

This monthly newsletter, edited by nutritionist and independent organic researcher Shane Heaton, is provided by the FQH association to keep researchers, the industry and other interested parties abreast of the latest news in organic food quality, research, health, diet and other relevant issues. Comments and contributions are welcome, or if you find an item of news that you think should be included, please email shane@dontjustsurvive.com

New comparative studies, comments and rebuttals on old ones, new GM info and politics, lots of debate and discussion, controversies and conspiracy theories. Looks like a typical year ahead...

Quote of the month:

"Using organophosphate pesticides regularly is probably as dangerous as smoking 100 cigarettes a day." Dr Sarah Myhill, in a feature on doctors who are diagnosing OP poisoning, Farmers Guardian Dec 2003 UK

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FOOD SAFETY

Ireland: European food safety conference in 2004

As part of the scientific programme of the impending Irish Presidency, a major international food conference is being organised for the 17 and 18 June in Dublin, Ireland. Entitled 'Thinking beyond tomorrow - a safe and nutritious food chain for the consumer', the conference will address issues such as new technologies and 'restoring public confidence in the quality and safety of food'. From Brussels EU Commissioner for Health and Consumer Protection David Byrne, and DG research director general Achilleas Mitsos will be at the event, that aims to attract a full range of food industry stakeholders including scientists, policy makers, industrialists and consumer group representatives. Speakers include Dr. J. Hugenholtz from NIZO Food Research in The Netherlands, who will talk about 'Cell factories - metabolic engineering for wholesome foods' and Geoffrey Podger, the Executive director at the European Food Safety Authority, who will discuss 'Consumer perception of an integrated food safety policy-harmonising risk reduction measures?'
FoodNavigator.com 15/12/2003

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US: New E.coli tests on the cards

Agricultural Research Service (ARS) microbiologist Pina Fratamico, at the agency's Eastern Regional Research Center (ERRC), is working with Pennsylvania state university to develop tests that quickly identify *E. coli* strains. Sixty-one deaths and 73,000 illnesses are blamed on eating foods contaminated with *E. coli* each year, according to the Centers for Disease Control and Prevention. Certain *E. coli* strains, such as O157:H7, causes serious diseases, including bloody diarrhea and hemorrhagic colitis. Infections may result in serious health complications, including kidney failure. Other *E. coli* serogroups, including *E. coli* O26, O111 and O121, also cause gastrointestinal illnesses in humans. Currently, scientists commonly use a procedure called serotyping to distinguish between different types of *E. coli* - some harmful, others harmless. However, this procedure is time-consuming and labour-intensive. Fratamico, with ERRC's Microbial food safety research unit, and her team are developing both conventional and real-time polymerase chain reaction (PCR) tests. These chemical procedures generate enough of a bacterium's genetic material so that it can be studied and identified. With one real-time PCR reaction, four products can be amplified simultaneously and detected in "real time" as they multiply. Scientists have little information about some individual *E. coli* serogroups, therefore, the number of diseases these organisms cause is likely underestimated, report the scientists. Fratamico is targeting genes in the *E. coli* O-antigen gene clusters so researchers can detect and identify specific serogroups and increase knowledge about each one's potency. In one study, a real-time PCR assay was more sensitive than other detection methods. According to Fratamico, the US department of agriculture's Food Safety and Inspection Service has expressed interest in the new PCR tests for detection and confirmation of *E. coli* O157:H7 and a range of other *E. coli* strains. In September 2003, the US government reported that the number of ground beef samples tainted with harmful *E. coli* bacteria had dropped. Inspectors found 0.32 per cent of 4,432 samples of hamburger meat tested positive for *E. coli* from January to August this year, said Elsa Murano, the Agriculture department's undersecretary for food safety. That compares with 0.78 per cent for the same period in 2002 and 0.84 per cent in 2001. The agency has been testing 7,000 samples each year since 2001. FoodNavigator.com 05/01/2004

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PESTICIDES

As the problem of obesity receives more attention around the world it's worth taking a look at Paula Baillie-Hamilton's theory on pesticides contributing to the problem:

UK: Do pesticides make you fat?

The number of obese people worldwide has escalated recently, revealing a complex picture of significant variations among nations and different profiles among adults and children, regions, and occupations. The commonly held causes of obesity—overeating and inactivity—do not explain the current obesity epidemic. There is evidence of a general decrease in food consumption by humans and a significant decline in their overall levels of physical activity. There is also more evidence to indicate that the body's natural weight-control mechanisms are not functioning properly in obesity. Because the obesity epidemic occurred relatively quickly, it has been suggested that environmental causes instead of genetic factors maybe largely responsible. What has, up to now, been overlooked is that the earth's environment has changed significantly during the last few decades because of the exponential production and usage of synthetic organic and inorganic chemicals. Many of these chemicals are better known for causing weight loss at high levels of exposure but much lower concentrations of these same chemicals have powerful weight-promoting actions. This property has already been widely exploited commercially to produce growth hormones that fatten livestock and pharmaceuticals that induce weight gain in grossly underweight patients. This paper presents a hypothesis that the current level of human exposure to these chemicals may have damaged many of the body's natural weight-control mechanisms. Furthermore, it is posited here that these effects, together with a wide range of additional, possibly synergistic, factors may play a significant role in the worldwide obesity epidemic.

BAILLIE-HAMILTON P, 2002, Chemical Toxins: A Hypothesis to Explain the Global Obesity Epidemic, J Alt Comp Med 8(2): 185-92.

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UK: Sperm levels declining

Sperm counts among British men have plummeted over the last decade, according to a study of 7,500 men attending a fertility clinic in Aberdeen between 1989 and 2002. The report, the largest of its kind, blames low-level environmental pollution with 'gender-bending' chemicals that disrupt the hormone system. (Daily Mail)

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ADDITIVES

US: Aspartame Disease - An FDA-Approved Epidemic?

By H. J. Roberts, M.D., F.A.C.P., F.C.C.P.

"Diet" products containing the chemical sweetener aspartame can have multiple neurotoxic, metabolic, allergenic, fetal and carcinogenic effects. My database of 1,200 aspartame reactors--based on logical diagnostic criteria, including predictable recurrence on rechallenge--is reviewed. The existence of aspartame disease continues to be denied

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by the FDA and powerful corporate entities. Its magnitude, however, warrants removal of this chemical as an "imminent public health threat." The use of aspartame products by over two-thirds of the population, and inadequate evaluation by corporate-partial investigators underscore this opinion. As said by Senator Howard Metzenbaum (1): "We had better be sure that the questions that have been raised about the safety of this product are answered. I must say at the outset, this product was approved by the FDA in circumstances that can only be described as troubling." I have devoted more than two decades to analyzing aspartame disease, a widespread but largely ignored disorder. Its existence continues to be reflexively denied by the Food and Drug Administration (FDA), the American Medical Association (AMA), and many public health/ regulatory organizations. The medical profession and consumers have been assured by the Council on Scientific Affairs of the AMA (2) and the Centers for Disease Control (CDC) that aspartame is "completely safe." Moreover, the impression is left that reports of serious reactions are a "health rumor" fabrication ... notwithstanding the CDC report in 1984 of 649 aspartame reactors with many attributed disorders (3).

As far back as 1988, seven years after the initial release of aspartame, 80 percent (!) of complaints volunteered by consumers to the FDA about supplements involved aspartame products. By April 1995, it had received 7,232 complaints. I coined the term "aspartame disease" to encompass reactions to the chemical sweetener aspartame, commonly known as NutraSweet® and Equal®. Aspartame was originally conceived, and an application submitted, as a drug to treat peptic ulcer. To place its magnitude in perspective, over two-thirds of the population now uses thousands of "diet" sodas and products--including an ever-expanding list of new ones having greater potential for adverse effects (e.g., strips placed on the tongue to freshen the breath). This report summarizes data on the first 1,200 aspartame reactors in my database, coupled with information of considerable clinical significance. I have elaborated on the details in [Aspartame Disease: An Ignored Epidemic](#) (4), other books (5-8), and numerous published articles and letters (9-12).

It is my belief that most physicians with active practices frequently encounter its manifestations. But, unaware of the underlying problem, they fail to inquire about aspartame use. For orientation about the gravity of this public health dilemma, I shall mention just a few of the published associations in aspartame reactors. They include the initiation or aggravation of diabetes mellitus, hypoglycemia, convulsions, headache, depression, other psychiatric states, hyperthyroidism, hypertension and arthritis; the simulation of multiple sclerosis, Alzheimer's disease and lupus erythematosus; increasing aspartame addiction (12); an apparent causative role in brain tumors (10); a neurologic condition in overweight young women known as pseudotumor cerebri; and even the carpal tunnel syndrome (11). In my opinion, lack of awareness of aspartame disease has resulted in gross miscarriage of justice. Examples include attributing the symptoms of weight-conscious women consuming considerable amounts of aspartame to silicone breast implants in expensive litigation (7), and imprisonment for the alleged methanol poisoning of a deceased spouse who consumed large amounts of aspartame. Having been involved in medical practice, teaching and the authorship of texts for a half century, I do not casually make statements that might jeopardize a longstanding reputation. As a case in point, my first book, *Difficult Diagnosis: A Guide to the Interpretation of Obscure Illness* (13), was studied and used as a reference by tens of thousands of internists and other physicians.

The FDA approved aspartame as a low-nutritive sweetener for use in solid form during 1981, and in soft drinks during 1983. It is a synthetic chemical consisting of two amino acids, phenylalanine (50 percent) and aspartic acid (40 percent), and a methyl ester (10

percent) that promptly becomes free methyl alcohol (methanol; wood alcohol). The latter is universally considered a severe poison. Senior FDA scientists and consultants vigorously protested approving the release of aspartame products. Their objections related to disturbing findings in animal studies (especially the frequency of brain tumors), seemingly flawed experimental data, and the absence of extensive pre-marketing trials on humans using real-world products over prolonged periods. Aspartame reactions may be caused by the compound itself, its three components, stereoisomers of the amino acids, toxic breakdown products (including formaldehyde), or combinations thereof. They often occur in conjunction with severe caloric restriction and excessive exercise to lose weight.

Various metabolic and physiologic disturbances explain the clinical complications. Only a few are listed:

- Damage to the retina or optic nerves is largely due to methyl alcohol exposure. Unlike most animals, humans cannot efficiently metabolize it.
- High concentrations of phenylalanine and aspartic acid occur in the brain after aspartame intake, unlike the modest levels of amino acids following conventional protein consumption.
- Aspartame alters the function of major amino acid-derived neurotransmitters, especially in obese persons and after carbohydrate intake.
- Phenylalanine stimulates the release of insulin and growth hormone.
- The ambiguous signals to the satiety center following aspartame intake may result either in increased food consumption or severe anorexia.
- Large amounts of the radioactive-carbon label from oral aspartame intake have been detected in DNA.

The current "acceptable daily intake" (ADI) of 50 mg aspartame/kg body weight makes no sense. It represents the projection of animal studies based on lifetime intake! This was clearly stated by previous FDA Commissioner Dr. Frank Young during a U.S. Senate hearing on November 3, 1987. Furthermore, it disregards the usual 100-fold safety factor used by the FDA as a guideline for regulated food additives. The maximum daily intake tolerated by most reactors in my series, based on the predictable recurrence of induced symptoms and signs, ranged from 10 to 18.3 mg/kg. There was a 3:1 preponderance of females (72 percent). The various influences that may be operative in this gender preference have been detailed previously (4-6). The ages of persons at the onset of their reactions ranged from infancy to 92 years. Most were in their 20s to 50s. Two or more close relatives of 211 reactors (17.6 percent) were known to have had reactions to aspartame products. Latent periods of from several weeks to months between the initial consumption, and increased intake of aspartame and the onset of severe symptoms were common. On the other hand, some patients reacted almost immediately, particularly with products conducive to oral/buccal absorption. Many reactors consumed prodigious amounts of aspartame, especially during hot weather. Conversely, some experienced convulsions, headache, or other severe symptoms after exposure to small amounts (e.g., chewing aspartame gum; placing an aspartame strip on the tongue; babies while breast-feeding as the mother drank an aspartame beverage). Nearly two-thirds of aspartame reactors experienced symptomatic improvement within two days after avoiding aspartame. With continued abstinence, their complaints generally disappeared. The causative role of aspartame products has been repeatedly shown by (a) the prompt improvement of symptoms (grand mal seizures, headache, itching, rashes, severe gastrointestinal reactions) after stopping aspartame products, and (b) their recurrence within minutes or hours after resuming them. The latter included self-testing on numerous occasions, inadvertent ingestion, and formal rechallenge. Some aspartame reactors with convulsions purposefully rechallenged themselves on one or several occasions "to be absolutely

certain." This was unique among six pilots who had lost their licenses for unexplained seizures while consuming aspartame products. (All had been in otherwise excellent health.) They sought to have their licenses reinstated by such objective confirmation on rechallenge. These groups include pregnant and lactating women, young children, older persons, those at risk for phenylketonuria (PKU), the relatives of aspartame reactors (see above), and patients with liver disease, iron-deficiency anemia, kidney impairment, migraine, diabetes, hypoglycemia, and hypothyroidism. Physicians must question patients who present with the aforementioned conditions about aspartame use, particularly when they fail to respond to conventional therapy. If it is being consumed, a brief trial of abstinence should be recommended before initiating expensive tests, consultations and hospitalization.

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Dr. Roberts is director of the Palm Beach Institute for Medical Research, and an emeritus member of the medical staffs of the Good Samaritan Hospital and St. Mary's Hospital in West Palm Beach, and prestigious medical/scientific organizations. These include the American College of Physicians, the Endocrine Society, the American Academy of Neurology, and the American Federation for Clinical Research. He has authored 18 texts and has had more than 240 original articles and letters published, most deal with challenging diagnostic, metabolic and neurological problems. Dr. Roberts has been knighted by the Order of St. George for his professional and humanitarian efforts, and was chosen by the editors of a national medical journal as "The Best Doctor in the U.S."

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ANTIBIOTICS

UK: High levels of poultry drug in eggs

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The UK Government's Veterinary Residues committee has found traces of the toxic drug lasalocid in 4.8 per cent of eggs, which equates to 473 million consumed in Britain last year. It is thought that 40million will have contained levels six times higher than recommended limits. The drug is routinely included in feed given to chickens reared for the table on factory farms in order to stop a parasitic stomach illness. The Soil Association is calling on the EU to ban the drug while safety doubts remain. (Daily Mail)

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GMOs

US: GM crops increase herbicide and pesticide use in long term

Eight years of planting genetically modified maize, cotton and soya beans in the US has significantly increased the amount of herbicides and pesticides used, according to a US report which could influence the British government over whether to let GM crops be grown. The most comprehensive study yet made of chemical use on genetically modified crops draws on US government data collected since commercialisation of the crops began. It appears to undermine one of the central selling points of GM farming - that the crops benefit the environment because they need fewer man made agrochemicals. Charles Benbrook, the author of the report, who is also head of the Northwest Science and Environment Policy Centre, at Sandpoint, Idaho, found that when first introduced most of the crops needed up to 25% fewer chemicals for the first three years, but afterwards significantly more. In 2001, the report states, 5% more herbicides and insecticides were sprayed compared with crops only of non-GM varieties; in 2002 7.9% more was sprayed; and in 2003 the estimated rise was 11.5%. Dr Benbrook said: "The proponents of biotechnology claim GM varieties substantially reduce pesticide use. While true in the first few years of widespread planting ... it is not the case now. There's now clear evidence that the average pounds of herbicides applied per acre planted to herbicide-tolerant varieties have increased compared to the first few years." Peter Melchett, policy director of the Soil Association, said: "This is compelling evidence that GM maize will lead to higher spray use and serious damage to wildlife if the crop is grown in this country. "The biotechnology companies have been claiming that GM crops result in large reductions in the use of sprays, and GM maize is their frontrunner for commercial growing in the UK. Until now, there has been no clear evidence over the whole eight years of commercial growing in the US to show their claims are false - that's what the evidence in this report gives us." "It would be inconceivable for the government to give the go-ahead to GM maize now this damning evidence is out." (The Guardian)

France: Not enough safety evidence for GM corn

An official French report has warned that people could suffer 'unforeseen effects' if the sale of Syngenta's Bt11 maize is approved for human consumption by EU ministers in the New Year. Much of the case for the safety of the sweetcorn rests on experiments where maize was fed to cattle and laying hens, which showed "no adverse effects". But the report reveals tests were done with maize designed to be fed to livestock, which contains 'significant genetic differences' from the sweetcorn. (Independent on Sunday)

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Canada: New study says consumers prefer GM over conventional food

Researchers at the University of Guelph's Food Safety Network report that consumers in the study made choices based on taste and quality, as well as reduced use of chemical pesticides in the production of GM varieties. "Despite widespread perceptions of consumer concerns regarding the use of genetic engineering in food production, GE varieties outsold conventional sweet corn by a margin of 3:2 (8,160 cobs to 5,430 cobs)," said the researchers. Confirming an increasingly convincing argument about how to deal with GM foods, lead researcher on the project Dr Douglas Powell said : "The study shows that attitudes towards GE foods may depend on what benefits they offer."

Dr Powell, scientific director of the Food Safety Network, added: "In this case, many customers at the farm market chose GE sweet corn because they perceived advantages in the reduced use of chemical pesticides. Further studies are now needed to test these findings with a broader, more diverse audience." In the farm-to-fork trial, sweet corn varieties genetically engineered for resistance to specific crop pests using the Bt gene were grown side-by-side with conventional varieties. Strict segregation protocols were maintained throughout production and harvesting, and products were voluntarily labelled to indicate whether they were GE or conventional varieties. Customers in a local farm market were provided with information on the production protocols, including pest control measures, that were required to produce the different types of sweet corn. Researchers also analysed production data from an economic perspective to compare the costs of GE vs. conventional production.

The researchers interviewed a number of consumers about their attitudes to the corn. They found that while "the majority of consumers interviewed said they were more concerned about pesticides than genetic engineering, taste and quality also had a strong influence on purchasing decisions". Full findings are published in the latest issue of the British Food Journal(2003) 105, 700-713. 15/12/2003 FoodNavigator.com

Editor: The key sales point in this study was reduced pesticide use on the crops – which of course, organics already delivers sustainably, while attempts through GM to breed pest resistance into crops are likely to create super bugs in the mid to long term which will then require greater/stronger applications of pesticides. This study shows how the second generation of GM crops will be marketed to consumers with consumer benefits, such as less pesticides and more nutrients, muscling in on organic food's position in the marketplace. It's essential when assessing or marketing the benefits of organic food to include ALL the benefits – not just fewer pesticides and more nutrients but also less water content, less environmental impact, more phytonutrients (though this is likely to be mimicked also), better animal welfare, better health outcomes, better social outcomes, etc.

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US: Monsanto making manufacturing “corrections and improvements” to their rBGH plant

A surprise announcement [December 19] by Monsanto that supplies to farmers of Posilac bovine somatotropin are being "temporarily limited" for several months to make manufacturing "corrections and improvements" to plants has caused some to speculate that Monsanto has experienced a problem with their genetically engineered bovine growth hormone and that milk and dairy products sold in America may have been seriously contaminated. THE AGRIBUSINESS EXAMINER 23/12/2003, #314

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BSE

US: Mad cow found

The US beef industry has been hit by the country's first case of bovine spongiform encephalopathy (BSE), or mad cow disease. US Agriculture Secretary Ann Veneman announced on 23 December that a suspected case of BSE had been found in a Holstein cow that was slaughtered at a plant in Moses Lake, Washington in December. A sample from the cow was then taken to the UK for testing at the BSE world reference laboratory in Weybridge. On 25 December the laboratory confirmed the US Department of Agriculture's diagnosis of BSE. The USDA had launched an investigation aimed at tracing the infected animal's origins and said that the cow was likely to have been imported from Canada in 2001. Several countries, including top US beef buyers Japan, Mexico and South Korea, responded by suspending imports of US beef, reported Reuters. BSE has previously devastated beef markets in Europe and Japan, after outbreaks of the disease resulted in a consumer backlash against the meat. Scientists believe the disease can be passed on to humans through consumption of infected meat, resulting in the incurable brain-wasting disease Variant Creutzfeldt-Jakob Disease (vCJD), which has so far claimed over 130 lives. A single case of BSE found in Canada in May led to massive beef trade restrictions.

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UK: Mark Purdey's OP-Manganese theory of BSE revisited

As the US records it's first case of BSE it's worth reviewing the alternative to the infectious model theory. There's even a conspiracy theory thrown into the following article:

"Insecticide Causes Mad Cow Disease"

by Fintan Dunne with Research by Kathy McMahon

Reprinted from eionews.com, email - news@eionews.com

Pharmaceutical interests in the UK are ignoring new scientific research that shows the insecticide used in the UK government's own warble-fly campaigns triggered the UK surge of 'Mad Cow' disease. Latest experiments by Cambridge University prion specialist, David R. Brown, have shown that manganese bonds with prions. Other researchers work shows that prions in the bovine spine -- along which insecticides are applied -- can be damaged by ICI's Phosmet organophosphate(OP) insecticide -causing the disease.

British scientists have led the current theory that an infectious prion in bonemeal fed to cattle causes bovine spongiform disease (BSE). Infectious prions are also claimed to cause new variant Creutzfeld-Jakob Disease (CJD) in humans -from ingesting beef. But the infectious prion theory serves to obscure a tragic chemical poisoning scandal behind the majority of BSE cases. The new work proves that the prions can bond with manganese in animal feeds or mineral licks. These manganese prions cause the neurological

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degeneration seen in BSE. By a similar process, prions in human brains are damaged by lice lotions containing organophosphate. This can result in neurological diseases like CJD and Alzheimers -later in life. Many might be surprised to hear that organophosphates were developed by Nazi chemists during the course World War Two, as a chemical weapon nerve agent. One formulation of the insecticide -- Maneb, or Mancozeb -- actually contains manganese in addition to organophosphate. The marginalized research has devastating financial implications for ICI. It would provide a firm basis for litigants -who could include CJD sufferers, farmers across the world and families of the many British farmers who committed suicide during this BSE debacle. Phosmet organophosphate has been used at high doses in British warble fly campaigns. In 1996, ICI subsidiary Zeneca sold the phosmet patent to a PO Box company in Arizona called Gowan -just one week before the UK government admitted to a link between BSE and nvCJD.

The politically well-connected British pharmaceuticals group, ICI has the financial and political clout to block research into any cause other than the infective model. Indeed no substantive alternative research has been done. British BSE disease management and research bodies have taken decisions that do not seem guided by spirited scientific enquiry. Mysterious prions that jump species is the preferred research arena. Scientist and organic farmer, Mark Purdey gave evidence to the UK BSE inquiry, that warble fly insecticide was the cause of the disease. The scientist wheeled out to rubbish Purdey's evidence -Dr. David Ray, later turned out to have been receiving funding from the insecticide manufacturer ICI. A lobby group that includes Bayer, Monsanto, Novartis, Pfizer, Roche and Schering-Plough was behind the effort to discredit Purdey. In December 1999, the same David Ray was appointed to the UK Veterinary Products Committee (VPC) -a government body that licences animal medicines.

Purdey has been consistently denied even exploratory funding to extend his privately supported research. Yet the Purdey/Brown chemical poisoning model matches with the epidemiological spread of CJD clusters in humans. It also predicts the incidence of BSE-type diseases in animals. The accepted infectious model fits neither. The pharmaceutical industry is all the more determined to hide the chemical source of BSE and CJD, because a spotlight on chemicals would expose the role the insecticides in Alzheimer's -- another neurodegenerative disease -- that might lead to claims which would dwarf those from BSE and CJD litigants. In fact, two leading brain researchers into CJD and Alzheimers have died in suspicious circumstances in recent years.

In the United States, the Environmental Protection Agency is already reviewing Phosmet's safety. The Centers for Disease Control in the US has recently conducted experiments on mice that confirm the organophosphate risk. Not only is the EC beef slaughter campaign futile -because BSE disease is mostly non-infectious, but unless the underlying chemical cause is addressed, BSE will simply reappear from chemical causes. A new warble fly campaign is already underway in France using the organophosphate insecticide. Of greater concern is that some lotions for scabies and head lice are now priming children and adults, for CJD and Alzheimers in later life.

Bonding The Prion

Cambridge University prion biochemist, David R. Brown is dismissive of the science behind the infectious model of BSE. He terms it "a very limited amount of science by a few assumed- reputable scientists." He insists there is "no evidence an infectious agent is present in either meat or milk." "Simple tests on udder walls of cows -- which could easily detect an infectious prion -- have not been done, why I don't understand." A number of researchers have found that organophosphate(OP) in systemic warble fly insecticide can

deform the prion molecule, rendering it ineffective at buffering free radical effects in the body. Worse still, the prion is then partial to bond with manganese and become a 'rogue' prion. A chain reaction whereby rogue prions turn others to rogues also, can explain the bovine spongiform disease mechanism. Brown showed how prion protein bonds benignly with copper, but lethally with manganese. Even natural variations in relative environmental availability of manganese versus copper can trigger prion degradation. The CJD and BSE symptoms mirror 'manganese madness', an irreversible fatal neuro-psychiatric degenerative syndrome that plagued manganese miners in the first half of the last century

Shining a Light on Spongiform

Organic dairy farmer and peer-review-published independent scientist, Mark Purdey, says the accepted theory of transmission from BSE-infected cattle to human CJD -by bonemeal or meat, is dependent on a mutant prion that has never been isolated under the scientific protocol called Koch's postulates. Purdey's insistence on sticking to the letter of this scientific law earned him the condemnation of UK officialdom when he first mooted his theory. But Purdey pointed to CJD clusters downwind of a British Phosmet production plant to back his case. He gave evidence to the UK Government BSE inquiry and was supported by Conservative MP, Thessa Gorman. His views were discounted, but his subsequent research and the new Cambridge prion work have confirmed the alternative theory. Despite this, and the backing of a British peer, he is denied even exploratory funding. Speaking from his rural English Somerset farm yesterday -as plans forge ahead for the European cattle cull, he asks: "Why does CJD degeneration in humans begin in the retina, and why are CJD disease clusters found in high altitude locations?" The question is rhetorical, and Purdey has an eye-opening answer. He argues that the prion molecule has a known natural role as a shock adsorber of damaging energy from ultraviolet rays and other oxidizing agents. Once this prion defence system is rendered ineffective by organophosphates - for example in human head lice lotions, these oxidizing effects have an unmediated impact on tissues. Eventually, UV radiation damages the retina and oxidative stress destroys the brain tissues of CJD patients. This theory would expect to find higher CJD incidence in mountain regions -where UV radiation levels are elevated. That prediction holds true.

A similar but accelerated mechanism could be driving BSE. ICI's Phosmet organophosphate warble fly insecticide -applied on the backs of animals along the spinal column, similarly degrades prions. "Systemic versions of the insecticide are designed to make the entire cow carcass toxic to warble fly," explains Purdey. "Unfortunately it's toxic to prions too -especially those prions located just millimeters from the point of application." The damaged prions are then ready to react with manganese in animal feed, or manganese sprayed on land or in mineral licks -to become the driving force of BSE neurodegeneration. Purdey says manganese-tipped prions set off lethal chain reactions that neurologically burn through the animal. Chickens notoriously excrete most of the supplements fed to them -including manganese. And their manganese-rich excreta have been blended into cattle feed in the UK. Natural variations in the relative environmental availability of copper and manganese can also spur prion degeneration says Purdey. From this research, any prudent person would conclude there is a significant risk attaching to the use of organophosphate in humans. Preparations for head lice and scabies are known to be overused in practice and might be priming users for CJ disease.

Purdey believes his bias for field work is the key to his success. He bemoans the "reductionism" of much lab-centered science. "I have traveled the world to investigate known clusters of spongiform disease -something mainstream researchers don't seem remotely interested in doing." Since first postulating an environmental -rather than

infectious- theory of spongiform diseases, Purdey has built evidence from around the world that explains and predicts the incidence in humans and animals: a cluster of CJD in Slovakia, Eastern Europe -around a manganese plant; Rocky Mountain deer with Chronic Wasting Disease (CWD), who were found to be eating pine needles rich in manganese; the futile slaughter of sheep in Cyprus -only for BSE to reemerge within years. "The reappearance of BSE in Cyprus obviously points to an environmental cause," says Purdey, who is sanguine when reflecting on the condemnation of him by mainstream scientists. "I suppose they have mortgages and kids who need to go to university," he muses. "Privately, some were agreeing with me, but then they would denounce me publicly. It was quite strange really."

The Money Trail

Critical scientists like Purdey are unlikely to prevail. The pharmaceutical industry holds most research purse strings, and would hardly energetically explore an avenue of research that could expose them to litigation for causing BSE. The official theory is lavishly funded, alternative theories rarely, if at all. There are more explosive implications to his -and other's latest research. Purdey says similar organophosphate-induced protein deformation could also underlie Alzheimer's disease. If that were true, the litigation fallout would destroy some pharmaceutical giants, and a lot of very influential noses would be out of joint. Disturbingly, Purdey and other brain researchers seem to have had an undue share of unfortunate accidents. Purdey's house was burned down and his lawyer who was working with him on Mad Cow Disease was driven off the road by another vehicle and subsequently died. The veterinarian on the case also died in a car crash -locally reported as: 'Mystery Vet Death Riddle.' Dr. C. Bruton, a CJD specialist -- who had just produced a paper on a new strain of CJD -- was killed in a car crash before his work was announced to the public. Purdey speculates that Bruton might have known more than what was revealed in his last scientific paper. In 1996, leading Alzheimer's researcher Tsunao Saitoh, 46 and his 13 -year-old daughter were killed in La Jolla, California, in what a Reuters report described as a "very professionally done" shooting. What Alzheimer's Disease, Mad Cow Disease, and CJ Disease have in common, is abnormal brain proteins and a putative link to organophosphates. Even Gulf War syndrome among returning veterans has been attributed, in part to the insecticide. But the sidelined scientists' suspicions are still largely ignored. In their favour at the moment, is a growing unease on the part of the public. As BSE forges on and Governments panic, Science may be out to lunch on BSE, compromised by bovine spongythinking myopathy.

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NUTRIENT CONTENT

Italy: New Study - Antioxidants in organic vs conventional plums

This comparative study was conducted on plums given that they have one of the highest antioxidant activity among Mediterranean fruits. The results are mixed, though its interesting to see the effects that soil management can have on perennial crops like fruit. The effect of pesticide application which influences pathogenic pressures and pest attack and thus secondary metabolite production is not examined, as the conventional fruits do not appear to receive any pest control measures. Thus the comparison is really of conventional and organic *soil management*, not conventional and organic *production* as the title states. Overall, the authors conclude that "differences were evidenced in some antioxidant vitamins and phenolic compounds, which showed higher concentrations in the

organically grown plums.”

Authors abstract:

Yellow plums (*Prunus domestica* L) conventionally and organically grown in the same farm were selected to study the influence of different agronomic practices on antioxidant vitamins (ascorbic acid, vitamin E, α -carotene) and phenolics (total polyphenols, phenolic acids, flavonols) concentration. Conventional plums were grown on tilled soil. Three organic cultivations were performed: tilled soil, soil covered with trifolium, and soil covered with natural meadow. Differences in macronutrients were marginal, whereas antioxidant vitamins and phenolic compounds concentration markedly differed among cultivations. Ascorbic acid, α -, γ - tocopherols, and betacarotene were higher in organic plums grown on soil covered with natural meadow. The highest phenolic acids content was detected in plums grown on soil covered with trifolium. Total polyphenols content was higher in conventional plums. Quercetin was higher in conventional plums, but myrecitin and kaempferol were higher in organic plums. Under the same cultivar and climate conditions, the type of soil management turned out of primary importance in influencing the concentration of health-promoting compounds.

Lombardi-Boccia G et al., 2004, Nutrients and Antioxidant Molecules in Yellow Plums (Prunus domestica L.) from Conventional and Organic Productions: A Comparative Study; J Agric Food Chem 52, p90-94. Istituto Nazionale di Ricerca per gli Alimenti e la Nutrizione, Via Ardeatina 546, Roma, Italy

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US: Comment and rebuttal on Asami et al's paper on antioxidants in organic, sustainable and conventional corn, marionberries and strawberries

Allan Felsot of WSU and Joe Rosen of Rutgers have submitted a comment on the well known Asami paper:

Asami DK et al., 2003, 'Comparison of the Total Phenolic and Ascorbic Acid Content of Freeze-Dried and Air-Dried Marionberry, Strawberry, and Corn Grown Using Conventional, Organic, and Sustainable Agricultural Practices', J Agric Food Chem 51 (5), p1237 -1241.

To which the authors have replied. The sometimes rather pedantic documents are worth a read, and at the end of the day I think help us learn more about how to do things right in organic food quality research. Many mistakes were made in this study, and it's now abundantly clear that if you want to compare organic and conventional crops:

- Compare the total agricultural practices, including soil AND pest management to capture all of the possible influences on crop quality resulting from organic and conventional systems.
- If comparing phenolic compounds, don't just compare total phenols, but the individual components also.
- Assess all adjusting factors using the samples on hand, not standard tables that may not apply to the crops you're analyzing.
- Control for all possible variables, such as soil type, perennial crop age, irrigation, variety, season, etc...don't let any non-matching variables compromise your results.

The Journal editor, James N. Seiber, comments “The area of science dealing with the effects, if any, of environment, production, and cultivation practices on the composition and quality of foods is an important one. The Journal of Agricultural and Food Chemistry will welcome future manuscripts dealing with topics in this general area that fall within the

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scope of the Journal. Such issues as the delineation of the conditions of production, experimental design and replication, sampling, and data analysis should be addressed along the lines indicated in the accompanying comment and rebuttal. Results from analyses for total content of a class or classes of compounds, such as phenolics and antioxidants, should be accompanied by analytical data for individual components of those classes. The accompanying comment and rebuttal should be consulted and put to use when one is planning, conducting, and reporting studies of this type to be submitted to the Journal of Agricultural and Food Chemistry for publication consideration.”

146-149 Comment on Comparison of the Total Phenolic and Ascorbic Acid Content of Freeze-Dried and Air-Dried Marionberry, Strawberry, and Corn Grown Using Conventional, Organic, and Sustainable Agricultural Practices

Allan S. Felsot Joseph D. Rosen

150-152 Rebuttal on Comparison of the Total Phenolic and Ascorbic Acid Content of Freeze-Dried and Air-Dried Marionberry, Strawberry, and Corn Grown Using Conventional, Organic, and Sustainable Agricultural Practices

Alyson E. Mitchell and Diane M. Barrett

J. Agric. Food Chem. 2004, 52, 146-152

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HEALTH & DIET

Two new studies confirming the health benefits of eating more fruit and vegetables:

Japan: Green-yellow vegetables and fruit reduce strokes

A prospective cohort study of 40,349 Japanese men and women was initiated in 1980-1981 and followed until 1998. Fruit and vegetable intake was assessed at baseline on the basis of the response to a food frequency questionnaire. During the 18-year follow-up period, deaths from stroke were registered. A total of 1926 stroke deaths were identified during the follow-up period. An increasing frequency of intake of green-yellow vegetables and fruit was associated with a reduced risk of death from intracerebral hemorrhage and cerebral infarction. Daily intake of green-yellow vegetables was associated with a 26% reduction in the risk of death from total stroke in men and women compared with an intake of once or less per week. The protective effect associated with daily fruit and vegetable intake was observed for both cerebral infarction and intracerebral hemorrhage mortality but was slightly stronger and clearer for infarction than for hemorrhage, with a 32% reduction in men and a 30% reduction in women. Daily fruit intake was associated with a significant 35% reduction in risk of total stroke in men and a 25% reduction in women and was equally strong for both intracerebral hemorrhage and cerebral infarction. Daily consumption of green-yellow vegetables and fruits is associated with a lower risk of total stroke, intracerebral hemorrhage, and cerebral infarction mortality. The protective effects are similar in both men and women.

Sauvaget et al. 2003, Vegetable and Fruit Intake and Stroke Mortality in the Hiroshima/Nagasaki Life Span Study, Stroke 34:2355-2360

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Italy: Vegetable consumption enhances longevity

In 1965, a total of 1536 Italian males from two rural cohorts of the Seven Countries Study, aged 45-65 years, were examined. Information on lifestyle and food consumption collected at this visit, and total and cause-specific mortality data collected in 30 years of follow-up were analysed for the present study. During a period of 30 years, 1096 deaths occurred (308 from coronary heart disease, 325 from cancer, 158 from cerebrovascular disease and 305 from all other causes). The age-adjusted life expectancy for men consuming more than 60g/day of vegetables was nearly 2 years longer than for men consuming less than 20g/day. This increase in survival was more striking in smokers than nonsmokers (2.1 vs a 1 year gain). The association also held for both geographic cohorts, although the pattern of vegetable consumption was very different in the two villages. The results suggest a positive association between vegetable intake and life expectancy. Vegetable intake may be especially protective for smokers although the biological explanation for such an effect is unclear.

Seccareccia et al, 2003, Vegetable Intake and Long-term Survival among Middle-aged Men in Italy, *Ann Epidemiol* 13:424-430

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PROMOTION

FRANCE: New Fair Trade/Organic Logo

A new label is to show consumers the way to organic, fair trade products. The Bio Equitable Group made its market debut late 2003 with 20 products. These carry the dark red logo showing two stylized human figures hand in hand. Five organic companies use the logo, including Euro-nat, which carries eleven quinoa products and six cocoa products with the Bio Equitable logo. Sesame, green tea and spices are to follow. 1 % of the turnover achieved is to be donated to a non-governmental organization in Bolivia. Didier Perreol from Euro-nat thinks the decisive factors are long-term co-operation and the acquisition of contracts.

<http://www.euro-nat.com/fr/index.html>

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Europe: Campaign for food quality and eating culture

"Join the Food Revolution", is the name of a spirited campaign by the European Greens, which lasts until March and aims to inform consumers with nine themes in English, German and French. The action is to be publicized in the old and new EU countries via posters, newspaper advertisements, postcards, e-cards and the Internet. The aim of the campaign is to encourage people to reject food industry production practices that damage health and the environment by refusing to buy such products. The campaign covers the themes of food quality, eating culture, fair trade and precautionary consumer protection.

<http://www.eat-better.org>

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POLITICS

USA: Big business moves into organic foods, says new report

A new report on the organic foods industry, "Who Owns Organic?" details big structural changes taking place in one of agriculture's biggest success stories. The report, released December 2003 by the Rural Advancement Foundation International-USA, looks at the biggest players in the industry and what their presence may mean for independent farmers who sell to them. Following several years of 15-20% growth in sales, organic foods is no longer dominated by relatively obscure, small private businesses. The players today include Coca Cola, ADM and Dean Foods. If you farm organically or you're thinking about making the transition on part of your farm, this report gives you a great overview of the industry, including who your foreign competitors are. (They're global. One of the biggest, in acres, is Australia.) It also tells what has happened to producer contracts when organic companies were bought by bigger firms. And it looks at key issues facing organic production, including pollination by some GMO crops. The entire 35-page report is available free on the RAFI-USA website at: www.rafiusa.org/whatsnew/whatsnew.html 12/23/2003 @gricuture online.

US: The Economist newspaper runs organic article

Organic? Don't panic

"WHEN I was invited to an organic conference," says Marion Nestle, a nutritionist (unrelated to the Swiss multinational), "I thought there would be a lot of farmers in birkenstocks. Instead I found I was sharing the platform with General Mills." The American food giant's purchase in 2000 of Small Planet Foods, an organic company, signalled the coming of age of organic food. In Britain, where the movement has aristocratic patrons such as Prince Charles, sales hit [pounds sterling]1 billion (\$1.7 billion) in November. Consumers' worries about conventional food's effect on their health and the environment are helping organic sales, yet those worries may not be well founded. Pesticide residues, for instance, particularly concern people, yet there is no evidence that current levels in fruits and vegetables are dangerous. According to Sir John Krebs, head of Britain's Food Standards Agency, "a single cup of coffee contains natural carcinogens equal to at least a year's worth of carcinogenic synthetic pesticides in the diet." Nor are consumers clear about what they are getting in organic foods. People commonly believe that organic farmers do not use pesticides. That is wrong. Governments (which regulate organics) and licensing agencies (which license organic farmers) permit the use of a range of pesticides which are chemically inorganic and industrially produced but qualify because they are naturally occurring. These pesticides are old conventional technology. Copper sulphate, for instance, known as Bordeaux mixture, was invented in the 19th century for vineyards, and widely used until 1930. More modern, more effective chemicals can be used in smaller quantities and are less persistent, so they disappear after a couple of weeks, while heavy metals hang around. The Soil Association permits the use of such pesticides, but, says the organisation's policy director, Lord Melchett, "it should not be allowed. We're quite open about the fact that we want to phase it out." But farmers, who use such pesticides to control, for instance, potato blight, are reluctant to give them up.

Several studies have compared the taste of organic food to that of conventional food, but have failed to establish that either is better. Nor is there evidence that organic food is healthier. According to Sir John, "the current scientific evidence does not show that organic food is any safer or more nutritious than conventionally produced food." Organic farming scores better on biodiversity and soil composition, according to a review of studies

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comparing conventional and organic farming by Britain's farming ministry. Curiously, though, the review includes evidence from the Soil Association, which licenses organic farmers and promotes organic food; it is rather like asking Tesco if supermarkets are good for the nation. A review of the literature by Tony Trewavas, professor of plant biochemistry at Edinburgh University, is more equivocal. Organic farms had more beetles and butterflies, but conventional farms had more species of beetle. A study measuring 13 bird species over nine years found slightly higher levels intermittently in organic fields, though no significant difference in the end. In a study comparing 22 organic farms with nearby conventional ones, birds did better on organic farms in 50 out of 68 cases, though the numbers were significant for only two species. Bigger environmental gains have been observed in no-till agriculture. No-till, practised more in America than in Britain, means growing crops without ploughing fields, and leads to many-fold increases in bird population and a range of other environmental benefits. But no-till farming works best with GM herbicide-resistant varieties to keep weed populations down, an idea that doesn't go down well with most of the organic movement. *Dec 13, 2003 v369 i8354 p12*

UK: Soil Association response to Economist article

Letter to the Editor from Gundula Azeez, Policy Manager, Soil Association (not yet published)

Dear Sir,

You rightly identified (Organic? Don't panic, 13.12.2003) organic food as a serious and rapidly growing part of the global food market, that has 'come of age', and, in the Government's words, is no longer a 'niche market'. Many factors are known to be driving the market, including experience of superior quality and taste, enthusiasm for locally-produced food, absence of GM ingredients, the accepted benefits for farmland wildlife and animal welfare, absence of most additives and, as you noted, absence of pesticide residues. The Food Standards Agency has recognised that the sustainability of organic farming, and absence of pesticide residues, are reasons for people to buy organic food.

However, in claiming that there is no evidence that current levels of pesticides in non-organic foods are dangerous, you came close to saying that this means pesticides are known to be safe (consumers' worries 'may not be well founded'). The Food Standards Agency's Pesticide Safety Directorate has recently acknowledged that there is an absence of research on the possible effect on human health of the multiple pesticide residues found in some non-organic food - known as the cocktail effect. The official position is that more research is needed. In addition, recent scientific research on pesticide residues has emphasised the possible vulnerability of very young children and the foetus to very low levels of pesticide residues. Currently, pesticide safety tests only look at the impact of a single chemical, not combinations of chemicals, and only consider the impact on a typical consumer, not on especially vulnerable groups, such as young children or adults exposed to chemicals through a variety of routes as well as food. Finally, over the last three or four decades, we have seen large numbers of pesticides previously cleared as safe, subsequently banned on safety grounds. If consumers are concerned, it is for good reasons.

You may have also inadvertently misled your readers when you said that consumers are wrong to 'commonly believe that organic farmers do not use pesticides', because on the whole that assumption is correct. Only four sprays are allowed under Soil Association standards in the UK, and these are mainly used in glasshouses, and of the four (all naturally occurring substances), two can only be used in exceptional circumstances. Most

organic arable farmers use no chemical sprays at all, while over 400 sprays are widely used in non-organic farming

Of greater significance for the issues of diet, obesity and health, your feature failed to identify the possible connections between the growth of obesity and changes in agricultural production. While farming was once based on natural processes, now the more than 400 pesticides used by farmers are joined by over 500 chemicals used in food processing. This seems a highly careless development. Research has found that many of the chemicals used in non-organic production are very similar to various hormones that regulate fat levels in the human body. So these chemicals may be undermining our natural ability to control our weight.

Another possible connection is indicated by laboratory research which showed that if animals are deprived of certain nutrients they will keep on eating far more than they need in calorie terms, in an attempt to obtain the nutrients they are short of. Government data shows that since the introduction of chemicals in farming, mineral levels have fallen substantially across a range of foods in countries like the UK and the USA. One reason for this could be that until recently agricultural policy, and the synthetic fertilisers now used in agriculture are geared wholly to increasing yields. This has led us to neglect all the other minerals we should be getting in our diet. This might be contributing to a desire, and perhaps a real need, to eat more food.

Many factors have clearly contributed to the recent, frightening increase in obesity, not least our more sedentary lifestyles and the rise in consumption of processed foods with a high fat content. However, it would be surprising if other aspects of the food we now eat have not played their part.

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