"The Dietary Supplement Debate of 1993: An FDA Perspective"

presented by

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Exhibit 1 from Chris Grell 1807

One of the longest running public policy debates in Washington -- certainly within the province of the Food and Drug Administration -- is about to take center stage again, this time in the halls of Congress as the result of a vigorous grass roots lobbying campaign. It is the debate about how dietary supplements should be marketed and used in the best interest of consumers. And it is about the role government should play in regulating dietary supplements.

The terms of the debate have evolved over time. In the early years, immediately following the 1938 passage of the Federal Food, Drug, and Cosmetic Act, FDA's concern was to identify appropriate daily intakes of vitamins and minerals to assure that minimum nutritional needs were being met.

By the early 70's, FDA's interest -- and the public debate -- had shifted to high potency vitamin supplements and whether their potencies should be limited to "nutritionally rational" levels if they were to be marketed as "foods" rather than "drugs." Congress settled that debate in 1976 with the Proxmire Amendment, which permits FDA to limit potency only for safety reasons.

The current version of the dietary supplement debate is very different from previous ones. It's driven by the emerging new scientific understanding of the links between diet and health and by the strong interest many Americans have in improving their

health through diet. And, it is fueled by the 1990 Nutrition Labeling and Education Act (NLEA), in which Congress for the first time authorized FDA to allow disease-related health claims for nutrients on food and dietary supplement labels without going through the drug approval process.

At one level, the debate is about how FDA should implement its new authority to review and approve health claims for nutrients. But the debate has been made much broader by some in the dietary supplement industry who question the need for <u>any</u> FDA role in the premarket review of disease-related health claims, including claims for a wide range of products beyond vitamins and minerals -- such as amino acid and herbal products -- many of which have no recognized nutritional role in the form in which they are sold. FDA's tools for assuring the safety of these products are also under challenge.

My goal today is to define the terms of the forthcoming legislative debate, from FDA's perspective. It is critical that the values at stake in the debate be understood by the scientific community, public health groups, consumers, and the industries FDA regulates, because Congress is going to be asked to alter -- in the most fundamental way -- FDA's role in the regulation of disease-related health claims.

But the outcome of this debate is important for reasons well beyond the particulars of FDA's regulatory role. The emerging knowledge about the potential role of diet, including specific nutrients, in promoting health and reducing the risk of certain diseases has enormous implications for public health.

There is much to be gained for the health of our citizens if, as a society, we successfully develop and capitalize on this knowledge by means that are grounded in science and take account of both the benefits and potential risks of any significant dietary intervention.

There is also much to be lost if we drift from our scientific moorings and allow the marketplace to be filled with unsupported claims on products of unproven safety. The public's health could be at risk, proven therapies and interventions may be passed up, and scarce health-care dollars will be wasted.

The critical first step in defining the terms of the dietary supplement debate is to understand how broadly the term "dietary supplement" is being used. The term is unfortunately being used without discrimination to refer to a very diverse spectrum of products that pose widely varying concerns and that may not all be subject appropriately to the same regulatory approach.

The term of course includes products consisting solely of vitamins and essential minerals, substances that have recognized and well-understood roles in nutrition. These products can fairly be called nutritional supplements. In economic terms, they account for the great majority, as much as 80% or more, of the sales in the multi-billion dollar dietary supplement market. When sold without disease claims and at reasonable potencies -- as most of them are -- they are of no particular regulatory concern to FDA. And they are not what the forthcoming debate is about.

As used in NLEA and the dietary supplement debate, however, the term "dietary supplement" is held to encompass not only vitamins and minerals but also herbs, and and a host of other products, such as high potency amino acid supplements. This broad use of the term has confused the debate about supplement regulation because it lumps together with vitamins and essential minerals many products that have no recognized role in nutrition, that frequently bear express or implied disease claims, and that have been marketed for specific therapeutic purposes. From a scientific standpoint, the claimed benefits of many of these products are better evaluated in pharmacological rather than nutritional terms.

These products are also more likely to raise public health concerns than vitamin and mineral supplements. There are, for

example, many unanswered questions about the safety of amino acid supplements. FASEB reported last fall that there is insufficient scientific evidence to establish safe upper levels of intake for any of the amino acid supplements on the market today, and it recommended that such products be used by the young, the elderly, women of childbearing age, smokers, and other potentially vulnerable subgroups only under responsible medical advice and supervision.

The need to address the safety of the amino acid products is underscored by the fact that many of them are marketed to body builders and other athletes in ways that encourage high consumption. From FDA's perspective, high potency amino acid supplements are very different from the typical multivitamin supplement.

So too are many of the herbal and other botanical (or plant-derived) products that are being sold as "dietary supplements." While some of these consist of familiar food-use herbs, many are made from plants that have no traditional food use. The scientific literature documents the toxicity of some herbs, especially those from pyrrolizidine alkaloid-containing plants. Even such widely used herbs as germander, comfrey, and chaparral have been linked with severe liver toxicity, despite the fact that their traditional use had not been thought to raise safety concerns. FDA recently requested that chaparral be removed from

the market following at least five reported cases of acute toxic hepatitis. These products illustrate that coming from a natural source is no guarantee of safety.

Herbal products are also more likely than nutritional products to be marketed or used for their perceived therapeutic or disease prevention purposes. Make no mistake. Herbs and other botanicals have made real contributions to our therapeutic armamentarium. Digitalis (derived from foxglove) is an old example. The recently approved cancer drug taxol is a new one. But it is a misnomer to describe as dietary supplements herbal products marketed under such names as "Immunotonic," "Immune Plus," "Arth-X Bone, Joint and Ligament Nutritional Health Formula," "Blockaid 200 Cholesterol Control," or "Acnetonic."

Finally, lumping vitamins and minerals together with amino acids and herbals under the label "dietary supplement" has contributed to some rather egregious rhetorical confusion and excess among the press and some critics of FDA's regulatory policies. Some so-called "dietary supplement" products that have no recognized nutritional role are sold for therapeutic uses. It is a simple fact that these products are legally drugs and properly regulated as such, but some have used that fact as a springboard for the charge that FDA plans to regulate ordinary vitamin and mineral supplements as drugs. Vitamin C by prescription only! Or that FDA wants to take away the consumer's

freedom to choose high potency vitamin and mineral supplements because FDA does not consider such products nutritionally rational, even though such action is expressly prohibited by the Proxmire Amendment.

These charges are nonsense, and they've been rebutted, but they do raise the question of what FDA's regulatory goals really are. What are the legal responsibilities and public health values embedded in the current statutory framework and entrusted to FDA to advance? And what questions must Congress ask in considering whether to change the current framework? I will take the balance of my time to address these points.

FDA's goals in regulating the entire spectrum of products referred to as dietary supplements are as straightforward as they are simple. They are to assure that the products are safe and properly labeled and that any disease or health-related claims are scientifically supported. Let me talk a little about what these goals mean, how we pursue them, and the nature of the debate we are about to have about them.

First, safety. No one questions the goal of safety. It is FDA's top priority and the first thing consumers have a right to expect in any FDA-regulated product promoted directly to consumers and sold over the counter. In fact, we find that consumers commonly assume that if a health-related product is

readily available in the marketplace it must have been evaluated and approved for safety by FDA.

The legal provisions governing safety are complicated, and the details depend on whether the supplement is legally a food or a drug, but they embody two basic principles. One is that the manufacturer is legally obligated to produce a safe product. The other is that a premarket safety review by FDA is either required (as in the case of drugs), or, in the case of most true food supplements, authorized when appropriate to answer safety questions.

Although only a minority of currently marketed dietary supplement products have undergone a formal FDA safety review, the current statutory framework permits FDA to address identified safety problems swiftly by placing the burden on the manufacturer to resolve the problem in order to continue or resume marketing. FDA used this tool effectively to deal with the L-tryptophan case a few years ago.

In two recent cases, courts have ruled that this authority is not available for single "nutrient" supplement products. If these decisions become the established law, FDA will have lost one of its most effective tools for assuring the safety of this category of products.

Some believe Congress should take away FDA's authority to conduct premarket safety reviews for the entire spectrum of dietary supplement products, from vitamins and minerals to pharmacologically active amino acid and herbal products, and rely instead on the manufacturer's own substantiation of safety, under a less rigorous safety standard, and with the burden on FDA to prove that safety has not been substantiated.

This would be a radical philosophical departure from the current system. It would remove FDA from any role in premarket safety review for this wide array of products, and give FDA the burden of proof on safety when problems arise.

Congress will have to examine whether this approach would provide the level of safety assurance the public needs and expects. Congress will also have to consider whether it makes sense to require a premarket safety review for plant-derived drugs made by pharmaceutical companies but to abandon it for all plant-derived products marketed as herbal supplements.

FDA's second goal under current law is that dietary supplements be properly labeled. This is the most straightforward of the responsibilities Congress has assigned FDA, and I will only mention it briefly. Suffice it to say, the label of a dietary supplement should accurately state what the product contains, how much it contains, how it should be used,

and precautions necessary to assure safe use. All other information on the label should be truthful and not misleading. There is comparatively little debate about these basic principles.

The big debate is over FDA's third regulatory goal, which is to assure that disease-related health claims are scientifically supported in accordance with applicable legal standards. Congress has established a legal framework that contemplates as a general rule FDA premarket review and approval of all disease-related health claims. If the substance involved qualifies as a food (because it is used for its taste, aroma, or nutritional value), this review is conducted under the NLEA health claim provisions. If the product does not qualify as a food, the review would be conducted under the drug approval provisions of the law.

While the legal standards for approval of disease-related claims are different for foods and drugs, they both embody the core principles of FDA premarket review and a requirement that the validity of the claim be established by high quality scientific evidence.

Why did Congress adopt such a rigorous regulatory regime for health claims? I think there are several good reasons. First, Congress witnessed throughout the 1980's the proliferation of

health-related claims on foods, many of which seemed to reflect more the latest dietary fad than sound science. In passing NLEA, Congress was saying that such claims have the potential to do much good, but only if they are true. Because health claims are such potent marketing tools, companies were under great pressure to push up to, or beyond, the limits of science and truth. Congress decided that FDA review would provide a necessary check on the pressures of the marketplace.

Premarket review under a rigorous scientific standard also addresses important public health and safety concerns. A claim linking a nutrient with a disease-related benefit is typically intended to increase intake of that nutrient. It can also induce overconsumption of the nutrient, with the attendant risk of adverse effects. FDA review assures that the risks as well as the benefits of the nutrient are addressed and that the approved claim includes whatever cautions are needed to deter overconsumption.

FDA review also diminishes the possibility that people will be induced by unsupported disease claims to forego effective medical or dietary interventions. Passing up the proven for the unproven could jeopardize health. And money spent in the pursuit of health on products that don't work is money wasted.

In the coming legislative debate, Congress will be asked by some elements of the dietary supplement industry to abandon the principle of FDA review of health claims. The contention will be that the FDA standard for review is too strict and that the process unduly delays consumer access to information about the potential disease-related benefits of dietary supplements. It will be argued that these products are generally safe and that consumers should be free to choose them, without any FDA intervention, based on claims the manufacturers believe fairly depict the relationship between the supplement and a disease or health-related condition, even if there is not significant agreement among scientists that the link has been established. The burden would be on FDA to prove that the claim had not been substantiated.

This proposition will force Congress to consider very thoughtfully some hard questions. If coupled with a proposal to take FDA out of the business of premarket safety review, the necessary risk-benefit assessment for disease-related claims would be left, in the first instance, entirely to the manufacturer. In light of market pressures to make claims, is this adequate to protect public health? Assuming conventional foods remain under the same standard and FDA review procedure for health claims that Congress established for them in 1990, why should dietary supplement health claims be subject to a lesser standard with no FDA review? Is there a scientific or public

health rationale for treating the Vitamin C in a tablet differently from the Vitamin C in orange juice or broccoli? For pharmacologically active amino acid and herbal products, which in many cases are functionally indistinguishable from pharmaceuticals, is review of claims by the manufacturer sufficient to protect consumers from unsafe or ineffective products?

FDA welcomes the debate that these questions will generate in the coming year. FDA believes that the current statutory framework for disease-related health claims embodies some important public health principles that deserve and can withstand vigorous public debate -- principles such as grounding disease-related claims in a body of sound and widely accepted scientific evidence, subjecting such claims to the test of a third party scientific review, and addressing both risks and benefits before making any such claim.

Public debate of these principles will help policymakers and consumers understand them and help assure that Congress approaches its legislative task with a full appreciation of the public health values at stake. We also hope that, in the course of the coming debate, several basic tenets of FDA's thinking will become better understood.

FDA understands and respects the view of many Americans that they should be free to choose nutritional supplements as they see fit to meet their individual needs without government impediment. And FDA agrees with this view, provided the products are safe and any claims of nutritional benefit are true. Most vitamin and mineral supplements are safe, and FDA wants to work with the nutritional supplement industry to document scientifically the safe upper limits on daily intake of vitamins and essential minerals.

The "freedom of choice" argument is more difficult when products are marketed for serious therapeutic or disease-related purposes. Just how real -- how free -- is the choice if the claim is not scientifically valid or if the risks of overconsumption are not also disclosed? We think all consumers expect and deserve that recognized standards for scientific support and full disclosure have been met so that their exercise of choice can be well informed and thus truly free.

And let me stress again a point I made at the outset. FDA sees in the emerging science on diet and health enormous potential to improve the health of Americans. FDA is engaged in a common cause with those who seek to develop and exploit this science for the public good. And this includes approving scientifically sound disease-related health claims on labels of foods and nutritional supplements.

Let's not forget that we are just at the beginning of this new era of diet and health. We've all got a lot to learn, but we know this much: the ultimate promise and payoff of this new era will be only as good as the science that underlies it and the quality and thoughtfulness of our efforts to exploit that science.

We hope that you in the scientific community will join in the forthcoming public debate and collaborate with those of us in government and industry who are working to solidify and build upon the link between diet and health.

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FOOD AT

A closer look at the legal principles used to determine the adverse affects of food additives on the consumer.

By Jay H. Geller

Of late, hardly a day goes by when some aspect of the debate over the safety of food additives such as saccharin, sodium nitrate and nitrite, PCBs, PBBs, BHA, acrylonitrile and amygdalin does not appear in either the printed or electronic media. Some of these substances are praised and vitally necessary, others are condemned and considered completely unnecessary. For the most part, however, the legal concepts of food additives and food additive safety are misunderstood by the public.

Most recently, the greatest focus has been on saccharin. Saccharin has directed a new kind of public attention on food additives. We now see hundreds of newly created experts on such issues as the safety of food additives, the meaning of data derived from toxicological testing with food additives, the Delaney Clause[1], and artificial sweetners. The purpose of this article is to discuss the legal aspects of food additives and what the Delaney Clause is, as well as to illustrate how these principles operate, using saccharin as a relevant example.

FOOD ADDITIVES

Legal Definitions

Exhibit 2

Many people speak a good deal about food additives such as saccharin but really do not know what a food additive actually is. Defined at Section 321(s) of Title 21 of the United States Code, a food additive is

> *any substance the intended use of which results or may reasonably be expected to result, directly or indirectly, in its becoming a component or otherwise affecting the characteristics of any food (including any substance intended for use in producing, manufacturing, packing, processing, preparing, treating, packaging, transporting or holding food; and including any source of radiation intended for any such use), if such substance is not generally recognized among experts qualified by scientific training and experience to evaluate its safety, as having been adequately shown through scientific procedures (or in the case of a substance used in food prior to January 1, 1958, through either scientific procedures or experience based on common use in food) to be safe under the conditions of its intended use.*

This is a lengthy definition, complicated, and difficult for most judges, juries and other laymen to understand. In the shorthand vernacular of those who deal with the food additive on a regular basis, a food additive is a substance added to food that is not generally recognized by experts as safe.

Legislation

The food additive formally came into existence in 1958.[2] In that year, in response to the urging of many industry associations and the Department of Health, Education and Welfare, Congress adopted the Food Additive Amendments, the basic feature of which was the requirement of safety preclearance for all substances added to food. The legislative history of the Food Additive Amendments reveals that Congress was concerned with the rapid technological advances that were being made in the processed food industry and that under the law then in effect, FDA was unable to prevent the use of poisonous and deleterious substances in food until the agency first proved in court that the additive was in fact poisonous and/or deleterious.[3] In spite of the fact that such cases were brought in federal courts where civil matters generally have moved along more quickly than in state courts, it was not unusual for such cases to drag on for two years or longer while the public remained unprotected from the use of the substance in other foods against which FDA's limited resources would not permit regulatory action. The ideal situation envisioned by Congress was that with the newly required preclearance procedure, the problem of testing food additive issues in court would disappear. Unfortunately, this has simply not happened. While it is true that the law deems certain substances to be food additives, it is often necessary that FDA institute an enforcement proceeding against such a substance and prove that it comes within the statutory definition.[4] Thus, regardless of whether one approaches the food additive issue from the poisonous and deleterious standpoint, or the safety preclearance standpoint, FDA often ends up in court having to prove its case. Nevertheless, most sponsors and promoters of food additives follow the procedures that are outlined in the statute for obtaining approval for use of their food additives.

Types of Food Additives

Food additives fall into four basic categories. First, there are the intentional additives,[5] those that are added intentionally to food for a specific reason, including: preventing caking and lumping, preserving by preventing growth of microorganisms, retarding deterioration, imparting color, increasing shelf life, establishing uniform dispersion or emulsion, firming the product, producing a desired texture, controlling insects, preventing sticking to food contact surfaces, sweetening, supplementing nutrients, imparting body, increasing palatibility, and affecting the appearance of the food.[6]

ETY OF DITIVES

Second, there are the incidental additives, those that may reasonably be expected to become a component of any food or to affect the characteristics of any food, but are not added to food intentionally for the purpose of affecting the characteristics of the food.[7] These additives are primarily those used in packaging materials for food products and those used on and around manufacturing equipment food-contact surfaces, such as plastics, resins, adhesives and industrial chemicals.[8] These substances become incidental additives when they have the capability of migrating from the packaging or food contact surface into the food product. For example, FDA has determined that the chemical acrylonitrile may not be used in plastic beverage containers because it migrates into the beverage, and it has not been shown through adequate scientific procedures to be safe for its intended use.[9]

Third, there are the accidental additives, those which are not food additives in the statutory sense because Congress has determined that they should not fall within the statutory definition. Accidental additives are substances which may accidentally get into a food — for example, paints or cleaning solutions used in food processing plants.[10] Because these substances if properly used would not reasonably be expected to become components of the food, they are not food additives.

Finally, there are the food additives that do not come within the statutory definition because they are generally recognized by experts as safe.[11] These substances include most condiments, vitamins and minerals, essential oils, and natural flavor extracts.

The Food Additive Approval Process

If a substance does fall within the statutory definition of a food additive, it must be precleared by the United States Food and Drug Administration (FDA) for safety prior to its use in food.[12] The statute sets up a scheme whereby any interested person may submit a food additive petition to the FDA seeking promulgation of a regulation allowing the use of the substance in food in accordance with safety and functionality data contained in the petition.[13] If the FDA is satisfied that the additive can be safely used for its intended purpose, it will promulgate a regulation permitting the additive to be used.[14] Almost without exception, the regulation promulgated by the FDA will place a tolerance on the amount of the additive that may be added to a food product.[15] If information becomes available after approval of the food additive petition and promulgation of a food additive regulation that questions the continued safe use of the food additive, the FDA may move to have the regulation repealed.[16]

Repealing a food additive regulation may involve a lengthy administrative proceeding.[17] If an objection is raised to the proposed repeal of the food additive regulation, a public administrative hearing is required[18] resulting in an order issued by the FDA Commissioner either repealing, retaining or amending the food additive regulation.[19] The order must be supported by detailed finds and conclusions.[20] Where the validity of such an order is disputed, judicial review is available in the United States Court of Appeals for the District of Columbia or in the United States Court of Appeals for the circuit in which the complaining party resides.[21] If the FDA Commissioner determines that continued use of the food additive presents an imminent hazard to the public health, he may order use of the food additive to cease immediately pending the outcome of a formal administrative proceeding and any subsequent judicial review.[22]

There are several methods of determining whether a particular substance requires an approved food additive petition before it can be used as an ingredient in food. First, one can look at 21 CFR 172-181 which lists all food additives for which approved food additive petitions exist. Second, one can look at the 21 CFR 184-186 listing of all substances which may be added to foods without an approved food additive petition because they do not meet the statutory definition of food additive. Third, one can look at 21 CFR 189 which lists substances prohibited from use in human food. Fourth, pursuant to the provisions of 21 CFR 170.38, one can request a formal advisory opinion from the FDA pursuant to 21 CFR 10.85 as to whether or not the substance is a food additive. Finally, a person can incorporate the substance into a food, market the product,

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[1] 21 U.S.C. § 348(c)(3)(A). All code references herein are to 21 U.S.C. unless otherwise noted.

[2] P.L. 85-929, 72 Stat. 1785 (1958).

[3] *See* 1958 U.S. Code, Cong. & Adm. News, pp. 5300 et. seq.; *see also* § 342(a)(1).

[4] *See* § 342(a)(2)(C) and § 334; *see also* United States v. Articles of Food and Drug... Coli-trol 80 Medicated, 372 F. Supp. 915 (ND. Ga., 1974) aff'd 518 F.2d 743 (5th Cir., 1975); Natick Paperboard Corp. v. Weinberger, 498 F.2d 125 (1st Cir., 1974); Bell v. Goddard, 366 F.2d 177 (6th Cir., 1966); United States v. Articles of Food Consisting of Pottery Labeled Cathy Rose, 370 F. Supp. 371 (E.D. Mich., 1974); United States v. Article of Food Consisting of Drums, More or Less, of Orotic Acid, 414 F. Supp. 793 (E.D. Mo., 1976).

[5] 1958 U.S. Code Cong. & Adm. News, p. 5303.

[6] *See* 21 CFR 170.3(o).

[7] 1958 U.S. Code, Cong. & Adm. News, p. 5304.

[8] *See* 21 CFR 174-178.

[9] *See* 42 F.R. 48528 (Sept. 23, 1977).

[10] 1958 U.S. Code, Cong. & Adm. News, p. 5304.

[11] *See* 21 CFR 182, 184, 186.

[12] § 348.

[13] § 348(b).

[14] § 348(c), (d), (e).

[15] § 348(c)(4).

[16] § 348(h); 21 CFR 170.3, 170.20, 170.22, 171.1.

[17] *See* 21 CFR 171.130.

[18] *See* § 349(f)(1).

[19] *See* § 349(f)(2).

[20] *Id.*

[21] *See* § 349 (g)(1).

[22] *See* 21 CFR 2.5.

and wait to see if FDA institutes regulatory action against the food pursuant to 21 U.S.C. 342(a)(2)(C) on the ground that it contains an unsafe food additive.

THE DELANEY CLAUSE

There are many potential toxicological safety problems with food additives, including chemical poisoning, allergic reactions and failure to control the growth of harmful bacteria and other microorganisms. However, no safety concern evokes the specter of danger in the public's mind more than that of cancer. And so it is with food additives that Congress enacted the Delaney Clause.[23] This provision has attained wide recognition among the consuming public because it appears routinely in newspapers and is widely discussed on radio and television. However, very few people really know exactly what the Delaney Clause is.

At the time that the Food Additive Amendments were enacted, Congressman James Delaney of New York sought to assure that substances causing cancer or that had the potential to cause cancer, would not be allowed as food additives. Thus, since 1958, the Federal Food, Drug and Cosmetic Act has provided that the FDA may not promulgate a regulation

> *allowing the use of any substance in food if it is found to induce cancer when ingested by man or animal, or if it is found, after tests which are appropriate for the evaluation of the safety of food additives, to induce cancer in man or animals.*[24]

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Similar "Delaney Clauses" exist with respect to color additives[25] and animal drugs that are used in food-producing animals.[26] The Delaney Clause is short, simple and straightforward. The controversy over the provision comes not when one is dealing with a substance that causes cancer at expected levels of consumption, but, rather, when the substance induces cancer at levels far in excess of what would reasonably be expected to be consumed on a daily, weekly, or even on a lifetime basis. The heart of the controversy in this area is how to interpret the data that yields results that do not easily translate into an immediate threat to the consuming public's health. This controversial aspect of the Delaney Clause conveniently leads to an analysis of the saccharin problem.

CRITERIA FOR EVALUATING THE SAFETY OF FOOD ADDITIVES[27]

Most American consumers know little, if anything, about how food additives are evaluated for safety in humans. It is accepted in toxicological research throughout the world that animal testing is a valid method for predicting short term acute and long term chronic effects of ingestion of chemical substances. Therefore, the primary tests done to determine the safety of food additives are on laboratory animals. The first testing is conducted to determine acute toxic effects. In these short term tests, varying amounts of a substance are fed to test animals to determine what size dose, if any, will produce an immediate toxicological response. The second testing that is conducted is the chronic long term feeding study carried out with varying levels of the substance fed to animals as a fixed percentage of their total diet over a lifetime, often extending into the second and third generations. These tests are intended to demonstrate if there are any long term toxicity problems with the substance, including whether or not it is a carcinogen or causes genetic mutations.

Scientists have devised six minimum testing requirements for determining whether a substance is a carcinogen:
(1) More than one species should be used to demonstrate that a substance is not a carcinogen;
(2) The feeding must be over the practical lifetime of the test animal to establish a negative finding;
(3) Test doses must be close to the pharmaceutically active range, but several magnitudes above the actual use level;
(4) The greatest feasible number of animals must be in the test population;
(5) The route of administration of the substance in the test animal must be analogous to that by which humans will be exposed to the substance;
(6) Whenever possible, the test should commence during pregnancy and continue throughout the life of the animal, often into the second and third generations.

However, even with these guidelines, it is accepted in the scientific community that absolute evidence of noncarcinogenicity is impossible and that noncarcinogenicity in animals is not a guarantee of noncarcinogenicity in humans.

It is not surprising that many consumers question the use of extremely large doses of a substance in a test animal and the application of findings from such a test to human toxicity potential. The rationale for higher doses in test animals than what would normally be consumed by humans include the following:
(1) The limits on the sheer number of animals that one can test (one simply cannot test enough animals to approximate the likely number of human users);
(2) The need for meaningful results in a relatively short period of time; and
(3) The ability to extrapolate from the test figures what the risk at a lower dosage is.

The relevance to humans of data derived from animal tests, such as those discussed above, has been stated by the FDA in terms of the following principles:
(1) Certain substances can be shown in validly controlled experiments to cause cancer in animals;
(2) Those substances causing cancer in one species often will cause cancer in others, thereby making any substance that causes cancer in an animal species a suspect carcinogen for humans;
(3) Chemical carcinogens generally demonstrate a dose-response relationship — that is, the greater the dose, the greater the tendency to produce tumors (and many scientists believe that once a substance has been shown to cause cancer at any level it is unsafe because there is no threshold level below which the substance can be considered safe for consumption);
(4) The tests are conducted at dose levels that will produce an effect so that the scientist can calculate the risk at a

wer dose;
) A conservative method of extrapo-ting is used, resulting in errors of over-ating, rather than understating, the risk; :d
;) The results of animal tests and their xtrapolation to lower doses provides a seful estimate of the risk of cancer in umans.

With this somewhat conceptually dif-icult legal and scientific framework in nind, let us examine saccharin as a case tudy in food additive safety.

SACCHARIN

The FDA has determined that saccha-rin poses a significant risk of cancer for humans.[28] This is the conclusion reached by FDA Commissioner Donald Kennedy in his July 1977 proposal to remove saccharin from the list of approved food additives and prohibit its use in drugs, cosmetics and animal feeds. Before ex-amining the evidence underlying the commissioner's recent proposal, a look at the history of saccharin is in order.

Early History[29]

Saccharin is a nonnutritive artificial sweetener that is 350 times sweeter than sugar. After its discovery in 1879, its early uses were as an antiseptic, preserv-ative and as an artificial sweetener for diabetics. Since its discovery, there has been concern over the safety of saccharin. Some early tests with the substance showed no harm when consumed by diabetics at a level of five grams per day for five months, while other early tests showed that many of those taking the substance complained of stomach dis-turbances. Tests conducted with saccha-rin to demonstrate its effectiveness in a variety of intestinal disorders proved unsuccessful. As early as 1907, canners of food in the United States desired to use saccharin in food because of its sweeten-ing properties. Accordingly, in 1912, President Theodore Roosevelt convened a board of scientific advisors to advise the Department of Agriculture (which at that time had jurisdiction over foods and drugs) to evaluate the safety of saccharin. The board concluded that saccharin con-sumed in an amount of 0.3 grams per day or less was safe but that consumption of more than one gram per day could cause digestive disturbances in many individ-uals.

During the period from 1920 to 1950, saccharin was used in the United States but was much more widely used in Eu-rope. Its use resulted in no apparent ill effects in consumers, but no in-depth epidemiological studies were conducted. Some animal studies were conducted with saccharin but no harmful effects were observed.

Current Use[30]

Today, the use of saccharin in the United States is widespread. In 1976, estimates of saccharin consumption by Americans ranged from a low of 6 million to a high of 7.6 million pounds. Of this staggering amount, 70 percent was used in foods and beverages: 74 percent of this amount in low calorie soft drinks; 12 percent as a table sweetener for coffee, tea and breakfast cereals; and the re-maining in such foods as powdered drink and juice mixes, salad dressings, sauces, canned fruits, cookies, gum, candy and ice cream. Saccharin also has a wide-spread use in pharmaceuticals to mask the often unpleasant taste of pharmaceu-tically active chemicals. Saccharin is especially used in pediatric medications. The substance is also used in lipsticks, denture cleaners, toothpastes, mouth-washes, aftershave lotions, skin moistur-izers, hair tonics and animal feeds. Thus, the problems associated with the current effort to remove saccharin from the mar-ket extend far beyond what dieters and diabetics will do to find alternate nonnu-tritive sweeteners; removing saccharin from the market has broad implications for the pharmaceutical and cosmetic in-dustries as well as the food and beverage industries.

Early Safety Evaluations of Saccharin[31]

In 1955, the National Academy of Sciences (NAS), a prestigious group of scientists representing some of the best scientific minds in the United States, after a review of all available scientific literature, concluded that 0.3 grams per day of saccharin consumed by the average American adult would not be hazardous to health. However, due to the drastic

(Continued on page 38)

[23] § 348(c)(3)(A).
[24] § *Id.*
[25] § 376(b)(5)(B).
[26] § 360B (d)(1)(H).
[27] This section is adapted from an FDA order on saccharin. *See* 42 F.R. 19996 (April 15, 1977) corrected 42 F.R. 25339 (May 17, 1977).
[28] *Id.*
[29] *Id.*
[30] *Id.*
[31] *Id.*

Food Additives
(Continued from page 37)

increase in the use of artificial sweeteners during the 1960's, the FDA asked the NAS to evaluate all artificial sweeteners for safety. In 1968, the NAS reported that an intake by an adult of one gram or less per day of saccharin was acceptable from a safety standpoint, but recommended that a carcinogenesis (tumor producing) study be undertaken with saccharin to determine if saccharin could cause cancer since no such study had theretofore been conducted. It was at this time that concern with industrial carcinogens was becoming prevalent among many leading environmental scientists. When cyclamate, then the most popular artificial sweetener was removed from the market in 1969 due to suspicion that it caused cancer in man and animals, FDA anticipated a widespread increase in the use of saccharin and called upon the NAS to undertake a new review of the safety of saccharin.

In 1970, the NAS reached the same conclusion that it had reached earlier, but recommended that chronic toxicity tests be conducted with saccharin. It also recommended the conducting of epidemiological studies among populations with steady saccharin usage; comparative metabolism studies of saccharin in man and animals; and studies to determine the toxicological interactions between saccharin and other chemicals. Because of increasing concern over the safe use of saccharin in unlimited amounts, the FDA in 1972 removed saccharin from the list of substances generally recognized as safe and provided for interim marketing of the substance provided that labels on products containing saccharin bore a statement to the effect that their use should be limited to persons who must restrict their intake of sugar.[32] FDA concluded at that time that saccharin posed no significant risk to the public health.

Carcinogenicity Testing With Saccharin[33]

Two studies conducted in 1970, one

by the FDA and the other by the Wisconsin Alumni Research Foundation in Madison, Wisconsin, demonstrated that saccharin produced tumors in laboratory animals when the animals were fed respectively 7.5 percent and 5.0 percent of their total diet. However, scientists evaluating these tests were unable to trace the increase in tumors to saccharin or a substance known as OTS which is often found with saccharin. In 1977, FDA received the results of a Canadian study which showed that saccharin fed at a level of 5 percent of the total diet to rats caused an increase in malignant bladder tumors in first and second generation test animals. It was determined that OTS did not play a role in the increase in the incidence of tumors. Based upon the results of the Canadian study, FDA estimated that one diet soda consumed daily over a lifetime by an average adult American could result in up to 1200 additional cases of bladder cancer per year among the American populace. The recognized rate of bladder cancer in the American population is 1.5 percent, or 150 cases for each 10,000 individuals. If the consumption of saccharin is figured in, the rate is raised to 1.54 percent, or 154 cases for each 10,000 individuals.

FDA believes that the Canadian tests conclusively establish that saccharin is a carcinogen and that its use in food can no longer be justified. There is no epidemiological or user evidence that demonstrates that saccharin is a carcinogen in humans. However, the statute does not contemplate epidemiological studies; rather, it contemplates animal studies of the type discussed above.[34] Scientific studies have been conducted according to accepted scientific procedures that demonstrate that saccharin has the potential for causing cancer in people. Thus, if one chooses to believe that the Canadian and other test results are valid, consumption of saccharin does indeed pose a risk of additional cases of bladder cancer in humans.

SOME FURTHER THOUGHTS ON FOOD ADDITIVES

Whether people should have the freedom of choice to accept the risk posed by saccharin is a matter that this article will not address. The issue, however, is a viable one, in that there are competing concerns, especially where diabetics claim that the convenience that saccharin adds to their lives outweighs their risk of [illegible]. In addition, might one not argue that cancer of this type would most likely not manifest itself until very late in life, if at all, and thereby justify shortening one's life in later years while having saccharin available in younger years to prevent obesity which, in and of itself, is a significant health problem in the United States? These issues are difficult issues and bring into play complex issues of personal freedom versus the duty of the government to provide for the common welfare and protect the public health. However, these philosophical considerations notwithstanding, FDA, in the face of the data currently available to it, feels that it has been left with no choice under the existing law but to remove saccharin from the market.

The matter does not end with FDA having the final word, however. On November 23, 1977, Congress enacted the "Saccharin Study and Labeling Act."[35]

The purpose of this act is

> *to require studies concerning carcinogenic and other toxic substances in food, the regulation of such food, the impurities in and toxicity of saccharin, and health benefits, if any, resulting from the use of nonnutritive sweeteners; to prohibit for 18 months the Secretary of Health, Education and Welfare from taking certain action restricting the continued use of saccharin as a food, drug and cosmetic; to require certain labels and notices for foods containing saccharin; and for other purposes.*[36]

Continued use of saccharin in food and drinks is now permitted only if their labels carry the following warning:[37]

> *Use of this product may be hazardous to your health. This product contains saccharin which has been determined to cause cancer in laboratory animals.*

In addition, the new law gives the FDA authority to require similar labels on vending machines that dispense soft drinks.[38] Retail stores selling saccharin and saccharin-containing products, with the exception of restaurants, are required to post signs warning customers of the cancer threat from ingestion of the artificial sweetener.[39] Thus an 18-month moratorium on the FDA saccharin ban has been imposed by the Congress, the provisions of the food additive safety law and the Delaney Clause notwithstanding. The moratorium is to expire in the spring of 1979, but current expectations are that the moratorium will be extended until definitive toxicology has been completed.

The congressional moratorium can be traced in part to the tremendous outcry from the American citizenry that has arisen over the FDA's proposed ban on saccharin. Congress was also subjected to intense pressure from trade associations representing manufacturers of products containing saccharin, from the saccharin manufacturers themselves, and from physicians who believe that saccharin offers the promise for a more normal life for the millions of diabetics in the United States.

What effect this congressional moratorium against the FDA's taking action to remove saccharin from the market will have over the FDA's long term ability to administer the food safety law is unclear. Certainly it would seem that Congress should uphold the very law it enacted to insure that substances of doubtful safety, such as saccharin, would be removed from the market pending additional testing, rather than remaining on the market and posing a potential risk to the consumer while the additional testing is undertaken to resolve important safety questions.

The exception that Congress has proposed for saccharin points up a significant shortcoming in the FDA's ability to administer and enforce the food additive safety law. Once Congress has carved out an exception for saccharin, what will prevent it from making exception after exception in cases of other additives of widespread use when their safety has been brought into question. If, in fact, Congress is unhappy with the current food additive law, and there are many who will argue that the Delaney Clause is too restrictive and inflexible, it should amend or abolish the food additive safety law. Proceeding on a piecemeal, additive-by-additive basis, can only undermine the regulatory scheme it has established.

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[33] *See* 21 CFR 180.37

[33] *See* fn. 27, supra.

[34] *See* 21 CFR 170.3(h).

[35] P.L. 95-203, 91 Stat. 1451 (1977).

[36] *Id.*

[37] *Id.* § 4(a). Failure of a food label to bear the warning statement results in the food being misbranded under § 343(o)(1).

[38] *Id.*, § 4(c).

[39] *Id.*, § 4(b).

DEPARTMENT OF HEALTH & HUMAN SERVICES Public Health Service

Food and Drug Administration
Rockville MD 20857

OCT 10 1995

OCT 04 1995

The Honorable Michael Bilirakis
Member, U.S. House of Representatives
4111 Land O'Lakes Boulevard
Suite 306
Land O'Lakes, Florida 34639

Dear Mr. Bilirakis:

This is in further response to your letter of July 14, 1995, on behalf of Mr. David Helphrey of Palm Harbor, Florida, requesting an update (since our November 17, 1994, letter to you) on the status of the Food and Drug Administration's (FDA) investigation regarding "Super Dieter's Tea" which is distributed by Nutrition Products, Fresno, California. We apologize for the delay in this response.

On June 7 and 8, 1995, an FDA Food Advisory Committee Special Working Group met to discuss the use of substances with stimulant laxative effects in food products, some of which are contained in Super Dieter's Tea. The conclusions of the working group were: 1) food products containing products with stimulant laxative effects under certain circumstances might indeed cause adverse effects; 2) consumers should be informed about the potential adverse effects; 3) a label advisory or warning to consumers is appropriate and useful, and such a label statement may reduce the incidence of adverse effects; 4) appropriately worded label statements have a potential to reduce abuse of products containing such substances; 5) an extensive educational campaign is not warranted (the resources required would be too great for the expected benefit), but an informational effort targeted toward physicians and other appropriate professional groups could have some impact; and 6) labeling and education efforts will inform consumers but the committee cannot predict behavior in response to such information. The working group went on to devise a draft label statement that all agreed was too long but which incorporated the various elements of potential adverse effects about which they felt consumers needed to be informed. The Food Advisory Committee approved the recommendations of the special working group at its meeting of June 8-9, 1995.

Exhibit 3

On August 7, 1995, a meeting was held between California State officials and industry to discuss a label statement for foods containing substances with stimulant laxative effects. In that meeting, the State of California reached a consensus with industry representatives on the specific wording of a label statement as follows:

> NOTICE: This product contains (name of ingredient and common name if different). Read and follow directions carefully. Do not use if you have or develop diarrhea, loose stools, or abdominal pain. Consult your physician if you have frequent diarrhea. If you are pregnant, nursing, taking medication, or have a medical condition, consult your physician before using this product.

During the August 7, 1995, meeting, and in subsequent telephone conversations, California requested that FDA comment on the statement. Our comments were as follows:

1. A label statement on foods, including dietary supplements, that contain substances with stimulant laxative effects that may cause adverse gastrointestinal effects may be of value because consumers should be informed about the potential effects of these products. An appropriately worded statement may reduce the incidence of adverse effects and abuse of these products.

2. We noted that some plant materials containing substances with stimulant laxative effects are approved for use in foods as flavors at the minimum level necessary to achieve the flavoring effect and are listed in Section 172.510 of title 21 of the Code of Federal Regulations (21 CFR 172.510). When used in accord with § 172.510, these substances would be expected to be used at levels below those that can cause laxation. Thus, use of these substances in accord with § 172.510 and at levels that would not cause adverse effects should not require special labeling.

3. California's statement incorporated many, but not all, of the Advisory Committee's conclusions. The statement advises consumers of the specific ingredient that the product contains, to follow directions carefully, about instances in which the product should not

be used, and of situations where a physician should be consulted. However, the statement may not adequately warn of specific undesired effects and their consequences directly related to consumption of the product on a single dose basis (that it can act as a laxative) or adverse health effects related to consumption on a chronic basis (chronic diarrhea and impaired colon function that may lead to serious sequelae). In addition, the statement does not include the concept that laxative-induced diarrhea does not significantly reduce absorption of food calories, which the Advisory Committee recommended be included in the statement because these products are often sold as weight loss products including dieter's teas.

4. The Agency also pointed out that even though a product bears the label statement, it may still be misbranded under section 403(a) of the Federal Food, Drug, and Cosmetic (FDC) Act if other information on the label causes the label to be false or misleading.

We believe the efforts on the part of California are useful despite the fact that all the facets of the Advisory Committee's recommendations were not incorporated. We will follow carefully the progress of California in their labeling initiative efforts, as well as the response of the industry, and will continue to consider whether action on the part of FDA is necessary.

We agree with the recommendation of the Advisory Committee that an informational effort targeted toward health care providers and other appropriate professional groups could have some consumer impact and are, therefore, considering mechanisms by which this informational effort could be effectively accomplished.

We recognize, as the Advisory Committee concluded, that labeling and educational efforts may provide consumers with some protection. Because behavioral responses to such information cannot be predicted, we have requested that California State officials keep us informed about consumer

response to their label statement. This information will assist us in assessing our options.

We hope this information is helpful.

Sincerely,

Diane E. Thompson
Associate Commissioner
for Legislative Affairs

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CODEX: A SPECIAL REPORT

Report on the 20th Codex Committee Meeting on Nutrition and Foods for Special Dietary Uses of the Food and Agriculture Organization (FAO) of the United Nations and World Health Organization (WHO)

Bonn, Germany, October 7-11, 1996

Authored By:
Alexander G. Schauss, PhD,
U.S.A. NGO Codex Delegate
President, Citizens For Health
October 11, 1996

Exhibit 4

for these deviations. However, even though a deviation to the standard has been declared, the country is expected to indicate when it will give full acceptance, implying that deviations are only temporary steps taken by countries to give them time to implement the standard as written.

For example, if the United States refused to abide by a hypothetical Codex standard that set a maximum level for vitamin/mineral supplements, then it would have to indicate to the Codex Commission in what ways its present or proposed requirements would differ from the general standard, and if possible, the reasons for these differences, while also indicating whether it expects to be able to give full acceptance to the general standard, and, if so, when.

For this reason, domestic laws and regulations can significantly influence international standards that might otherwise be imposed upon it. This is one reason why the theory of some legal analysts that the Codex Commission's standards on dietary supplements may force a country to adopt that standard in defiance of its own national statutes by trade treaty covenants is questionable.

As was observed at the 1996 Bonn meeting, the USA delegation represented by the Director of the Office of Special Nutritionals at the U.S. FDA, Dr. Elizabeth Yetley, RD, Ph.D., made it perfectly clear to the Codex Committee that it rejected certain proposed standards and would not agree to them because they would violate our country's laws. This was particularly true in the case of certain dietary supplement proposed standards, which would conflict with statutes of the Dietary Supplement Health and Education Act of 1994 (DSHEA). Dr. Yetley did a very good job making this issue known on several occasions to the Committee during the meeting.

It is also important to point out that the Codex Alimentarius Commission and its subsidiary bodies, such as the Committee on Nutrition and Foods for Special Dietary Uses (CNFSDU), is "committed" (not required) to revise Codex standards and related texts to ensure that they are consistent with and reflect current scientific knowledge and other relevant information (i.e. consumer opposition). When required, a standard or related text shall be revised or removed using the same procedure as followed for the elaboration of a new standard. Each member of the Commission is responsible for identifying, and presenting to the appropriate committee, any new scientific and other relevant information that may warrant revision of any existing Codex standards or related texts.

This is important to know. If, for example, the U.S. National Academy of Sciences issues significantly higher safe limits of intake of certain vitamins and minerals than is allowed by the existing Codex standard, that scientific knowledge would be taken before the Commission and CNFSDU to encourage a revision in the standard. However, it would be expected that opposition would be based on the premise that such new information had not been considered adequately by the member country(s) opposing the revision, thereby potentially delaying by years a revision or elimination of that standard.

Christopher Hobbs on Insomnia

Herbs for Health

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Herbs for your sweet tooth

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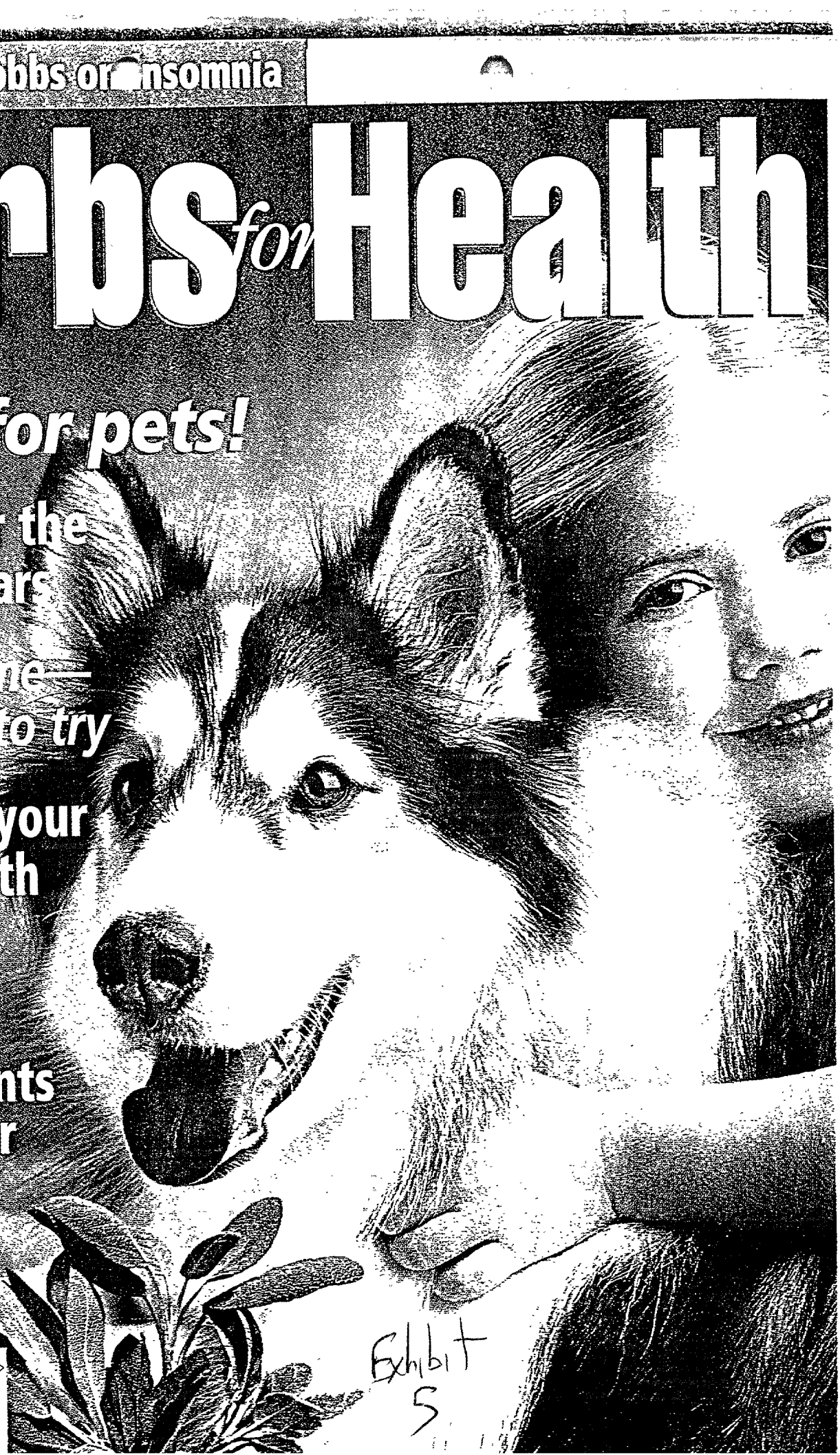

May/June 1997
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Exhibit 5

men usages, and trial results would be another section to consider including in your publication.

Tina L. Arellano
Wheatridge, Colorado

We hope you enjoy the article about herbal care for pets on page 28. Look for more articles in the future. We, too, find the herbal information coming out of Europe to be very interesting and are always looking for ways to include it in the magazine.

More on mushrooms

Dear *Herbs for Health,*

I have been interested in growing shiitake mushrooms ("Mushrooms as Medicine" January/February 1997) for some time. I tried to grow them in logs without much success. I see where they can be grown in sawdust. I would like more information about this. Also, I would like to purchase Kenneth Jones's book as well as some of the other books listed. Can you provide information?

Donna Miller
Greenville, Ohio

You can find Kenneth Jones' book Shiitake: The Healing Mushroom *(Healing Arts Press, 1995) at selected bookstores, or you can order it for $8.95 plus $3 shipping and handling by calling (800) 246-8648. Another useful text is* Medicinal Mushrooms: An Exploration of Tradition, Healing, and Culture *(Botanica Press, 1995) by Christopher Hobbs, which is offered through Interweave Press for $16.95 plus $4.75 shipping and handling. To order call (800) 645-3675. Hobbs's book contains a list of references on mushroom cultivation; one of them is* The Shiitake Growers Handbook *by P. Przybillowicz and J. Donoghue (Kendall/Hunt Publishing, 1990).*

Herbal training

Dear *Herbs for Health,*

I am very interested in herbalism and herbal healing. Can you recommend a reputable source for training?

Don Christie
St. Louis, Missouri

Many training programs are available, but we cannot endorse a particular program. As a starting point, you might refer to our article on North American correspondence courses on page 58 of the January/February 1997 issue. It's also helpful to ask herbalists and people in the medicinal herb business about reputable programs.

This and that

Dear *Herbs for Health,*

What a great little sister *Herbs for Health* is—as expected with a big sister like *The Herb Companion.*

Where can I get education on making my own capsules? What are the differences in the sizes and how can I be sure that I'm taking the right amount of capsules with my own herbs?

I would also be interested in an article on homeopathic courses to answer questions such as the kind of degree you obtain, how you can use the knowledge, and what the average cost is per course.

Lastly, are Siberian, Korean, and American ginsengs true ginsengs?

Sonya Anthony
Decatur, Illinois

Look for capsule-making information in future issues of the magazine. In the meantime, the article about capsule manufacturing on page 46 may interest you.

We can't be quite as responsive to your homeopathy query. While homeopathy draws upon herbal remedies, it is a topic outside our realm. Homeopathic Educational Services, 2124 Kittredge Street, Berkeley, CA 94704, may be better qualified to respond to this question.

Regarding ginseng, true ginsengs are ginsengs belonging to the Araliaceae family and the genus Panax. *That includes both red and white Chinese ginseng (*Panax ginseng*), Korean ginseng (*Panax ginseng*), and American ginseng (*Panax quinquefolium*). It does not include Siberian ginseng (*Eleutherococcus senticosus*), also known as eleuthero.*

Yams and hormones

Dear *Herbs for Health,*

What is the percentage of DHEA in wild Mexican yams?

Phillip Hopkins
Lubbock, Texas

According to James A. Duke, Ph.D., yams don't contain the adrenal hormone DHEA (dehydroepiandosterone). Yams do contain diosgenin, which through several chemical steps can be converted to progesterone, testosterone, or DHEA. Our bodies, however, do not have the enzymatic pathways capable of producing such a transformation. In short, Dr. Duke says, it is not possible to get DHEA from yams or a yam tincture. Some wild yam creams may contain DHEA, but Mother Nature did not put it there.

Model behavior?

Dear *Herbs for Health,*

In Mark Blumenthal's article "Herbs and the Law" (September/October 1996), he makes several good points. For example, "Governments of other advanced nations have already dealt with the challenge of evaluating herbs for the therapeutic benefits," and "Germany's Commission E, a federally appointed panel of experts that have reviewed more than 300 herbs and herbal combinations and have approved more than 200 of them as safe and effective medicines, might serve as a model for the United States."

Unfortunately, experience has shown that companies involved in the dietary supplement business do not want to adopt these models. For example, after discovering several deaths linked to a popular herbal diet tea containing over-the-counter levels of laxatives and diuretics, industry representatives met and opposed efforts to label these diet teas and other herbal laxatives with the warnings and/or cautions that the German Commission E requires.

The same kind of opposition exists with regard to the labeling of herbal supplements containing the herb *ma huang,* commonly known as ephedra.

Once again, mainstream manufacturers would like the public to believe that products containing ma huang with "street-drug-like names", such as Herbal Ecstasy, are

an aberration. However, test results have shown that many mainstream ephedra-containing products with "nice names" contain as much if not significantly higher levels of ephedra than products which the industry claims are produced by renegade companies.

In short, until the people involved in the business of making these products are willing to meet and accept established, good manufacturing and labeling practices, the controversy will never end.

Hopefully, Mr. Blumenthal will support legitimate and reasonable efforts to implement policies like those established by Germany's Commission E instead of the scare tactics used by the industry to get the consumer to attack the U.S. Food and Drug Administration whenever it has attempted to implement policies like those "established in other advanced nations".

Christopher E. Grell
San Francisco, California

Toxic citrus peel?

Dear *Herbs for Health*,

In the November/December issue of *Herbs for Health*, there was a letter about orange peel oil. The response said it could be harmful or fatal. I make candied orange peel as well as candied grapefruit and lemon peel. These are boiled 2 to 3 minutes then cooked in sugar until candied. Is this harmful?

J. Boschen
Windsor, Massachusetts

Eating reasonable amounts of candied citrus peel poses no health threat because you would not ingest enough essential oil to be toxic.

We welcome your comments and questions. Address your letters to Herbs for Health *Letters, Interweave Press, 201 East Fourth Street, Loveland, CO 80537-5655; fax (970) 677-8317; or e-mail H4H@iwp.ccmail.compuserve.com. Please include your name and address.*

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Mark Blumenthal

Opinion

Viewpoints to consider

More and more consumers are turning to herbal medicines to treat minor ailments and to help increase overall wellness and resistance to disease. In October 1994, a Gallup survey estimated that 17 percent of all Americans use herb supplements, which are now available in mainstream retail outlets, not just in health-food stores and mail-order catalogs. In 1994, the latest year for which figures are available, herb sales rose 35 percent in pharmacies and supermarkets.

This interest in herbal medicine is unprecedented, not only here but all over the developed world. A big issue surrounding all of this herb growth is education of the general public as well as of health professionals and lawmakers. Most experts agree that the best way to ensure that people will use herb products safely is to put straightforward directions on labels, including expected benefits, proper dosage, possible side effects, and precautions. However, getting the industry and the government to agree on appropriate and responsible regulation to help consumers is the tricky part.

The *Dietary Supplement Health and Education Act of 1994* (DSHEA) was designed to protect consumers' access not only to dietary supplements, including herbs, but also to information on how to use them. The issues surrounding DSHEA's passage cut across conventional party lines, reaching both ends of the political spectrum.

More recently, a bill titled *Access to Medical Treatment Act* (S.1035 and H.R. 2019) was introduced last year by Sen. Tom Daschle (D-SD) and Rep. Peter DeFazio (R-OR). It would be a boon to the democratization of health care as well as to consumer access to less expensive and often gentler modes of treatment. The act would let people receive any type of medical treatment they want from a licensed health-care practitioner, including treatments not approved by the U.S. secretary of health and human services. The act includes several provisions, including: the practitioner must have personally examined the patient; the treatment, when used as directed, must not present a danger to the patient; and the patient must be informed in writing that the treatment has not been approved by the federal government.

The act would obviously deal with more than only herbal issues and treatments. However, I question whether herbal medicine would come under the purview of this act and, if so, why. In my view, herbs should be part of conventional medical practice; ample scientific and historical evidence supports this. But the problem is one of regulation. DSHEA only goes so far. It allows herb product labels to include usage directions and side effects and warnings, yet it permits only limited claims about how a product affects the body—"Cranberry helps maintain a healthy urinary tract", for example—so long as these statements are truthful, nonmisleading, and backed by scientific evidence. DSHEA does not permit products to make "therapeutic" claims such as "helps cure a headache". However, millions of consumers use herbs precisely for therapeutic reasons: to help treat minor, self-limiting ailments.

Governments of other advanced nations have already dealt with the challenge of evaluating herbs for their therapeutic benefits. Germany's Commission E, a federally appointed panel of experts that has reviewed more than 300 herbs and herbal combinations and approved more than 200 of them as safe and effective nonprescription medicines, might serve as a model for the United States. We need a system that allows consumers and health professionals to use and recommend herbal products that are properly labeled with therapeutic information that has been reviewed and approved by herbal experts. Only then can the herbal renaissance become a complete reality. ❁

Mark Blumenthal is founder and executive director of the American Botanical Council and edits HerbalGram *magazine.*

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Exhibit 6

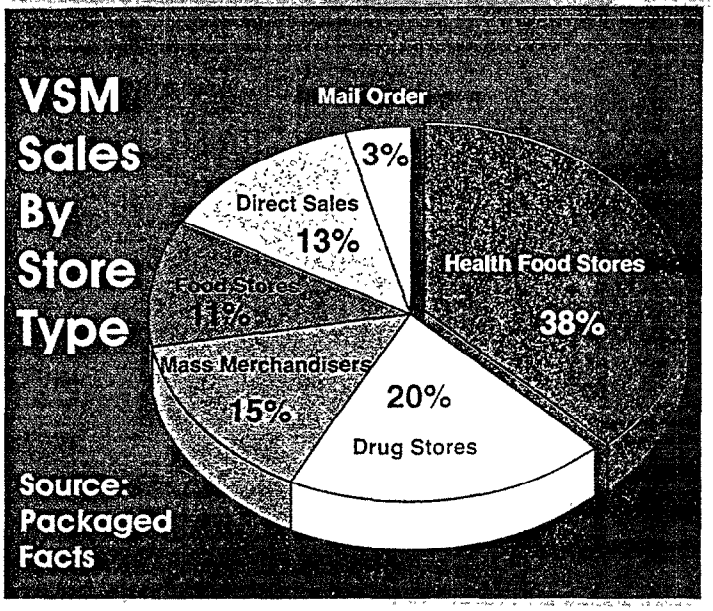
(Continued from page 6)

VSM Study

predicts.

Minerals tallied $725 million in sales last year, compared to $590 million in 1992. This represented a CAGR of 5.2%. Minerals generated 11% of VSM sales in 1996.

Sales of minerals are projected to be $840 million by the year 2001.



Breakdown By Store

Health and natural food stores remain the stronghold for VSM products, accounting for 38.1% of sales, the Packaged Facts report states. These stores will remain the top sellers of VSM products for some time, according to Packaged Facts, due to the fact that the industry is new-product driven. "The market entry cost for new products is much lower through this sector, and health and natural food retailers and consumers are better informed and have a higher level of interest is VSM products," the report states.

Among mass marketers, drug stores account for 20.2% of VSM sales, while mass merchandisers and food stores have a 14.8% and 10.8% share of sales, respectively.

The report states that while VSM sales through all channels are growing, the share of sales in both chain and independent drug stores and in supermarkets is declining in wake of gains by mass merchandisers (discounters/warehouse clubs and deep-discount drug stores) and food/drug combo stores. Both direct-selling and mail order are also showing a decline in market share (but not total sales), the report adds. The report also predicts that as technology improves, sales through the Internet -- "the modern equivalent of mail order" -- should grow.

Positive Factors

The passage of DSHEA, the introduction of new types of supplements and wider distribution were all cited by Packaged Facts as positive factors affecting market growth for VSM products. In addition, the report says that key demographic and lifestyle shifts in the U.S. -- notably aging baby boomers and growing interest in preventative medicine and self healthcare -- are driving this market.

Other factors supporting continued market growth include positive scientific research, and changing attitudes of the conventional medical community, the report stated.

Foreign Markets

According to the report, 1996 sales for the European VSM market surpassed $6.7 billion. Germany and France have the largest market shares at 26% and 21%, respectively, the report states. The United Kingdom follows with a 13% share, trailed by Italy (9%) and Spain (8%).

Garlic, ginkgo biloba and magnesium are said to be best sellers in Germany, while calcium, ginkgo and magnesium are top sellers in France. In the U.K., top selling products include cod liver oil, evening primrose oil, garlic and multivitamins, the report states.

The 300-page Packaged Facts report is priced at $2,250. For further information, call (800) 265-9836.

(Continued from page 6)

Expo West Report

voiced various frustrations. For one retailer whose store focused on nutritional supplements, the show seemed to have "too much food" and not enough space devoted to supplement exhibitors.

Others noted that the sheer size of this year's show made it impossible for one person to cover the whole show, despite expanded exhibit hours. The joke of the show was that a person could spend no more than one minute at each booth in order to visit all of the exhibitors.

Of course, the high amount of exhibitors -- which included a fair number of new companies -- was generally seen as a positive sign for the health food industry, representative of overall industry growth and the strength of the marketplace.

As for the exhibitors, the majority of companies on the trade show floor said they were pleased by booth traffic and the number of orders placed by retailers at the show. Still, some had a bone to pick about the "quality" of retailers who were allowed to attend the show. For example, Jery Cochern, President of Pure Essence Labs, a private label manufacturer, felt that many of the attendees granted green retailer badges were not "real" retailers. He related an incident in which a supposed retailer -- who actually worked at a bicycle shop that didn't sell supplements-- tied him up discussing products while some actual health food retailers passed right by his booth.

"I fully intend to return to the show, but it doesn't seem fair that the manufacturers pay for the shows (through their exhibit fees), but are then undermined because the 'green badges' are diluted by non-retailers," commented Cochern.

A Changing Climate?

According to Mark Kaylor, herbalist for Nature's Answer, the rea-

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November 20, 1996

David Kessler, M.D.
Commissioner
U.S. Food & Drug Administration
5600 Fishers Lane
Rockville, Maryland 20857-1706

Dr. Elizabeth Vetley
FDA - Office of Special Nutritionals
200 C Street Southwest
Washington, D.C. 20204

Re: Proposed GMP's Under DSHEA - What Is The FDA Doing?

Dear Dr. Kessler and Dr. Vetley:

I read recently that the FDA is about to adopt GMP's developed by several major industry trade groups including AHPA, CRN, NNFA and UNPA (See exhibit A). Given the fact that these trade associates and the individuals who are meeting to develop the GMP's also work for companies that make their living selling these products, what makes the FDA think that the GMP's being proposed will be valid Good Manufacturing Practices? For example, GNC continues to sell Herbal Diet Teas that contain OTC levels of senna and diuretics which the Food Advisory Commission to the FDA, not to mention the Herb Research Council, concluded was dangerous and a bad idea for people to use. Not withstanding these findings, in addition to selling these products, in the litigation I am involved in, and in which GNC is a defendant, they take the position that the levels of senna and other herbs used in these diet teas comply with Good Manufacturing Practices!

Similarly, several states have banned ephedra containing products that GNC continues to sell (See Exhibit B). I imagine that the Industry will contend that these products also comply with Good Manufacturing Practices given their present conduct.

Exhibit 7

COMMENTARY

The Numbers Look Good

People who are looking to invest in a particular business or industry will typically ask, "What do the numbers look like?" They want to know "the bottom line," meaning what kind of return they can reasonably expect from their investment.

Now, I'm certainly no expert market analyst, having only recently learned the difference between a "bull" and a "bear" market. But, based on some facts that recently came across my desk, I'd say that the outlook for those looking to invest in the dietary supplement industry -- or for those retailers and suppliers who are already a part of this marketplace -- is quite positive.

Yes, the "numbers" look good with respect to dietary supplements. What numbers? I'm referring to those numbers appearing in the annual "U.S. Market for Vitamins, Supplements and Minerals" report published by the New York-based research firm, Packaged Facts.

Our news story on this important report begins on page 6 of this month's issue. Some of the highlights I personally found most interesting include:

• 54% of the U.S. adult population used some type of dietary supplement product last year, up from 43% in 1993. This is a significant increase in supplement consumers in just a three-year period. It wasn't really very long ago that dietary supplements were considered by many people to be "unnecessary" or even "useless." Now, the majority of adult Americans use our industry's products!

• Total U.S. sales of vitamins, minerals and dietary supplements have increased by 75% for the five-year period ending in 1996, with overall sales now surpassing the $6.5 billion dollar level. And in the next five years, this amount will nearly double to $12.3 billion, Packaged Facts projects.

• More than 800 new dietary supplement products were launched in just the first 10 months of 1996, compared to 379 new products in all of 1992. This is a sign of a very robust industry.

• Despite increased retail competition and the rush among many dietary supplement suppliers to introduce their products to the mass market, health and natural food stores are still doing quite well. These stores command a 38% share of dietary supplement industry sales, ranking number one in supplement sales for all retail outlets. Their closest competitors (drug stores) came in a distant second at 20% of dietary supplement sales, followed by mass merchandisers and food stores. The main reasons cited for the strength of the health food stores were that these outlets do the best job of introducing new products and educating consumers about dietary supplements.

• Key demographics and lifestyle shifts bode well for the dietary supplement industry: aging baby boomers looking to "stay young," increased interest in preventive medicine and self health care, and less trust of the medical establishment. In addition, positive scientific research findings and changing attitudes toward dietary supplements among the conventional medical community are also positive signs.

These and other facts as presented in the Packaged Facts study all add up to a very bright outlook for our industry.

As I said, I wouldn't know Dean Witter even if I bumped into him while crossing Wall Street, but I'm prepared to issue a "buy" recommendation for dietary supplement companies and products. The numbers look very good!

DANIEL MCSWEENEY, PUBLISHER & EDITOR IN CHIEF

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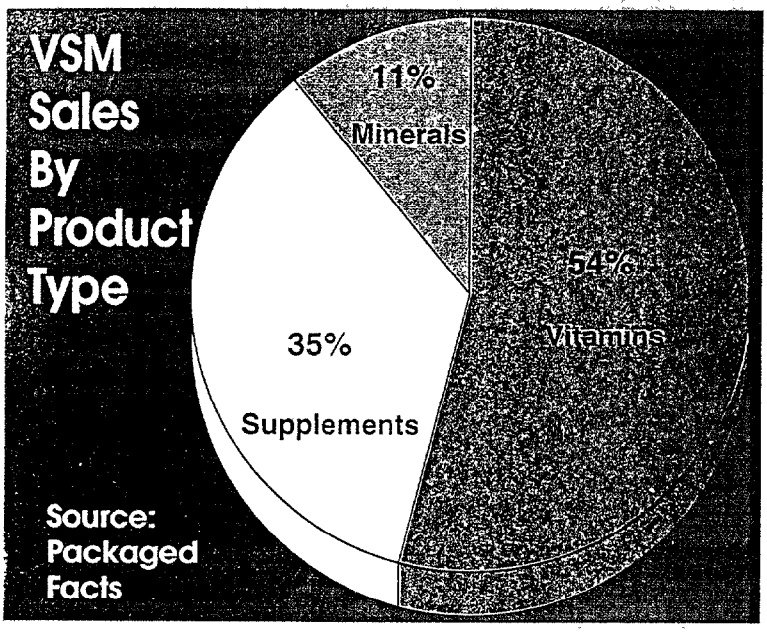
U.S. Dietary Supplement Sales Exceed $6.5 Billion, Report Says

Retail sales of vitamins, supplements and minerals (VSM) surged past $6.5 billion in 1996, according to a new report by the New York-based research firm Packaged Facts. The company's report, "The U.S. Market for Vitamins, Supplements and Minerals," was released last month.



According to Packaged Facts, sales of dietary supplements increased by 75% from 1992 to 1996 for a compound annual growth rate (CAGR) of 15%. Packaged Facts attributes this growth in large part to the passage of the Dietary Supplement Health and Education Act (DSHEA).

The fastest growing segment was supplements -- defined as herbal products, phytonutrients, essential fatty acids, hormones and other products -- whose sales more than quadrupled from $570 million in 1992 to $2.3 billion in 1996, for a 41.7% CAGR. Herbal supplements and "VSM" combos -- new combinations of vitamins, herbs and minerals -- are contributing to this category's growth, the report states.

By the year 2001, retail sales in the VSM market are expected to exceed $12.3 billion, for a CAGR from 1992 to 2001 of 14.2%, the report says.

The steady introduction of innovative products is a primary marketing trend in the VSM industry, Packaged Facts Notes. In 1990, only 357 VSM product were introduced, but well over 800 products were launched in the first 10 months of 1996, the report states.

In 1996, 54% of the U.S. adult population used vitamin, supplement or mineral products, up from 43% in 1993, according to Packaged Facts. Most U.S. adults who take VSM products are classified as "medium users," meaning they take a VSM product once a day, the report notes.

Breakdown By Product Type

In 1996, sales of vitamins were placed at $3.5 billion, compared to $2.57 billion in 1992 (8% CAGR). Vitamins accounted for 54% of total VSM sales, Packaged Facts reported.

Vitamin sales are expected to reach $4.5 billion by the year 2001, Packaged Facts states.

Supplements generated $2.3 billion in sales during 1996, a CAGR of almost 42% from 1992 when sales were placed at $570 million. These products accounted for 35% of all VSM sales in 1996, the report stated.

Supplement sales will reach $7 billion by the year 2001, the report

(Continued on page 8)

'Giant' Expo West Trade Show Reflects Strong Industry Growth

The blue skies and warm weather of Southern California are hard to resist, especially during early March when much of the country is still experiencing winter. Add in a business "excuse" for visiting the area, and it is hardly surprising to find that more than 24,000 health food industry members made the trek to Anaheim for last month's Natural Products Expo West trade show.

According to show organizer New Hope Communications, Boulder, CO, approximately 24,600 retailers, distributors, and other members of the natural products industry from around the country converged on Anaheim for the annual Expo West show. This represented an increase of approximately 2,000 from last year's attendance, New Hope said. This year's show featured some 1,200 exhibitors, which was 100 more than last year, organizers added.

Most observers said the foot traffic on the trade show floor kept up a steady pace throughout the three days of exhibits. Many exhibitors commented on the fact that the usual "ghost town" effect that tends to occur about an hour before the end of each exhibit day did not seem to happen at this show. They noted that even on the last day of the show, a steady stream of people kept going strong.

Bill Johnson from Henkel Corporation quipped: "If this is the 'go away day,' then no one's going away yet."

Success, But Some Frustration

The general feeling among exhibitors and attendees alike was that the show was a success. However, factions of the attendees

(Continued on page 8)

In short, isn't allowing the Dietary Supplement Industry to develop GMP's that will be adopted by the FDA like letting the fox guard the hen house? Worse, by abdicating this responsibility to trade associations which have been less than supportive of the FDA's attempts to regulate this industry, isn't the FDA placing the public in a potentially dangerous situation that the FDA has a responsibility to prevent?

As a trial lawyer with over a decade of experience in the asbestos litigation, there are numerous parallels between the trade associates involved in developing GMP's and the trade associations that were involved with safe asbestos threshold values. I can assure you, at no time did the asbestos associations propose guidelines that were pro-public safety. Given the tremendous amount of money involved in the dietary supplement industry, coupled with the fact that the individuals representing these trade organizations are employed by the very companies the FDA is attempting to regulate, it is inconceivable that these groups will be able to put aside their bias and develop GMP's that will provide the public with the protection they need and that the FDA has an obligation to provide.

Why can't the FDA engage people who are involved in conventional food industry to assist in developing GMP's especially since the GMP's presently in effect for dietary supplements are based on this industry's standards. For example, what is the Good Manufacturing Practice in the conventional food industry regarding the use of senna as a food additive? Does anyone in the FDA even know? Given GNC's contention that these Diet Teas comply, I suspect that the GMP for senna use will be a joke.

For example, according to the California FDB report, the conventional food industry reported using less than three hundred pounds of senna a year. According to sworn testimony of a Zuellig Botanical representative, who by the way, employs Dr. Fran Ertl, who is representing AHPA in developing new GMP's, Zuellig supplied an average of 500,000 pounds of senna to Laci Le Beau for use in its Super Dieter's Tea and for use in GNC's Twenty-Four Hour Diet Tea, re-branded by Laci Le Beau. As you may know, Dr. Ron Thompson, of GNC is representing both the CRN and NNFA is developing GMP's. These companies all maintain that the use of senna meets the appropriate GMP.

In addition to having experts from the conventional food industry involved, why not have experts from the American Botanical Association involved? Dr. Varro Tyler, one of the directors of the ABC has described the Diet Tea involved in my wife's death as a hoax. This is the same product that GNC and other companies claim complies with the Good Manufacturing Practices for the use of senna. Has anyone asked him to be

involved? (See Exhibit C)

In short, to proceed in the manner in which the FDA is heading, is but another step in the wrong direction by the FDA to see to it that this industry and the products it manufacturers are safe for public consumption.

Indeed, in light of recent news articles in which, the FDA took the position that it's hands are tied from doing anything to remove dangerous dietary supplements from the market until there is enough evidence to prove a product is dangerous, doesn't allowing this industry to propose GMP's increase this burden?

I hope that the FDA will see the folly and danger in allowing GMP's to be formulated in this fashion. If not, I hope that the FDA will at least tell the public the truth, i.e. that the FDA has no control of this industry and that the FDA has decided to let this industry regulate itself. This way, the public will at least know that things like GMP's were developed by biased people representing the industry that employes them instead of people who have the publics safety at heart.

As an aside, would you please provide me with notice so that I can provide a public comment before these new GMP's take effect. In fact, please include this letter in the comments opposing the GMP process in case I do not receive notice as has happened in the past with other FDA hearings.

Thank you.

Very truly yours,

Christopher E. Grell

CEG:yb

cc: See Attached List

4. 21 C.F.R. Part 7, Subpart C, "Recalls"
5. 21 U.S.C. § 381
6. New § 402(f)(1)(D) of the FDC Act, which cross-references § 402(a)(1) of the FDC Act, 21 U.S.C. § 342(a)(1)
7. 21 U.S.C. § 342(a)(3)
8. I want to be clear that I do not represent Alliance U.S.A. and that I have no direct knowledge of the merits of this particular matter, including whether Alliance U.S.A. may have had a sufficient basis to defend its product from FDA's allegations. My point in this paragraph is simply that sections 402(a)(1) and 402(f)(1)(A) of the FDC Act provide FDA a basis for taking prompt and aggressive regulatory action when it believes that a dietary supplement product is dangerous or otherwise unsafe for human consumption.
9. FDA Import Alert No. 54-04, "Automatic Detention of L-Tryptophan" (issued March 22, 1990 and still in effect)
10. I understand that there is a view that is strongly held by many within the dietary supplement industry that this import alert is an unreasonable and overly prohibitory measure, in that the problems that were experienced with L-tryptophan related to production of the ingredient by a particular company, and that there is no reason to believe that all L-tryptophan (which is, after all, an essential amino acid) is comprehensively unsafe. I am a lawyer and not a toxicologist, and I do not have the scientific experience to take a position on the merits of the factual allegations in this situation. My point in this paragraph, however, is simply that section 402(a)(3) has provided FDA an ample and sufficient basis for stopping altogether the introduction into United States commerce of a dietary ingredient to which the agency currently objects. (The same section of the law—i.e., section 402(a)(3) of the FDC Act — could also be used by FDA to support a civil seizure action or to recommend the initiation of an injunction action or a criminal prosecution with respect to a product that is in interstate commerce. 21 U.S.C. §§ 331-334.)
11. New section 413(c) of the FDC Act; 21 U.S.C. § 350b(c)
12. New section 413(a) of the FDC Act; 21 U.S.C. § 350b(a)
13. New section 402(f)(1)(B) of the FDC Act; 21 U.S.C. § 342(f)(1)(B)
14. New section 402(f)(1)(C); 21 U.S.C. § 342(f)(1)(C). If the Secretary declares a dietary supplement or dietary ingredient "to pose an imminent hazard," the agency must promptly thereafter conduct an administrative proceeding to review the merits of this conclusion. During the proceeding, however, the product could not be sold to the public. The law does not provide any similar "imminent hazard" authority to the Secretary with respect to conventional food products.
15. 21 U.S.C. § 342(a)(3), (4)

Stephen H. McNamara is a partner with the law firm of Hyman, Phelps & McNamara, P.C., a Washington, D.C., firm which generally confines its practice to assisting corporations and other law firms in matters that concern the regulation of foods, drugs, medical devices, cosmetics and related products.

FDA Accepts Supplement Industry GMP Proposal

New Good Manufacturing Practices Required Under DSHEA To Be Published for Public Comment

by Mark Blumenthal

The U.S. Food and Drug Administration (FDA) has acknowledged and will soon publish a proposal for good manufacturing practices (GMPs) developed by a coalition of organizations in the dietary supplement industry. In a mid-July meeting Dr. Elizabeth Yetley, Director of FDA Office of Special Nutritionals, announced that FDA would publish the proposed GMPs for public comment as an Advanced Notice of Proposed Rulemaking (ANPR) in the *Federal Register* within the next few months.

Until now, manufacturers of dietary supplements (which include vitamins, minerals, herbs and similar products) have been subject to the same GMPs as required for processors of conventional foods. Manufacturers of pharmaceuticals, on the other hand, must conform to much more stringent GMPs. Section 9 of the Dietary Supplement Health and Education Act of 1994 (DSHEA) authorizes FDA to establish new GMPs designed for dietary supplement products but based on current food GMPs.

Shortly after passage of DSHEA members of the four major industry trade groups that manufacture and market dietary supplements began to meet to develop GMPs. They are the American Herbal Products Association (AHPA), Council for Responsible Nutrition (CRN), the National Nutritional Foods Association (NNFA), and the Urah Natural Products Alliance (UNPA). The effort was chaired by Pul Bolar of Pharmavite Corporation, a member company of the Council for Responsible Nutrition, and was staffed by Dr. Annette Dickinson, CRN's Director of Scientific and Regulatory Affairs. Dr. Ron Thompson of General Nutrition Products participated as a representative of both CRN and NNFA. Michael McGuffin and Dr. Fran Ertl, and Jeff Hinrichs represented AHPA, and Loren Israelsen, Executive Director, represented UNPA.

GMPs are procedures that manufactures must follow to ensure quality control and quality assurance. GMPs include measures designed to assure sanitation of the manufacturing facility and all production equipment, testing or other procedures to ensure accurate identity and quantification of all ingredients, requirements to assure proper labeling, and other measures designed to assure that consumers are provided with safe, properly labeled dietary supplements.

According to NNFA Executive Director Michael Q. Ford, "FDA's acceptance of

our industry's draft is a giant step and a sign of the maturing of the industry's relations with the agency. A major goal of the framers of DSHEA was to see industry-backed standards as the starting point for GMPs with the force of law. By using our draft as an ANPR, FDA shows its respect for our industry that wants GMPs to be issued promptly."

At the mid-July meeting between FDA and members of the four organizations that compiled the draft GMPs, Dr. Yetley and Dr. Robert Moore of her staff indicated that they had circulated the industry's GMP proposal among FDA staff inside and outside the Center for Food Safety and Applied Nutrition. The ANPR when published will note some of the specific concerns raised by FDA and will invite comment on whether the public shares the same concerns.

SOME OF THE CONCERNS RAISED BY FDA ARE:

- The need for more specificity in various areas.
- Testing to assure identy, especially for botanicals. FDA recognized limits on industry's ability to identify some ingredients but nevertheless wants a more detailed approach.
- Defect Action Levels (DALs)—FDA is concerned about DALs for botanicals. DALs deal with maximum levels of foreign material that are allowed in botanicals, which in their crude state by nature are raw agriculture products. For many years the American Spice Trade Association has worked out with FDA the DALs for major spices imported into the U.S. FDA has questioned whether DALs set for spices are adequate for botanicals in dietary supplements.
- FDA staff questioned whether certification in lieu of testing of raw materials is adequate for filth, microbial content and identity of raw materials. That is, can a manufacturer or processor rely on a certificate of analysis supplied by a seller or importer as sufficient basis to determine the cleanliness and/or identity of an ingredient instead of performing new and in some cases potentially duplicated and redundant tests on all ingredients?
- FDA is concerned about review and handling of complaint filesand raised the question whether there is a need for medical evaluation of complaints.
- The Standard Operating Procedures (SOPs) of the proposed GMPs will not require records to exist to assure SOPs are followed. Are written records needed?
- Controls are necessary to assure that computer-assisted operations are working properly. FDA may require validation of such operations.

"It was clear to Dr. Ertl and myself as representatives of AHPA, that herbal ingredients present some unique challenges in the establishment of meaningful GMPs. Such issues as facility sanitation and record keeping are fairly standard for all dietary ingredients. When it comes to identification however, there are many herbs for which chemical analysis does not exist. Historically, manufacturers and practitioners have relied upon properly qualified staff to perform organoleptic [recognition by sight, smell, taste, etc.] analysis. We were able to make this point to the other committee members and to include language in the draft proposal to recognize the validity of such identification mechanicians. We look forward to continued communication and involvement now with FDA, as this and other issues will no doubt require further attention," said McGuffin.

When the GMPs are published in the *Federal Register* there will usually be a 90 to 120 day period for public comment after which FDA will publish proposed tentative GMPs. and ultimately a final regulation. Many manufacturers already will have geared their manufacturing procedures to accommodate the new standards by that time. The new level of GMPs will likely have little effect on many manufacturers of herbal products which already follow similar GMPs.

[Anonymous. 1996. FDA to Publish NNFA-Industry GMPs. Newport Beach, CA: National Nutritional Foods Assn., July 24.

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FDA HEARING PORTENDS UNCERTAIN FUTURE FOR MAHUANG

MEMBERS OF FDA PANEL DIVIDED ON FATE OF CONTROVERSIAL HERB

by Mark Blumenthal and Annette Dickinson, Ph.D.

The long saga of the controversial herb mahuang, also called ephedra (*Ephedra sinica),* continues. On August 27-28 the Food and Drug Administration (FDA) convened its Food Advisory Committee Meeting on Ephedra-Containing Dietary Supplements. A Special Ephedra Working Group, the members of which are considered consultants to the Food Advisory Committee, had met previously in October 1995 and had concluded with the recommendation that, despite numerous reports of adverse reactions to commercial dietary supplements containing the herb mahuang, the herb should not be banned, but, instead, the levels of the ephedra alkaloids should be limited per dose and per daily intake. The Working Group also made other recommendations, including the need for adequate warnings on ephedra-containing products, similar to what the herb industry had previously recommended (Blumenthal, 1996).

Despite a highly publicized death of a 20-year-old college student in March from a

Regarding what FDA will eventually propose, Ford says, "I think they'll come out somewhere between Canada's system and Dr. Croom's recommendations—no additives, lots of warnings, low dose, no claims. If this happens, this could kill this product category. There has been a lot of irresponsibility in the industry by both suppliers and retailers. There have been too many suppliers that have not used the quality control that they should and have not used the warning language that they should. Many retailers have not taken the time to acquaint themselves with the safety problems associated with these products and inform their customers about the potential adverse effects. The FDA may be the one who may be taking this product category away, but industry needs to take a hard look at its own quarters in this area." (Ford, 1996) ❑

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Mark Blumenthal is Founder and E ecutive Director of ABC and Editor of Her alGram. Annette Dickinson is Director Scientific and Regulatory Affairs at the Cou cil for Responsible Nutrition in Washingto D.C.

NEBRASKA LAW CRIMINALIZES MA HUANG

Bowing to pressure from the Nebraska Pharmacists Association, the Nebraska Legislature passed a law July 17, 1996, categorizing any material, compound, mixture, or preparation containing any quantity of ephedrine, its salts, optical isomers, and salts of optical isomers as a Schedule IV controlled substance. Schedule IV controlled substances may only be dispensed with a written prescription.

Exempted from Schedule IV status under the new law are ephedrine-containing drug products which may be lawfully sold over-the-counter (OTC) without a prescription under the Federal Food, Drug, and Cosmetic Act; are labeled and marketed in compliance with an FDA-issued OTC final monograph or tentative final monograph (i.e., OTC bronchodilator products); are manufactured and distributed for "legitimate medicinal use" in a manner which reduces or eliminates the likelihood of abuse; and are not marketed, advertised or labeled for the indications of stimulation, mental alertness, weight loss, muscle enhancement, appetite control, or energy.

As enacted, this law will prohibit the sales of *all dietary supplements* containing ephedra or ma huang (*Ephedra sinica*), regardless of the product claims, although FDA-approved *OTC drug products* properly labeled and marketed may remain on store shelves.

The Nebraska Pharmacists Association has circulated the following list of ephedra-containing products "marketed for vitality, energy, improvement of lean muscle mass, etc.," which would be subject to Schedule IV status, to many retailers, including health food stores, in Nebraska:

24 Hour Diet DietGels
Buzz's Bombers
Chi Power
Diet Max
Diet Fuel
Ener-Max
Energy Rise
Ephedrine-Plus
Excel Energy
Extra Strength Guarana
Mega Ripped
Metabolift
Nepegen
ProLift
ProRipped
Quick Shot EnerGels
Ripped Fuel
Super Chromaplex
ThermoGenics Plus -adrenal support
Ultra Diet Pep
Up Your Gas

This list does not cover all products affected by the law which are sold in the herb and health food markets. The law went into effect July 19, 1996.

The Nebraska State Patrol has been informed of the change in the law and may enter health food stores to determine compliance. Possession and sale of ephedrine-containing products not exempt from Schedule IV status may result in felony prosecution.

[Anon. 1996. Nebraska Enacts Ephedrine Law to Go Into Effect July 19, 1996. NNFA, Newport Beach, California.

Stolzer, S. 1996. Personal communication. July 22.] ❑

LATE BREAKING NEWS

ABC Names New Advisory Board

Tyler Elected to Board of Trustees

The Board of Trustees of the American Botanical Council in June announced the formation of ABC's new Advisory Board. This group constitutes some of the leading researchers and educators in North America in areas related to herbs and medicinal plants. The ABC Advisory Board members will assist in suggesting and planning research and educational projects and publications as well as provide peer review for *HerbalGram*.

The Board of Trustees also announced the election of Varro E. Tyler, Ph.D., as a trustee. Tyler is the Lilly Distinguished Professor of Pharmacognosy at Purdue University and author of several leading herbal books.

The members of the new ABC Advisory Board are listed below. Additional member will be added in the future.

Dennis V. C. Awang, Ph.D., F.C.I.C., MediPlant Natural Products Consulting Services, Ottawa, Ontario, Canada

Michael J. Balick, Director of the Institute of Economic Botany, the New York Botanical Garden, Bronx, New York

Joseph M. Betz, Ph.D., Research Chemist, Center for Food Safety and Applied Nutrition, Division of Natural Products, Food and Drug Administration, Washington, D.C.

Donald J. Brown, N.D., Director, Natural Products Research Consultants, Faculty, Bastyr University, Seattle, Washington

Manuel F. Balandrin, R.Ph., Ph.D., Research Scientist, NPS Pharmaceuticals, Salt Lake City, Utah

Thomas J. Carlson, M.S., M.D., Senior Director, Ethnobiomedical Field Research, Shaman Pharmaceuticals, South San Francisco, California

Jean Carper, Author and syndicated columnist, Washington, D.C.

Jerry Cott, Ph.D., Chief of Pharmacological Treatment Research Program. National Institute of Mental Health, Rockville, Maryland

Paul Alan Cox, Ph.D., Professor of Botany and Dean of General Education and Honors, Brigham Young University, Provo, Utah

Lyle E. Craker, Ph.D., Professor, Department of Plant and Soil Sciences, University of Massachusetts, Amherst, Massachusetts

Edward M. Croom, Jr., Ph.D., Coordinator, Phytomedicine Project, National Center for the Development of Natural Products, University of Mississippi, Oxford, Mississippi

Wade Davis, Ph.D., Author, ethnobotanist, Washington, D.C.

Steven Dentali, Ph.D., Natural Products Consultant, Portland, Oregon

Hardy Eshbaugh, Ph.D., Professor of Botany & Assistant Curator, Willard Sherman Turrell Herbarium, Miami University, Oxford, Ohio

Steven Foster, Botanist, photographer, author, Fayetteville, Arkansas

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