NEW YORK CITY DEPARTMENT OF CONSUMER AFFAIRS'

HEALTH FOOD STORES INVESTIGATION

JANUARY 17, 1983

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I. ABSTRACT

In accordance with the New York City Department of Consumer Affairs' mandate to educate consumers and to prevent fraud and deception in the marketplace, the Agency conducted a three-month investigation of City health food stores. Twenty-three health food businesses located throughout the five boroughs were visited from September through November, 1982, in order to ascertain what these stores sell and how their merchandise compares, in quality and price, with items sold by other businesses.

II. BACKGROUND

The only simple definition of a health food store is tautological: health food stores sell "health foods" and other "health" products. The liberal use of the adjective "health" by these stores is apparently intended to distinguish their merchandise from that of other establishments, which is presumably "unhealthy," or at least not as beneficial to the consumer's health.

In 1981, nationwide retail sales for health food stores totalled nearly two billion dollars. Of total health food store sales, "food products" account for 50.2 percent, "vitamins and supplements" account for 36 percent, and "appliances, body care items, books and other non-ingestible items" account for the remaining 13.8 percent.[1] As evidenced by their allotment of display space, the New York City health food stores visited by the Department conform with the national norm by predominantly selling: 1) food products and 2) vitamins, supplements, diet aids and other items in pill, capsule or powder form.

The Department focused its investigation on these two categories of health food stores' merchandise. The Department noted that, in the case of both categories, much of the merchandise sold by health food stores was <u>at least superficially</u> similar to items sold by conventional food markets

and pharmacies. For example, every item found in the Department's biweekly "Market Basket" report on current food market prices, with the exception of some meats, Coca-cola and beer, had a counterpart sold in at least one of the health food stores visited. Likewise, nearly every food item sold by health food stores, with exceptions such as loose grains, nuts and beans, and herbal teas and other beverages, had a counterpart which could be found in a large supermarket. In the case of non-food items, health food stores were found to be selling various vitamin types which are also sold in most pharmacies.

The claims and representations of health food businesses, proponents and manufacturers were then researched to determine how health food merchandise can be distinguished from conventional counterparts, and why it is supposedly "healthier" for consumers.

In the case of non-animal products, the primary claim made is that the health food store items are better because they are "organic," "organically grown," or are made from "organic" ingredients. Neither the Federal Trade Commission nor the Food and Drug Administration has established legal definitions of these terms, but the commonly understood meaning (which many health food manufacturers and store owners reiterate on their labels and advertising) is that "organically grown" foods are raised without the use of chemical fertilizers and the application of pesticides. Packages of Arrowhead Whole Wheat Flour, for example, include the following statement in their labels:

> Arrowhead Mills' wheat is grown by farmers who care about the soil and about the quality of your food. Crops grown on fertile soil in harmony with nature, without the use of pesticides, herbicides and acidulated fertilizers, and with the use of soil building materials, good cultivation practices and beneficial insects -- that is what Arrowhead Mills is all about.

Robert Rodale, president and publisher of the Rodale Press, a leading proponent of "organic" food, provided a succinct definition of the term during hearings in New York City in 1972:

> What is Organically-Grown Food? Organically-grown food is food grown without pesticides; grown without artificial fertilizers; grown in soil whose humus content is increased by the additions of organic matter; grown in soil whose mineral content is increased with applications of natural mineral fertilizers; has not been treated with preservatives, hormones, antibiotics, etc.[2]

The three most frequent claims proponents make for the advantages of organic food over conventionally grown food are that the former is more nutritious, safer to eat and better tasting.[3] Health food proponents assert that the growing techniques of organic farming bestow nutritional superiority upon its produce in some demonstrable manner, and that the avoidance of pesticide use renders the food safer for consumption. Matters of taste are of course subjective, but it is often claimed that organically grown food is superior to conventional food in this additional respect.

Nine of the 23 stores visited by the Department sold meat, fish and poultry in addition to dairy products (all 23 of the stores sold at least one type of dairy product). The common claim made for these animal products is that the animals are not treated with drugs, which leave residues in the animal tissues, rendering them unhealthy for human consumption. The animals are also claimed to be supplied with organically grown feed, thus producing "secondary" health benefits for the consumer. For example, the Shiloh Farms company prints this assertion on the labels of their egg cartons:

> These fertile eggs are laid by flocks which are fed with a complete natural mineralized ration which is without the addition of antibiotics, arsenicals or sulpha drugs.

The "vitamins and supplements" category of health food store merchandise included items that both could and could not be found in many pharmacies. For

example, various vitamins for which a Recommended Daily Allowance has been established by the National Academy of Sciences are sold in both health food stores and pharmacies, as are diet aids such as "starch blockers." Some vitamins sold in health food stores are distinguished from those sold by other businesses by being labeled as "natural" or "organic."

Also sold by health food stores were a wide variety of non-food, ingestible items not commonly sold by pharmacies, which will be extensively discussed in the "Results" section of this report.

Having established the parameters of the merchandise to be investigated, the Department proceeded to compare the current cost of this merchandise with its conventional counterparts, and to examine the validity of the claims made for the physical benefits of health food store products. The Department's procedures are outlined in the following "Methodology" section.

III. METHODOLOGY

Table I summarizes the results of a health/conventional foods price survey, in which the Department noted the cost for consumers of various health foods at 23 health food stores, and conventional foods at 10 conventional food markets. The Department also made use of the Market Basket survey to obtain average prices for some conventional food items. The Department tried to match conventional food items as closely as possible with their health food store correlatives in terms of weight and composition. For example, the Department compared a frozen nine-ounce package of Bird's Eye Cut Green Beans (ingredients: "cut green beans") with a nine-ounce package of Health Valley Green Beans (ingredients: "organically grown green beans"). The Department was not able to find every item surveyed in every health food store visited, but the health food store price listed is the average of at least eight stores. Where a specific brand name is not listed for an item in Table I, the Department priced the most inexpensive brand of that item found in a store.

The Department also compared prices for vitamins sold at health food stores and at pharmacies. The results are shown in Table III. Vitamin prices for five popular types were determined at 10 health food stores and 11 pharmacies. Each listed price is the average of at least seven health food stores and seven pharmacies. The least expensive brand in each store was priced.

An alleged advantage of organically grown food is that it is free from traces or residues of pesticides, because it is grown without them. The Department researched the scientific evidence for and against this claim. For further information, the Department commissioned Fitelson Laboratories, Inc. of New York City, a firm of analytical and consulting chemists, to determine the level of chlorinated pesticide residues for six food samples: conventionally grown apples, green cabbage and whole wheat flour, and organically grown apples, green cabbage, and whole wheat flour processed from organically grown wheat. The first three items were purchased at conventional food markets; the last three were purchased at health food stores. The "chlorinated hydrocarbons" test conducted by Fitelson Laboratories detects the residue levels of 16 frequently used pesticides. The test does not detect the presence of all pesticides currently in use, but it provides an indicator of the general pesticide contamination of foods and is a standard test for this purpose. The laboratory report is reproduced in Table II.

Tables I, II, and III and a summary of the Department's research and investigations constitute the "Results" section of the report.

IV. RESULTS: A. FOOD ITEMS

TABLE I

"HEALTH FOODS/CONVENTIONAL FOODS PRICE COMPARISONS"

FOOD ITEMS	CONVENTIONAL FOOD PRICES (AVERAGE OF AT LEAST 10 STORES, EXCEPT WHERE NOTED)	HEALTH FOODS PRICES (AVERAGE OF AT LEAST 8 STORES)	PERCENT DIFFERENCE
Brown Rice, Long Grain (16 ounces)	$ .80	$1.42	+ 77.5%
Whole Wheat Flour (5 pounds)	1.44 (Gold Medal)	2.85	+ 97.9%
Barley (Raw) (1-pound package)	.48 (Jack Rabbit)	1.10	+129.2%
Meats/Fish			
Tuna Fish (Albacore, Solid White, Packaged in Water, 6.5 ounces)	1.13* (Star-Kist)	3.27 (Health Valley)	+189.3%
Whole Chicken (1 pound)	.75*	2.58	+244.0%
Leg of Lamb (1 pound)	1.79	5.38	+200.1%
Haddock, Fillet (1 pound)	2.59	4.43	+ 71.0%
Dairy			
Eggs, Extra Large (1 dozen)	1.09	1.92	+ 76.1%
Butter, Stick (1 pound)	2.33*	4.18	+ 79.4%
Cream Cheese (8 ounces)	1.08	2.21	+104.6%

"HEALTH FOODS/CONVENTIONAL FOODS PRICE COMPARISONS"

FOOD ITEMS	CONVENTIONAL FOOD PRICES (AVERAGE OF AT LEAST 10 STORES, EXCEPT WHERE NOTED)	HEALTH FOODS PRICES (AVERAGE OF AT LEAST 8 STORES)	PERCENT DIFFERENCE
Fruits/Vegetables - Fresh			
Apples, Macintosh (1 pound)	$ .69*	$1.10	+ 59.4%
Bananas (1 pound)	.36*	.89	+147.2%
Broccoli (1 pound)	.66	1.39	+110.6%
Cabbage, Green (1 pound)	.23	.77	+234.8%
Carrots (1 pound)	.32*	.58	+ 81.3%
Eggplant (1 pound)	.62	.84	+ 35.5%
Potatoes, White, Loose (1 pound)	.41	.84	+104.9%
Tomatoes (1 pound)	.91	1.21	+ 33.0%
Zucchini (1 pound)	.85	1.36	+ 60.0%
Lemons (1 pound)	.54	1.13	+109.3%
Grapes, Green (1 pound)	.93	1.89	+103.2%

"HEALTH FOODS/CONVENTIONAL FOODS PRICE COMPARISONS"

FOOD ITEMS	CONVENTIONAL FOOD PRICES (AVERAGE OF AT LEAST 10 STORES, EXCEPT WHERE NOTED)	HEALTH FOODS PRICES (AVERAGE OF AT LEAST 8 STORES)	PERCENT DIFFERENCE
Fruits/Vegetables - Processed			
Orange Juice (1 quart)	$1.01 (Tropicana)	$1.94	+ 92.1%
Tofu (1 pound)	1.59[1]	1.57	- 1.3%
Green Beans, Frozen (9 ounces)	.64* (Bird's Eye)	1.10 (Health Valley)	+ 71.9%
Corn, Frozen (10 ounces)	.73	1.20 (Health Valley)	+ 64.4%
Raisins (1 pound)	1.82	2.64	+ 45.1%
Chick Peas, Dried (1 pound)	.90 (Jack Rabbit)	1.79	+ 98.9%
Red Kidney Beans, Dried (1 pound)	.60 (Jack Rabbit)	1.41	+135.0%
Lima Beans, Dried (1 pound)	.79	1.43	+ 81.0%
Other			
Honey - Clover (1 lb.)	1.60	2.11	+ 24.2%

* Prices from Market Basket Survey, September 13 - September 24, 1982.

1 Average of four stores.

The results of the health foods/conventional foods price comparison survey as shown in Table I (pp. 6-8) demonstrate that health foods are generally much more expensive than conventional counterparts. Often they cost twice as much or more. Only in the case of tofu was the health food store variety cheaper than its conventional counterpart; in the most extreme case, that of beef liver, the health food variety cost 438 percent more than its conventional counterpart.

What do consumers purchasing health foods get for costs so much greater than conventional foods? After careful consideration of the literature of health food proponents and detractors, the Department has concluded that no demonstrable health benefits are to be accrued from the consumption of "health" instead of conventional foods. We base this statement on the conclusion that the best scientific evidence can show no differences between health, (i.e., organic food) and conventional foods in terms of nutritional value and pesticide contamination.

Health foods are claimed to be better than conventional foods because they are organically grown. Before considering the validity of this claim, we will point out that we did not concern ourselves with the possible environmental consequences of organic or conventional farming. The broader effects that manmade fertilizers and/or pesticides may produce were excluded from our investigation; we focused solely on the claimed advantages for the consumer of <u>eating</u> health foods.

The Department assumed that the products surveyed in the health food stores investigated actually were "organic," but we should point out that accusations of fraudulent practices in the health food industry, in which foods raised with pesticides and/or chemical fertilizers are passed off as "organic" foods and sold at premium prices, have been made.[4]

The possiblility for fraud certainly exists, because produce grown organically is physically indistinguishable from other produce.[5] But is it chemically indistinguishable? In terms of nutrition, there is no detectable difference between organically grown foods and those grown by conventional methods using inorganic chemicals. The scientific evidence backing this assertion is quite substantial.[6]

The nutritional value of a plant cannot be significantly affected by the use of organic fertilizers instead of balanced chemical fertilizers, or vice versa. Plants absorb nutrients for growth in inorganic form, regardless of the nutrients' source. Thus organic fertilizers must decompose into inorganic form before plants can utilize them. The nutritional composition of any plant is largely determined by its genes, and any differences among plants of the same species depend on climate, nutrients available for growth and their age at harvest.[7]

The Department further concluded that there is no good evidence that organically grown foods are safer for consumption than their conventional counterparts because they are free of pesticide residues. Testimony by the director of the Food Laboratories of the New York State Department of Agriculture and Markets in 1972 suggested that of the conventional food items tested by food chemists for pesticide contamination, 20 percent are found to have trace residues, and one percent have levels in excess of federal and state tolerances. For organically grown foods, the contamination figures are essentially the same.[8]

The laboratory test commissioned by the Department (Table II, pp. 11 & 12) detected no pesticide residues in either the health or conventional foods.

TABLE II: "CHLORINATED HYDROCARBON TEST RESULTS"

FITELSON LABORATORIES, INC.
350 WEST 31st STREET NEW YORK, N. Y. 10001
CONSULTING AND ANALYTICAL CHEMISTS
(212) OX 5-0765

REPORT #50365
December 10, 1982

FOR: City of New York,
Department of Consumer Affairs
80 Lafayette Street
New York, NY 10013

PRODUCT: Various products as below

SAMPLES: Apples: three each from a supermarket (labeled A-SM) and a health food store (labeled A-HF)

Cabbage: one each from a supermarket (labeled C-SM) and a health food store (labeled C-HF)

Flour: one five pound bag of Gold Medal Whole Wheat Flour from a supermarket (labeled F-SM) and one two pound bag of Olde Mill Stone Ground Whole Wheat Flour from a health food store (labeled F-HF)

ANALYSIS: For chlorinated pesticides

RESULTS: (Reported as ppm on whole product basis)

SAMPLE	FOUND
A-SM	None Detected
A-HF	None Detected
C-SM	None Detected
C-HF	None Detected
F-SM	None Detected
F-HF	None Detected

COMMENTS: All six samples are free of chlorinated pesticides.

Warren L. Smith
WARREN L. SMITH
Director

FITELSON LABORATORIES, INC.
350 WEST 31st STREET NEW YORK, N. Y. 10001
CONSULTING AND ANALYTICAL CHEMISTS
(212) 695-0765

December 10, 1982

Mr. David Cohen
City of New York,
Department of Consumer Affairs
80 Lafayette Street
New York, New York 10013

Dear Mr. Cohen:

The chlorinated pesticides below are screened in our multiresidue extraction and cleanup procedure. Therefore, the samples tested (Report #50365) did not contain any of the pesticides listed below, always checked for, but only included in the report when specifically requested.

SUMMARY OF CHLORINATED PESTICIDES

Reference: Pesticide Analytical Manual, Volume I, Foods and Feeds

The following pesticides are screened using the AOAC multiresidue extraction and cleanup methods:

Aldrin and Dieldrin
BHC; benzene hexachloride: alpha, beta, gamma, and delta isomers
Chlordane
DBCP; dibromochloropropane
DDT op'; 1,1,1-trichloro-2-(o-chloraphenyl)-2-2(p-chlorophenyl)ethane
DDT pp'; 1,1,1-trichloro-2,2-bis(p-chlorophenyl)ethane
Endrin; hexachloroepoxyoctahydro-endo
Fenthion; Baytex
Heptachlor and Heptachlor Epoxide
Kepone
Methoxychlor
Mirex
PCB's; Polychlorinated Biphenyls
Perthane
Toxaphene
Degradation products of DDT: DDD, DDE, and TDE

Sincerely,
Warren L. Smith
WARREN L. SMITH
Director

The test results do not substantiate the claim that health foods are any safer for consumers. It should further be noted that proper pesticide application techniques and processing procedures for conventionally grown foods should largely guarantee pesticide residue levels below accepted tolerance levels.[9] In the majority of cases, government agencies and the food industry test foods that are already suspected of pesticide contamination.[10] In all probability a much smaller percentage of all conventional foods on the market have significant pesticide residues than the 20 percent of those that are tested. Based on the above information, the Department concludes that there is nothing surprising about the absence of pesticide residues found in the conventional foods the Agency had tested.

As stated above, pesticide residues have been found in organic foods. Why would foods grown without the use of pesticides contain such residues? One reason is that the Earth's biosphere is by now thoroughly permeated with certain non - and slowly-biodegradable chemicals; polar bears in the North Pole have (slowly declining) DDT levels in their systems.[11] Even if no pesticides are used on a particular crop, many chemical pesticide residues remain in the soil for years after the last application of a pesticide on a previous crop. In addition, fresh pesticide residues can be deposited from drifting sprays and dusts or from rainfall runoff from neighboring farms.[12]

As stated in the "Background" section of this report, the animal products sold by health food stores are claimed to be superior because hormones, antibiotics and other drugs are not given to the animals. Professor Thomas Jukes of the Division of Medical Physics and Department of Nutritional Science, University of California (Berkeley), denies that the consumption of health food animal products is healthier for humans than the consumption of conventional animal products:

> Hormones are always present in foods of animal origin, and many vegetable foods (such as wheat, soybeans, green leaves, and vegetable oils) contain substances with estrogenic hormone activity as shown by feeding to immature mice. Antibiotics are used for farm animals to prevent disease. Some of the disease organisms which this use controls are potential threats to human health. The residues in meat, if present, are in some cases too small to detect, in other cases are destroyed by cooking, in all cases are regulated to low tolerance levels, and have not been shown to be deleterious to consumers.[13]

The eggs sold in the health food stores visited by the Department were fertilized; their prices were compared with those of the unfertilized eggs. Claims have been made in health food literature that fertile eggs are more nutritious than unfertilized ones, but Professor Jukes characterizes this claim as "nonsense,"[14] and adds:

> Fertile and infertile eggs are indistinguishable from each other nutritionally, unless the fertile eggs have been held in warm surroundings so that the embryo can start developing. If this takes place, these eggs are illegal for sale when the embryo reaches dimensions that can be detected on candling the eggs. The embryo may then be seen as what is known technically as a "meat spot," which is taken to indicate that the egg is inedible.[15]

Another claim made for health foods, necessarily of a subjective nature, must be largely discounted. This is that health foods taste better than conventional foods. In a study conducted at the University of Florida in 1974,[16] a taste panel judged health and conventional foods on the basis of odor, flavor, texture, color and overall acceptance. None of the 25 health foods was found to fare significantly better in overall acceptance than its conventional counterpart.

In summation, health foods do not differ significantly from conventional foods in terms of nutritional value, pesticide residue levels, appearance and taste. The major difference the Department found between health foods and conventional foods is the much higher cost of the former.

TABLE III

"VITAMIN PRICES: HEALTH FOOD STORES AND PHARMACIES"

VITAMINS	PHARMACY PRICES (AVERAGE OF AT LEAST 7 STORES)	HEALTH FOOD STORE PRICES (AVERAGE OF AT LEAST 7 STORES)	PERCENT DIFFERENCE
Vitamin A -(10,000 I.U., 100 capsules)	$ 2.47	$ 2.55	+ 3.2%
Vitamin B_{12} -(100 mcg, 100 tablets)	2.62	2.69	+ 2.7%
Vitamin C -(500 mg, 100 capsules)	5.42	5.95	+ 9.8%
Vitamin C -(500 mg, 100 tables)	3.01	4.26	+41.5
Vitamin E -(400 I.U., 100 Capsules)	6.79	11.02	+62.3%

The results of the vitamin pricing survey as shown in Table III (p. 15) indicate that health food store vitamins are more expensive than those sold in pharmacies, although the cost differential is not as great as it is for health and conventional foods. Some vitamin brands found in health food stores were also found in the pharmacies surveyed; there was no such overlap in the food surveyed.

Many health food vitamins are labeled as "organic" or "natural." This is an essentially meaningless claim, since vitamins are inorganic chemicals, and are absorbed by the body as such.[17] The "natural" vitamins are generally more expensive than their conventional counterparts.

Health food stores proclaim themselves to be purveyors of physical well-being. Yet the Department observed substances for sale at these stores which have been associated with health dangers. Dolomite and bone meal were observed for sale in many health food stores; studies have found samples of the substances to contain high levels of lead.[18] Kelp tablets have often been found to contain high levels of arsenic.[19]

Fifteen of the health food stores surveyed were checked to see if starch blockers were being sold on the premises; ten were selling them. The Food and Drug Administration has banned starch blockers on the ground that they are an untested drug whose use has led to cases of serious illness. Also sold was "The University Diet " and other protein powders intended as a meal substitute which provides a dangerously low number of calories.[20]

All the health food stores visited sold many "pseudo-vitamins," which we will define as substances which are needed by the body in such tiny quantities or which are so widely prevalent in everyday foods that a deficiency in humans is highly unlikely, or substances that the body produces by itself, or substances that aren't needed by the body at all. These pseudo-vitamins were freely mixed in among the legitimate ones on health foods stores' shelves.

Dr. Richard Jacobs, Chief of the Food and Drug Administration's Nutrient Toxicity Section of the Bureau of Foods, offered these comments about certain pseudo-vitamins we observed for sale at health food stores:[21]

Apple Pectate - "A carbohydrate-type material. It's non-digestible and non-absorbable ... a non-essential nutrient."

Superoxide Dismutase - "Totally useless when taken orally."

Dolomite - "We are currently investigating the lead content of dolomite pills ... I don't recommend them to anyone ... basically rock powder ... The tablets frequently go through the digestive tract completely undigested."

Garlic - "Certain folk claims exist about its worth, but that's about it."

Selenium - "It's an essential nutrient, but it's needed in extremely small amounts. Deficiencies have only been noted in certain areas of China ... The margin of safety between the amount needed for nutrition and the amount which is known to be toxic is rather small, so it could even be dangerous to take selenium pills."

Biotin - "Essential, but it's extremely difficult to produce a deficiency in a human being."

Molybdenum - "There is no record that there has ever been a deficiency."

Rutin - "You wouldn't need it unless your secretory glands in your stomach weren't producing any acid, and then you would be a very sick person."

Choline - "Your body makes it."

Sodium Alginate - "It is an extract of seaweed. Maybe a pill would have a little food value, but eating pills is a very expensive way to feed yourself."

Pancreas, Pituary, Female and Male Reproductive Organs, and other freeze-dried animal organ parts - "They might have food value, but that is it."

The cost of these pseudo-items should also be considered; fifty tablets of selenium cost $7.25 at one health food store. Rutin, which Dr. Jacobs described as of "no nutritional value," cost $4.49 for 50 pills at another store.

The Department also observed vitamins being sold in dosages far in excess of the body's needs. Tablets of Vitamin B_{12} in dosages of 1000 mcg were noted; as the label of the vitamins listed, this is 16,666% of the Recommended Daily

Allowance for B_{12}. Almost all of such a tablet would pass through the body unused.

Pills, capsules, powders and other non-food ingestible items comprise 36 percent of health food stores' retail sales.[22] Yet legitimate vitamins sold by these stores are readily available elsewhere at lower prices, and the vast selection of pseudo-vitamins, diet aids, ridiculously high-dosage vitamins, and other substances sold by these stores further puts into doubt their reputability as purveyors of health and well-being.

V. SUMMARY AND CONCLUSIONS

Our survey of comparative prices at health food stores and conventional food markets determined that health foods are generally much more expensive than their conventional food counterparts. Often they cost two times as much or more.

Yet in most cases health foods are in no way demonstrably superior to their cheaper conventional counterparts. The weight of scientific evidence suggests that health foods grown without the use of pesticides or chemical fertilizers (i.e., "organic foods") are indistinguishable from conventional foods in terms of nutritional composition, appearance and taste. To compare pesticide residue levels in health and conventional foods, the Department commissioned a food laboratory to conduct an analysis of six items; there were no pesticides detected in either the conventional or the health foods.

Our conclusion is that most "health" foods are no healthier than conventional foods unlabeled with the adjective; in fact, they are often indistinguishable. Consumers should be wary of paying premium prices for the nonexistent advantages of health foods.

The vitamins sold by health food stores are also more expensive than their conventional counterparts, as a pricing survey of the stores and pharmacies demonstrated. Of greater concern is the fact that health food stores also sell a

vast array of pseudo-vitamins, diet aids and other non-food ingestible items. These items are nutritionally worthless, and in some cases, dangerous -- qualities hardly associated with the word "health." We must ask how an industry which claims to promote physical well-being can traffic in items like starch blockers, kelp, dolomite, and the "University Diet," all of which could be the cause of illnesses. We concluded that consumers will do little to aid their health by shopping at overpriced health food stores. They may even harm it.

ADDENDUM

A. PESTICIDE RESIDUE TESTS

To obtain further independent scientific evidence, the Department commissioned Industrial Testing Laboratories of New York City to determine the level of chlorinated pesticides for three sets of additional food samples: carrots, dried red kidney beans, and zucchini. The laboratory's report is reproduced in TABLE IV.

Pesticide residues were detected in the organically grown zucchini and the conventionally grown carrots. No pesticide residues were detected in any of the other foods. These test results lend further evidence to the Department's belief that health foods are not any safer for consumers than conventional foods. Of the six pairs of items tested by the two laboratories, one of the organically grown foods and one of the conventional foods had pesticide residues; in both cases, the residue levels were well below established tolerance levels.

The conventionally grown carrots contained traces of either an isomer of DDT or another pesticide, Dieldrin. Both DDT and Dieldrin have been banned by the Environmental Protection Agency, and are not currently in use. Thus the traces found in the carrots were in all probability absorbed from soil which had been treated with the pesticides years beforehand.

Two pesticides were detected in the organically grown zucchini: the alpha isomer of BHC and Endosulfan. Both of these pesticides are legal and in current use. There are two possible explanations why the zucchini, which is claimed to have been grown without the use of pesticides, was found to contain pesticide residues: either pesticides <u>were</u> knowingly applied to the zucchini, or the pesticides came from the outer environment of the land on which the zucchini was grown (see p. 13).

Founded 1887

INDUSTRIAL TESTING LABORATORIES

Analytical and Consulting Chemists

50 MADISON AVENUE, NEW YORK, N.Y. 10010
AND
JFK INTERNATIONAL AIRPORT, BLDG. 157, JAMAICA, N.Y. 11430
(212) 685-8788

TABLE IV

- C E R T I F I C A T E O F A N A L Y S I S -

January 17, 1983 — 83-01-009

Dept. of Consumer Affairs — Verbal

Health Food Stores: Red kidney beans, Zucchini, Carrots — January 7, 1983

Supermarkets: Red kidney beans, Zucchini, Carrots

The two samples of red kidney beans, zucchini, and carrots submitted by Mr. David S. Cohen of the Department of Consumer Affairs were analyzed for chlorinated pesticides in accordance with the EPA Analytical Manual. The results of these analyses are as follows:

SAMPLE ID	PESTICIDES FOUND
Health Food Stores:	
Red kidney beans	None detected
Zucchini	α-BHC and Endosulfan found
Carrots	None detected
Supermarkets:	
Red kidney beans	None detected
Zucchini	None detected
Carrots	Suspected p,p^1 - DDE - or Dieldrin

REMARKS: The zucchini obtained from the health food stores contained α BHC and Endosulfan. The exact concentrations were not determined, however estimates are 0.1-0.2 µg per zucchini. The carrots from the supermarket contained either an isomer of DDT; namely p,p^1 - DDE or Dieldrin. The estimates for these pesticides are 0.2 µg for DDE or 0.02 µg for Dieldrin per carrot. Both substances are residuals from years ago, as these pesticides are not in use and have been banned by the EPA.

Respectfully submitted
INDUSTRIAL TESTING LABORATORIES

BY: M. Vekshteyn
Manya Vekshteyn, Ph.D.
Analyst

Kenneth J. Kohlhof
President

B. STARCH BLOCKERS

To update its findings regarding the proportion of health food stores selling starch blockers (p. 16), the Department contacted 50 randomly selected health food stores by telephone on January 6 and 11, 1983. The Department asked them, "Do you sell starch blockers?" Twenty-two of the 50 stores said they sold them:

BOROUGH	NO. OF STORES	NO. OF STORES SELLING STARCH BLOCKERS
Manhattan	20	8
Queens	10	5
Brooklyn	10	2
Bronx	5	3
Staten Island	5	4
	50	22

FOOTNOTES

1. Telephone connversation, Mary Jane Dittmar, Assistant Editor, Health Foods Business, November 9, 1982.

2. New York State Public Hearing in the Matter of Organic Foods, before Attorney General Louis J. Lefkowitz, New York, December 1, 1972.

3. Gay, M. And Gay, K. Eating What Grows Naturally, and Books South Bend, Indiana, 1980. Kilham, C. The Complete Shopper's Guide to National Foods. Autumn Press, Brookline, Massachusetts, 1980.

4. "Organic Foods - Another Consumer Hoax?" Journal of Milk and Food Technology, 35, 669, 1972. "Foul Spray," New West Magazine, April 9, 1979. Porter, S. Sylvia Porter's Money Book, Doubleday, Garden City, New York, 1976.

5. Stephenson, M. "The Confusing World of Health Food." FDA Consumer, July - August, 1978.

6. Appledorf, H. et al. "Health Foods versus Traditional Foods: A Comparison. Journal of Milk and Food Technology, Vol. 36, No. 4, (1973). Jukes, T.H. "Organic Food." CRC Critical Reviews in Food Science and Nutrition, November, 1977.

7. Jukes, T.H. "Organic Foods," Supra.

8. New York State Public Hearing, 1972, Supra.

9. Telephone conversation. Warren L. Smith, Director, Filetson Laboratories, Inc., December 7, 1982.

10. Ibid.

11. Winter, R. Beware of the Food You Eat. New American Library, 1971.

12. Stephenson, M., Supra.

13. Jukes. T.H., Supra.

14. Ibid.

15. Ibid.

16. Appledorf, H., Wheeler, W.B. and Koburger, J.A. "Sensory Evaluation of Health Foods: a Comparison with Traditional Foods." Florida Agricultural Experiment Stations Journal Series, No. 5328, 1974.

17. Brody, J. Jane Brody's Book of Nutrition, 1981. Brody notes that "one exception to this principle is Vitamin E, but only because the natural forms of E are slightly different in chemical structure and more effective than the manufactured vitamin." But her essential point is that "it makes no difference to anything except your pocketbook whether you take so-called natural vitamins or ones that were synthesized in laboratories."

18. Stephenson, M., Supra.

19. Ibid.

20. FDA Consumer Update, July 1982.

21. Telephone Conversations, Dr. Richard Jacobs, October 13, 1982 and November 10, 1982.

22. Telephone Conversation, Mary Jane Dittmar, Supra.