the precise opposite of its apparent meaning."

"There will never be enough sound science to prompt any industry association promoting salt, sugar or beef to agree that consumers should eat less of their commodity."

Tom Karst, *The Packer* Feb. 3, 2004



Organic Food and Farming

THE (EMERGING) MYTHOLOGY

How food is grown and processed does not affect food safety and quality in any meaningful way.



Food Additives and Contaminants, 2002, Vol. 19, No. 5, 427-446



Pesticide residues in conventional, integrated pest management (IPM)-grown and organic foods: insights from three US data sets

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Keywords: pesticide residues, organic foods, integrated pest management-grown foods, contaminants

Introduction

Key Findings in the *Food Additives and Contaminants* Article

“...organic samples are much less likely to contain detectable pesticide residues than conventionally grown or IPM/NDR foods are.”

“...differences are clear-cut, consistent across [three] data sets, and highly statistically significant.”

“...organic samples in paired comparisons had lower residues about two-thirds of the time.”

THE FACTS

Three-quarters of fresh fruits and vegetables tested in the PDP contain residues – foods heavily consumed by kids e.g. peaches, apples, pears, green beans, and tomatoes.

Almost half of these foods contain two or more residues...the average apple has 3.

Organic Food Cuts OP Exposures

Children's Health | Articles

Organophosphorus Pesticide Exposure of Urban and Suburban Preschool Children with Organic and Conventional Diets

Cynthia L. Curl, Richard A. Fenske, Kai Elgethun

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We assessed organophosphorus (OP) pesticide exposure from diet by biological monitoring among Seattle, Washington, preschool children. Parents kept food diaries for 2 days before urine collection, and they distinguished organic and conventional foods based on label information. Children were then classified as having consumed either organic or conventional diets based on analysis of the diary data. Urinary pesticide use was also recorded for each home. We collected 74 urine samples from 18 children with organic diets and 21 children with conventional diets and analyzed them for five OP pesticide metabolites.

Curl, C.L., R. Fenske and K. Elgethun
Environmental Health Perspectives
Volume 111:3
March 2003, p. 377

THE FACTS

Organic meats and dairy products do not contribute to the problems caused by:

- antibiotic resistant food borne pathogens
- residues of animal growth hormones
- TSEs

The Organic Center: Examples of State of the Science Reviews (SSR)

1. Pesticide Dietary Exposure
2. Healthy Start – Nutrition in the Early Years
3. Sexual Development and Reproductive Success
4. Methods to Compare the Nutritional Quality and Content of Food as a Function of Individual Needs and Farming System Choices





Photo by Jim Richardson
National Geographic May 2002



Photo by Jim Richardson
National Geographic May 2002



MONSANTO CO., ST. LOUIS, MO, HAS CONFIRMED A CASE OF NATURAL WEED TOLERANCE TO GLYPHOSATE, the active ingredient in its Roundup herbicide. The tolerance — meaning the plant withstood an application of the herbicide at greater than the recommended rate — was observed in annual ryegrass on a farm in Victoria, Australia. Testing by Monsanto has ruled out the company's original contention that poor control was caused by seasonal conditions. However, Monsanto says the implications for farmers are minimal, as this is the only confirmed case of resistance and because resistance can be managed through cultivation and the use of other herbicides. The confirmation comes at a time of growing popularity of herbicide-resistant crops such as soybeans, cotton, and — due for launch next year — corn.

Monsanto

Farm Chemicals October 1997

Monsanto Acquires Two Seed Companies To Broaden Availability Of Agricultural Biotechnology

ST. LOUIS, May 11, 1998 — Monsanto Company announced today that it has reached agreements to acquire two seed companies — DEKALB Genetics Corporation, headquartered in DeKalb, Illinois, and Delta & Pine Land Company, based in Scott, Mississippi. These companies will play an important role in Monsanto's life sciences strategy, which is designed to enhance the sustainable production of food and feed and create new possibilities for better nutrition and health by linking Monsanto's expertise in agriculture, food and pharmaceuticals.

Monsanto Press Release



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A farmer near Oaxaca, Mexico harvests maize at the end of a growing season.



THE MYTHOLOGY



Stacking two genes together to accomplish the same goal is twice as effective as one gene.

Crossing two genetically engineered parental corn lines to make a hybrid expressing stacked traits raises no new or unique concerns.



USDA is slated to revise the Dietary Guidelines for Americans in 2005.

"At the public forum the afternoon of January 28th, 2004 [public hearing of the Dietary Guidelines Advisory Committee], many of those food lobbyists warned that 'sound science' does not justify cutting back recommended intake guidelines for salt, sugar, beef or dairy."