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organics
"Organic" foods are at risk of becoming a gimmick.
They have gone beyond a market niche of hippies, health-nuts and the wealthy. As with most things that become mainstream, big business is getting involved.

Under pressure from agri-business, the United States Department of Agriculture, in an attempt to establish national organic standards, proposed a set of rules in December 1997. Lobbyists from the agriculture industry are trying to persuade the USDA that less restrictive regulations of the standards are needed.

The integrity of the organic food we eat is at stake with the USDA proposal. As organic food consumers, we have put our trust in the growers, and in turn, into the health of the land and our food. When the proposal by the USDA opened for comment, they received a record 280,000 responses—almost all them negative—enough to cause reconsideration of the proposal.

Farmers, advocates and consumers who responded understand that current organic farming methods are a real solution to environmental pollution caused by conventional agricultural practices. If agri-business has its way, the use of toxic sludge, irradiation, intensive confinement of farm animals and the use of antibiotics as pesticides will be acceptable as "organic farming."

If the proposal passes, local organic farmers could be in trouble—the market will be flooded with foods labeled "organic." Regardless of the national standards, most of them plan on maintaining their current farming practices and believe that community support and word-of-mouth will keep them in business.

In small communities like Bellingham, community support may work—but larger organic farms will blend into the masses that are using the so-called "organic standards" and lose our trust.

With lax restrictions, growing "organically" will become a sales gimmick for large industrial farms. It is a sad reflection on our culture that money has more importance than health—the environment's and our own.

The Planet is the quarterly enviro-magazine of Huxley College of Environmental Studies, written and edited by students. We are dedicated to environmental advocacy and awareness through responsible journalism.

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organic origins  Kari Benny
all you need to know  Todd Wanke
fruits of the trade  Greg Tyson
a matter of opinion  Jennifer Smith
the organics debate  Anna Shaffer
doing it at home  Libby Chenault
on the rise  Shane Powell
chemical consequences  Tina Potterf
Pounds of organic cotton purchased in the U.S. by large apparel companies in 1997: 2,150,000

Estimated pounds of synthetic fertilizer and pesticides eliminated in the U.S. by using organic cotton in 1997: 528,190

Number of pounds of chemicals used to make one non-organic cotton T-shirt: 1/3

Number of pounds of synthetic pesticides applied to U.S. cotton fields in 1996: 53,000,000

Estimated number of pounds of synthetic pesticides used annually in the U.S.: 2,200,000,000

Estimated number of pounds of synthetic pesticides used annually in the U.S.: 2,200,000,000

Estimated number of pounds of synthetic pesticides used annually in the U.S.: 2,200,000,000

Number of pesticide poisonings reported each year in U.S.: 110,000

Number of U.S. farmers using organic methods in 1995: 5,000

Estimated number of people that drink water contaminated with herbicides each year: 23,000,000

Deaths associated with consumption of contaminated water: 1,000

Tons of topsoil eroded yearly in the U.S.: 30,000,000,000

Estimated number of dollars spent on organic foods in the U.S. in 1997: 4,000,000,000

Estimated number of pages in The Planet magazine: 32

you are what you eat
A single-story, moss-covered house sits among the green pastures of the Skagit Valley. The penetrating scent of wood smoke surrounds the old house, filling the damp winter air. Flocks of clucking chickens sporadically scratch within the front yard. A weathered, wood-shingled barn stares in the direction of the neatly tilled gardens, where daffodils are beginning to poke their way out of the ground. A couple steps lead to the back door of the house, which is adorned with a sticker that reads “Grow Organic.” The wood door creaks open, revealing Glen Johnson, a middle-aged man dressed in blue jeans and a blue-checked flannel shirt.

For Johnson and his wife, Charlotte, this is home—and business.

"Mother Flight Farm," the Johnsons' full time business, is a purely organic farm. They sell a wide variety of produce locally, nationally and internationally.

Johnson's involvement in the farming industry began when he was a young boy growing up on his father's conventional farm just a few blocks away from where he lives today. His farming aspirations shifted to organic farming while he was in his early 20s and working on a conventional farm.

"The person I worked for, at a certain point, explained to me that I had taken the place of a 21-year-old college student who had
mysteriously died of leukemia," Johnson says. "My eyebrows went up when he said that and so I started thinking about my job [as a pesticide applicator] a little more critically."

Johnson says his concern regarding using chemicals on food continued to grow. He started researching the effect of chemicals on people's health and found some shocking results.

"I started reading the books of chemicals that I was using and looked at the legal dose ... and how much of these certain chemicals it would take to [kill rats]," he explains. "Some of them were like a drop of emulsified concentrate directly on the skin, which would kill 50 percent of the test rats. That jerked my eyebrows up again and made me realize that [using chemicals on food] was ethically unacceptable to me."

Johnson says he continued to research the effects and history of pesticides. He says he wanted to find out if they were needed to produce desirable crops. He sought an understanding of what made "synthetic" chemicals appealing and popular to begin with.

"Synthetic" chemicals became an integral part of the farming industry in 1867, when Paris Green, the first international insecticide, was successfully developed and used in the battle against the Colorado Potato Beetle outbreak. The Trans-Continental Railway System transported the insect, which ended up destroying much of the Eastern United States potato crop.

In 1892, lead arsenate was introduced to the agricultural industry and proved viable against the gypsy moth outbreak. Lead arsenate, gentler on foliage than Paris Green, became the country's most popular insecticide. Twenty-nine million pounds of lead arsenate were used in the United States agricultural industry in 1929.

World War II brought the popularity of insecticides to an even higher level. The demand for food in war-torn Europe created the need for increased production in the agricultural industry. The U.S. met this need by using more chemicals, mechanization and monoculture farming techniques.

The increase in production meant rapid results for farmers, but killed insects that were crucial to producing healthy crops. There was a need for a method to control the noxious pests while maintaining the beneficial ones. More chemicals were produced to combat the pest problems, while maintaining and enhancing the positive effects the insecticides brought to the agricultural industry.

Johnson's research, ethical standards and experience in the conventional farming industry enabled him to realize the results of using chemicals in the farming industry and how he did not want to follow such practices.

With knowledge of the impacts of chemicals on conventional farming, Johnson sought a way to parlay his childhood aspirations of owning his own farm by age 35 into a productive business to educate people about organic farming practices.

In 1988, Johnson took the first step toward achieving his goal. He planted his soil with a spinach seed crop that he then sold to a local seed company.

Two years later, Johnson made even more progress toward his goals.

Glen and Charlotte marked 1990 as their first cropping year as "Mother Flight Farm." The Johnsons brought their combined 70 years of farming experience and their understanding of history to create an environment that resembles the farmer's life before the rise of chemicals.

The popularity of organic farming started in the 1930s, during the "Back to the Land" movement. The movement inspired city dwellers to relocate to the country, where they hoped to find a simpler way of life as farmers.
As people became more aware of farming organically, they began to ask questions, learn its methods and some soon started their own organic farms.

In 1943, Louis Bromfield, one of the movement’s leaders, bought several farms in Pleasant Valley, Ohio, and established “Malabar Farms,” one of the first organic farms in the U.S.

In 1946, Paul and Betty Keene started growing “Walnut Acres,” which became one of the country’s first commercial organic farms. The Keenes plowed 200 acres, harvested their apple crop, and made 200 quarts of apple butter. This was the beginning of the organic food industry.

The industry developed support from people across the nation. Organizations supporting organics began sprouting up.

The Natural Food Associates was formed in 1953 to inform the public of the benefits of organic food and to assist organic farmers in creating a market.

The Johnsons say the organic farming market and its practice represent the value people should have for their land and health.

“For a country to take their fertile land and to not have a sense of value for it is just kind of strange,” says Charlotte, as she pushes her long, brown hair behind her ear. “Wars used to be fought for land that we put malls on now because there’s profit for it and that’s all so short term.”

“Money has been the goal throughout our American history; that the more money you get, you know, the better off you are,” says Glen, his fists raised in the air.

The desire for wealth—and competition—led farmers to find the most inexpensive and easy route to producing successful crops. Chemicals and pesticides became the answer to their dreams of a profitable economic lifestyle.

The present economic system is not allowing a healthy food system to be a part of our society, the Johnsons say. The concerns of how much food costs to produce and purchase have gotten in the way of delivering the real purpose of the food system—to provide healthy food for consumers, the Johnsons concur.

The Pure Food and Drug Act of 1906 and the founding of the Food and Drug Administration in 1927 are part of the U.S. food systems that regulate today’s conventional farming practices. Consumers’ fears regarding hazards of the food system—its commercial integrity and health safety issues—brought the Pure Food and Drug Act into the authority of Congress.

The FDA was also established on the principles of commercial integrity and health safety, and including a need for order in the farming industry.

The Johnsons say they are trying to reinvigorate a different food system, not to take the place of the present one, but to create other opportunities for consumers. They propose an improved system that stresses the importance of knowing what you are putting into your body.

After 20 years of studying nutrition, Charlotte says what it really comes down to is how close to the source one can eat. She says she wants people to not have to question if what they are eating will harm his or her body. Farming and consuming organic foods give consumers the ability to be as close to the source as possible, she says.

“I look at what our population is living on today and I’m amazed of the strength of the human body to survive ... ,” she continues. “I mean, how can people eat fast food and live?”
"They live a very low quality of life," Glen chimes in.

The government has also become concerned with what people are eating. In order to regulate this and to ensure the health of consumers, the agricultural industry, including organics, has been given standards to abide by.

The International Federation of Organic Agriculture Movements released the first standards for organic agriculture in 1972.

In 1998, the USDA standard was proposed, which would resculpt the standards that were established in 1972.

Precautions have been taken to protect the health of consumers by setting up organic certification organizations.

In 1974, the California Certified Farmers and Oregon Tilth were the first organic certification organizations formed in the U.S.

The standards became nationwide when the Organic Trade Association of North America published the first national guidelines for organic production in 1986. National standards for certifying organic food products were established in 1990 through the Organic Foods Production Act.

The standards and guidelines of the farming industry have changed over the past 16 years and will likely continue to as the outcome of the proposed USDA standards becomes clear.

Glen and Charlotte say they believe another important aspect of the industry has significantly changed.

"In the midst of our society, everybody thinks, 'Oh, the farm is wonderful,' but the farmer doesn't really have any respect ...," Charlotte says. "It's not like something somebody idolizes. There was a time when people couldn't imagine life without a major part of the population as farmers."

Today, farmers like the Johnsons are fearful of what the future holds for the farming industry — especially the future of organic farming.

"From the business point of view, it's a bad idea to go into agriculture," Charlotte explains. "The farmers are telling their kids, 'Don't follow me and go get an easier, higher paying job.'"
Seeing the words “unadulterated food” or “not genetically altered” is not something the average consumer is used to these days. A more familiar term may be “organic.” What is “organic” and why is the definition constantly changing depending on who you ask?

While organic farmers have maintained a strict standard of what organic is, the United States Department of Agriculture has proposed a National Organic Standard to be used nationwide. This proposal is said to take the place of standards that are used in 33 states, including Washington.

Food that is grown and processed on land untouched by synthetic chemicals for a period of at least three years prior to harvest can be classified organic. When food is labeled “organic” in the grocery store, what the label signifies is a commitment to an agricultural process that strives to achieve a balance with nature through methods and materials that are of low impact to the environment.

Fertilizers and insecticides are used in the organic growing process, but most do not contain toxins. Organic fertilizers are made of natural substances like manure, compost, bone meal, fish meal and rock minerals, which maintain soil fertility. Bacillus thuringiensis (Bt), rotenone and pyrethrum are a few natural insecticides used for organic farming.

According to the Federal Organic Foods Production Act of 1990, any substance formulated or manufactured by a chemical process or by a process that chemically changes a substance extracted from naturally occurring plant, animal or mineral sources is synthetic. This term does not apply to substances created by naturally occurring biological processes.

Interest in organic farming is up. Sales of organic foods have increased by more than 20 percent each year for the last seven years. With increased consumer interest in organic food comes increased capital interest—big business wants in. With only one percent of the United State’s food supply grown organically, distributor sales hit $3.5 billion in 1996.

It is only a matter of time before big businesses take a financial interest in organic farming, but a national organic standard must first be implemented, said Miles McEvoy, Washington State food safety and animal health program manager.

“Right now, there’s no common identity for what organic farming really is,” McEvoy explained. “Investors and stockholders of major agriculture companies aren’t going to test the waters of organics until a clear definition is set nationwide.”


McEvoy said Organic Trade Association members had hopes that the USDA proposal would strongly adhere to the National Organic Standard Board’s guidelines for organic farming. The proposal varied greatly from what the NOSB had in mind, allowing exceptions in the form of genetic engineering, irradiation and antibiotic use on livestock. These exceptions did not adequately satisfy the NOSB and the proposal was resubmitted to the USDA for reworking last May.

Leora Broydo, a writer for the magazine “Mother Jones,” wrote in a June 1998 article that their publication had obtained an “internal memo” from the USDA. The article stated that a May 1, 1997, memo demonstrated the USDA’s intent to ignore standards recommended by the NOSB. The memo also showed that the USDA knew of its intentions to accommodate specific interests in its proposal, including biotechnology.

The NOSB, which is made up of organic certifiers, farmers and industry experts, was created by the USDA in 1990 as part of the Organic Foods Production Act. Its specific duty is to set guidelines for the USDA to follow while drafting a national organic proposal.

Under the Clinton administration, the U.S. has already invested billions into genetic engineering. The 1994 budget exceeded $4 billion,
according to the “Mother Jones” article. Although the effects of consuming genetically engineered products are not known, the U.S. planted in excess of 24 million acres of trangenic or genetically altered crops in 1997.

Although the national organic proposal is still in the re-drafting process, in January, the USDA passed a regulation allowing certain meat and poultry to be labeled organic.

“This announcement means more information and more choice for American consumers,” said Dan Glickman, USDA agricultural secretary. “It will help organic family farmers and ranchers further expand their already growing markets.”

If the establishment of a national organic standard for food creates such dilemma, it seems practical to let states go by their own standards and continue to produce organic foods as they currently do. But this theory creates problems, McEvoy said.

“If there is confusion over regulations, there is a risk involved as far as investors are concerned,” he said. “Companies are worried about crossing state lines with a variety of regulatory standards in place. They don’t want their product to be undeliverable because of state-to-state regulation interest.”

Washington, Oregon and California — states with high standards for organic farming — are not in danger of falling short of state-to-state requirements, McEvoy said.

“For a number of states that grow organically, there’s not adequate enforcement of rules,” he said. “If a national standard is instituted, there will be nationwide integrity in the word ‘organic.’”

Individual state regulations aren’t the only thing holding back potential organic food buyers. Consumer research has shown that 30 percent of consumers would be interested in organic foods if they were offered at reasonable prices, McEvoy said.

“Everyone would benefit from a national organic standard. Consumers, growers and distributors would reap the benefits of organic foods being grown under the condition of a national standard,” McEvoy said.

“There is huge potential for markets who offer organically grown products at modest premiums.”

While the future of organic farming promises growth, it seems much is to be gained from the enactment of a national organic standard. But for those who have come to know organic as pure, it has been made clear by the NOSB that the integrity of organics should not be compromised for capital gain.

“There is a fair amount of controversy involved with the current proposal, and those controversial issues will have to be ironed out in order for this proposal to gain acceptance,” McEvoy said. Much of this controversy has to do with allowances the USDA has proposed that are in disagreement with the NOSB’s organic farming guidelines.

“Washington state has a consistent standard which is being met by organic farmers,” McEvoy said. “We had expected something very close, maybe even identical to the Washington standard from the USDA, but it didn’t happen the first time around.”

McEvoy said the USDA is committed to a standard that is acceptable to the NOSB.

Citizens For Health, a grassroots environmental group, has spread the word that the National Organic Proposal of the USDA needs revamping. They gathered 220,000 signatures—120,000 more than ever before received—stating that the proposal must go back and be reworked into something that adheres more closely to what the NOSB has set for organic guidelines.

Citizens For Health Legislative Director Shannon Brown credits companies such as Patagonia, Whole Foods and Wild Oats Markets for promoting awareness and soliciting comments about the national proposal.

“These companies made it possible for us to reach a huge number of people in a small time,” Brown said. “Word got out fast nationwide, and we were able to voice our opinion strongly about the current standard.”

Citizens For Health takes the consumer’s perspective when it comes to organic food consumption, she said.

“When consumers go to buy organic, those aberrations are not what they expect,” said Brown, in reference to substances such as antibiotic use and genetic engineering in food processing.

“Consumers should have the right to choose, and the integrity of organic foods should not be jeopardized for a national standard.”

In May of 1998, Susan Haeger, president and CEO of Citizens For Health, stressed the
need for White House leadership with this issue at a White House rally.

"Everyone concerned about the future integrity of organic must ensure that the USDA live up to its promise to finalize a rule that meets the demands of the organic community and the National Organic Standards Board," Haeger said. "The USDA gave this same promise before the original proposal rule was released. We can't afford to sit idly by hoping that this time they really mean it. We are calling on Vice President Al Gore, as the Administration's environmental champion, to get involved."

With much opposition to the proposed organic standard, the question remains: what is holding back the approval of the national standard?

Environmental groups, such as Citizens For Health and the Keep Organic "Organic" Campaign, have voiced their concern about several key ingredients in the NOP that go against what is considered safe and pure for organic purposes. There is also concern over amending a national organic proposal once it is in place. The USDA's proposal may not be open for ratification once a standard is set, and as far as Citizens For Health is concerned, this means issues must be dealt with now before the standard is set in stone.

One concern is the use of municipal sludge as fertilizer. The NOSB stated that sludge was "unacceptable for use in organic crop production," but the USDA national proposal allowed for the use of such sludge.

According to Sustain, an environmental group, this bio-sludge might be acceptable if the sludge consisted only of human bio-solids, but the sludge is known to contain metals and other toxins, which may be unsafe for use as a fertilizer on organic crops.

Another concern with the current proposal is genetic engineering. Genetic engineering involves taking the DNA from an organism such as bacteria, viruses or animals and plants, and inserting it into another organism. This is done to eradicate illnesses and diseases, but is a potentially risky process that may jeopardize the safety of both environment and food. The NOSB specifically recommended prohibition of genetic engineering, but it was still included into the National proposal. According to Sustain, there are not enough scientific data documenting the long-term effects from genetically engineered animals on the environment and human health to determine how dangerous they may be.

A significant snag in the USDA's proposal is what is considered the historic survey of land usage. Under current organic standards, land that has been free of toxins for a period of three years can be considered for organic production.

The USDA wants to allow certain "unavoidable contamination levels" in land designated for organic use that would otherwise go against the NOSB standard. This land would include previous Superfund sites that may have been contaminated for years, despite their condition in the last three years. The current proposal by the USDA doesn't take into consideration the previous use of agricultural land.

Another worry among environmentalists is irradiation. This is the process of exposing food to radiation in order to kill bacteria. This method has never been allowed in organic farming practices and the long-term effects are still unknown.

"The big question now is whether or not the changes being made to the proposal will be cosmetic, or will (the USDA) go deep and really revamp the regulations," Brown said. "The USDA has promised that it will set up a high standard, so we'll see what happens now that the comment period is over and they have to re-release another proposal."

Although the comment period officially ended on April 30, 1998, Brown stressed the importance of public comment to the USDA. Citizens For Health also urged concerned citizens to write Vice President Al Gore and encourage him to focus his attention on the rewriting of rules that need to be addressed in the National Organic Standard proposal.

"Write letters and tell the USDA that you haven't forgotten this is going on," Brown said. "Tell (the USDA) that we will not accept a low standard for organic agriculture."
Fed up with conventional food's pesticides and fertilizers, some consumers are switching to chemical-free organic foods. Supporters see long-term potential in organic food.

Dressed in a faded blue cotton shirt and tan khakis, Brad Smith, merchandising manager of the Community Food Co-op in downtown Bellingham, has a relaxed, nonchalant air about him. An employee of the Co-op since 1976, Smith said he wants the Co-op to provide residents of Bellingham with the best organic food possible.

Smith said that 80 to 90 percent of the sales in their produce section is organic. The process of obtaining organic food from suppliers is a lengthy and occasionally arduous one.

Smith said organic food distributors are usually large, family-sized farms. They ship their products to the packing house. The distributors have to be a certified operation and demonstrate practices that maintain tracking of the product so that the product that goes to the market is sourced from an organic farm.

"There isn't a mixing of the products," he said. "They can't use fumigants. They can't use handling practices that are common to conventional practices because they would run counter to the concept of toxic-free inputs."

Although not a consistent problem, fraud occasionally puts a damper on the organic food industry, Smith said. He recalled that a few years ago one of the largest commodities brokers was found guilty of re-labeling non-organic products organic. The company was eventually put out of business.

Smith said he must make sure all of the products the Food Co-op obtains are not tampered with.

"When we receive our goods, we maintain record—products are labeled at our end," Smith said.

The Food Co-op receives 600 to 700 thousand pounds of organic food per year, Smith said. The Co-op makes $10 to $20 thousand per week selling organic products, from organic milk to corn chips and produce.

Although lacking the Co-op's eclecticism, Terra Organica has built a fairly solid reputation since its inception in March of 1997.

"The idea of Terra Organica," said owner Stephen Trinkaus, "is to do the research. The idea should be, from my perspective, that when you go into a health food store that they've already researched the product for you; that when you go in there, you're not going to be deceived. When you grab a deodorant off the shelf, it's not going to contain toxic ingredients, okay?"

Trinkaus said Terra Organica sells strictly organic foods. Tall and lanky, with a probing stare and a soft, reserved voice, Trinkaus, 34, discussed organic foods with tact and clarity.

Trinkaus graduated from Western in 1991. It was shortly after graduation that he decided to eat only organic food.

Trinkaus's first exposure to the organic food industry was Omega Nutrition, a large organic producer in Whatcom County.

"I became familiar with the industry," he said. "I also realized what was happening to the industry; what's happening to the industry is that as it's gotten larger and larger, it's been compromised. A lot of large cor-
orporations came into the scene and began buying out the smaller corporations.

Trinkaus said Terra Organica made over $200 thousand last year in gross sales of organic food.

Trinkaus' chief goal is to sell solely organic foods. He points out that 99.9 percent of health food stores in the country—even the Co-op—sell natural instead of organic foods. Natural foods contain no synthetic ingredients, but possess certain kinds of pesticides and fertilizers that aren't present in organic foods.

When it comes to making foods in the Food Co-op, some organic foods are mixed with natural food ingredients, Smith said. However, the foods the Food Co-op receives from suppliers are purely organic.

Mountain People's Warehouse, one of Terra Organica's chief suppliers, won't list something as organic unless the papers from a third party certification agency prove it has certification, Trinkaus said. Some of these agencies include the Washington Department of Agriculture, Quality Assurance International and California Certified Organic Farmers.

"So in that sense," Trinkaus said, "our suppliers make sure that everything that is listed in their catalogue is actually organic."

Smith pointed out that the USDA is formulating what is called The National Organic Program. The NOP is a set of rules that will govern the labeling of food in the United States. The process is intended to make organic standards more discernible.

"It's being turned into a market," Smith said. "And when you turn it into a market, when you turn it into a commodity, you trivialize all that is important about it."

Smith said that a number of USDA studies have illustrated that farm communities that have a focus on family farming (i.e., the farmers that own the land) are healthier communities than those that are surrounded by tenant-based farming.

Although the Co-op's major supplier is Charlie's Produce in Seattle, Smith said he tries to gather food as locally as possible. Some of the Co-op's local suppliers include Cedarville Farms, Growing Garden and Evergreen Station.

"It's definitely here to stay," Smith said. "It will continue to evolve and change. There are European countries where 60 percent of their agriculture is organic agriculture. It's not a fad."
It is 1993, and Scholz Farms is a desolate place.

The farm is scarcely more than an ordinary vegetable stand on the shoulder of the road.

Surrounded by the small town of Orting, Wash., Scholz Farms draws most of its profits from travelers who pull off the main stretch of highway to buy produce.

Bridget Scholz is 14. She often helps her aunt and uncle by working on their farm. At the end of a strenuous work day, Scholz invariably finds her hands covered with “corn cuts,” which she likens to paper cuts, from shucking the shells off the farm’s main crop.

Today at age 20, Scholz, nestles into the creases of her floral print sofa, her socks brushing a taupe and olive colored velour pillow at the other end of the couch.

Scholz, a junior in political science at Western, has worked with produce for more than five years. After working at Scholz Farms, she was employed by Joe's Gardens, in Bellingham, until she began working as a cashier at the Sehome branch of Haggen 10 months ago.

In her apartment just down the street from Haggen, Scholz explains that her aunt and uncle, whose farm over the years has swelled to seven-and-a-half acres, use conventional methods for growing fruits and vegetables.

"Anything that Scholz Farms uses in the way of pesticides is used very early on in the growth of the plant," Scholz says. "[Fertilizers are added] to promote growth, not to inflict changes in the color or size of the vegetable or fruit."

Glancing at the large kitchen to her right, she explains why she avoids foods certified as organic—or grown without pesticides—saying that these products are “expensive and unnecessary.”

"I'm more concerned with fresh produce than with whether or not it's certified organic," Scholz says, her eyebrows arching over widening hazel eyes.
Scholz says she spends $20 per week on groceries—none of which are organic. "I'm a poor college student," she explains. "Organics are just too expensive."

Stiffening her posture, Scholz runs her fingers over her dark-blond ponytail and clears her throat. "I am health-conscious. I'm a vegetarian and I focus on eating good foods," says Scholz, a strict vegetarian for the past five years. "I just don't feel that organics are necessary for me to be healthy."

Only two blocks from the building where Scholz lives, Amber Tyler, 18, steps out of her apartment.

Tyler, a junior in environmental studies at Western, jogs up the stairs to the street, her brown leather Birkenstocks and thick wool socks sheltering her feet from the icy January air. It is the sort of day that drapes a charcoal sky like a lampshade over the city of Bellingham.

Tyler's sky blue eyes turn toward downtown, where they come to rest on the pink walls of the Community Food Co-op, a haven for health-conscious shoppers.

It was within these very walls, Tyler remembers, that she first purchased organic food.

"The first time I ate organics was when I moved to Bellingham," she says. "In my hometown, the stores I went to never carried organic foods."

Sitting at a small table in the Co-op's Swan Cafe, Tyler's words are barely audible over the drone of the store's cash registers and customers.

Tyler, brushing a lock of light-blond hair behind her ear, explains that almost half of her $100-per-week grocery bill is used to buy organic foods.

Most consumers recognize the higher prices of organic foods and question the reasons behind the costs.

"Logically, if you are spending money on pesticides and all of the other things that go into the fruits and vegetables, you would think that those foods would be more expensive than those that are all-natural," Scholz says.

Sustain, a Chicago-based, non-profit environmental group, explains one reason for the increased costs, saying that the United States government doesn't give organic growers farm subsidies or fund research. These reasons, along with increased labor costs, strict production standards and the required certification fees, contribute to the overall higher prices of organic foods, Sustain reports.
Citing the benefits for small, local farmers as one of the many reasons she buys organics, Tyler describes organic produce as “pure, healthy and cleansing.” She says she believes that a healthy diet should consist of a variety of foods.

Tyler, a vegetarian for seven months, says she prefers to include organics in her varied diet because of the risks she sees in eating conventionally grown foods.

“For health reasons, I don’t want chemicals or pesticides in my body. I just think organics are better,” she says. “They’re better for the environment, they’re better for people’s health and I think more people should know about them.”

Many Western students are familiar with organics, according to a random survey of 73 Western students conducted this year. The study reports that an overwhelming majority (79 percent) of student consumers say they buy organics at least occasionally.

These respondents listed various reasons for choosing organics, including personal health (63 percent), better quality (51 percent), various environmental concerns (44 percent), support of small/local farms (40 percent), increased availability (25 percent), inexpensive or discount (25 percent), better taste (14 percent) and to promote the health of farm workers (14 percent).

The survey did find, however, that 21 percent of students have never bought organics. The group gives the following reasons for avoiding organics: 63 percent have never thought about buying organics; 37 percent say they can’t afford organics; 13 percent worry that organics don’t look or taste good; and six percent say they have difficulty finding organics in stores.

Tyler, who says she finds organics at the Co-op, Haggen and several other grocery stores, is tolerant of individual decisions about diet. When asked whether or not she encourages others to eat organics, she answers quickly.

“I don’t preach it, but I send subtle messages,” she says. “I talk about eating organic foods because that’s a part of my life, but I don’t tell people they’re wrong for not eating organics.”

She describes her inner struggle over organics.

“At first, everything I bought was organic. But I just couldn’t afford to do that. So now I just buy the basics. It’s a hard decision to make. It’s still difficult to choose between being broke and being healthy.”

Many consumers struggle, like Tyler, to find a balance between health and finances. For an increasing number of consumers, health is becoming the priority.

According to Natural Foods Merchandiser magazine, 56 percent of shoppers surveyed in 1997 had purchased organic products at least once.

NFM says that mass-market organic sales in 1995 skyrocketed to $210 million, up 22 percent from the previous year.

Despite growing sales, Scholz says she feels that many consumers are not informed about certain aspects of organic farming practices, such as the conditions sometimes caused by reduced or non-existent pesticide use.

“Organic is starting to be a buzz word, and many people won’t buy a product if it’s not certified organ-
ic," she says. "But, on the other hand, we had cus-
tomers at Scholz Farms, where we used minimal pesti-
cides, who would freak out because they saw a worm
on the corn or something. There are bugs on plants,
especially when less pesticides are used. It's not really
a new concept."

Tyler, who plans to use her environmental knowl-
edge to aid in running a small organic farm after she
graduates, explains her answer to the bug problem
from an organic perspective.

"You can use pepper spray for pest
control. It coats the leaves, therefore
starving the bugs, rather than killing
them on contact," she says. "For fertiliz-
ing, you can use bat guano [feces from a
bat, available in many nurseries and feed
stores]. I use both on my plants."

Scholz says she wouldn't ban organ-
ics if her future political career gave her
the power to do so.

"I think it's always important to
have options and variety," she says
laughing. "I don't think consumers
should be limited to choosing from all
non-organic foods."

Many college students do buy a
variety of foods, including organics,
according to the findings of a Canadian
marketing study, which reports that most consumers of
organics are young, highly educated and middle to
upper-class.

These consumers, the study reported, often see
organic foods as better in quality, healthier, better
tasting and more nutritious. The study was quick to
add, however, that these same consumers have difficul-
ty defining "organic."

Perhaps such confusion among consumers is part
of what led the Food and Drug Administration to push
for a new, national definition of "organic." Supporters
of the new standards say it will reduce consumer con-
fusion, while opponents worry that it may broaden the
definition, therefore robbing "organic" of any meaning
at all. This issue is being reviewed by the FDA.

"I'm all for a standard being set on organics,"
Scholz says. "When people see organic produce, it
shouldn't be confusing for them."

Tyler expresses concern about the idea of a broader
definition. "If organic standards were changed and
the definition were broadened, it would affect my trust
in the word 'organic.'"

Despite the continued discussion about the proposed FDA standards, more consumers are increasingly

snatching organic products off shelves.

The Food Marketing Institute says that although
organic grocery sales currently make up only one per-
cent of overall grocery figures in the U.S., they are
expected to rise to three-to-five percent by the year
2000.

Scholz acknowledges the increasing demand for
organics, yet she says there is a lack of consumer edu-
cation about organics.

"Organics are becoming increasingly popular with
customers. Yet I've seen many people who, for exam-
ple, buy organic milk, but not organic produce, or vice
versa," she explains. "They don't seem to see that
these decisions correspond. It has a lot to do with
public awareness."

planet 16
It is winter, and the only indication that the land surrounding the simple, beige house is a farm are a few dozen chickens pecking the ground and a few shriveled tomatoes hanging from stiff, brown vines.

But from February to late September, Cedarville Farm thrives with flowers and such vegetables as artichokes and zucchini. It thrives without the aid of synthetic pesticides or fertilizers.

Breakthroughs in agricultural research have enabled the American farmer to use such synthetic substances to produce more food with less land. But many consumers are beginning to question the health and safety value of products produced with synthetics, and are opting to spend a few dollars more on food bearing the label "organic" from farms such as Cedarville.

Based on a consumer survey conducted by agricultural economist Desmond Jolly, Ph. D., 40 percent of respondents believe organically grown food is "better" than conventionally grown food.

Of those respondents, 63 percent rated safety as a "very important" reason why organic food is better.

Safety is also an important factor to Mike Finger, co-founder of Cedarville Farm, who says he knew he wanted to farm organically even before he and his wife Kim started Cedarville Farm 12 years ago.

"I am concerned about what ingesting small amounts of toxic chemicals could do to our bodies," he says.

Pesticides have come under increasing scrutiny in recent years because of increasing evidence that they have a detrimental effect on human health. The Environmental Protection Agency ranks pesticide residues in foods as the third greatest cancer risk from environmental exposure.

A 1989 study by the Natural Resources Defense Council asserts that children face a greater risk than adults from pesticides, and that much of the risk as adults stems from childhood exposures. The NRDC scientists estimate that 5,000 to 6,200 pre-school children alive today may get cancer as a result of exposure to just eight carcinogenic (cancer-causing) pesticides at levels that have been measured in raw produce.

According to a new analysis of federal data by the Environmental Working Group, every day, one million American children, ages five and under, consume unsafe levels of a class of pesticides that may harm the developing brain and nervous system.

This is one reason why Finger and his wife choose to farm organically.

"My wife and I didn't want our kids to be around any toxic chemicals that might potentially hurt them," Finger says. He strokes his black beard as he peers tenderly from behind his round-rimmed glasses at his young son.

Researchers at the National Cancer Institute have also found that conventional farmers have elevated rates of several types of cancer that are associated with chemical exposure, including pesticides.

Scientists also agree that there is a relationship between many pesticides and endocrine-related effects, such as declining sperm counts and rising rates of testicular and breast cancer.

This concerns Finger, who tries to eat organic food as much as possible.

"We are concerned about worker health. It is my understanding that cancer rates are high in agricultural areas such as California and Mexico, and we don't feel good about that," he says emphatically.

The Food Quality Protection Act, a new national pesticide law signed by President Clinton in 1996, has fundamentally improved the way that pesticides are regulated in food. All exposures to pesticides must be shown to be safe for infants and children, with a clear consideration of the sensitivity of the young to these chemicals. Combined exposures to pesticides must also be considered when setting safety standards.

However, according to the EWG, several studies
have tried, but failed, to identify a threshold or safe dose for potential carcinogens.

The pesticide industry has launched its own campaign against these claims.

According to a U.S. Department of Health report, testing of pesticides, as well as other additives and contaminants in food, is carried out primarily on the basis of acute toxicity, or effects from high, short-term doses. The industry maintains that “everything causes cancer” at such a high level.

However, according to the EWG, most chemicals that cause cancer at high doses also cause cancer at low doses. Many scientists still agree that there is no dose of a carcinogen that does not increase the risk of cancer.

“My concern about pesticides and other environmental toxins has not so much to do with the possibility of acute injury as with long-term compromise of the healing system and increased risks of cancer, immune dysfunction and a variety of chronic ailments (such as Parkinson’s disease), in which cause-and-effect relationships with toxins have not been adequately investigated,” says naturopathic physician Andrew Weil, M.D., in his book, “Spontaneous Healing.” “Such effects could result from cumulative exposure over time to toxins from various sources.”

Finger also concedes it has been difficult to determine the long-term effects from such testing.

“Synthetic sprays concern me, but there are no easy answers,” he says. “No one really knows if ingesting small amounts does a lot of damage.”

The EPA has created a new brochure which suggests foods be washed, trimmed and/or cooked before eating in order to reduce the level of pesticides. The EPA also suggests that consumers consider buying organically grown food if they are still concerned.

Organic products, which must be certified by the USDA, have been grown and handled according to strict standards. Organic farmers must avoid the use of highly soluble, quick acting, chemically manufactured fertilizers and pesticides that are produced with chemical processes, not derived from natural materials by physical means.

“What becomes approved in the world of organics are inputs that don’t have a harmful effect on humans and the environment,” says Brad Smith, merchandise manager of Bellingham’s Community Food Co-Op.

Seaweed sprays and garlic sprays are among pesticides used by organic farmers.

“The approach of chemically-based pesticides is to kill pests. But organic pesticides such as garlic sprays are more prevention-oriented,” Smith says.

Finger says since he grows mainly annual crops which are only on the ground for about four months, he doesn’t need to rely on many pesticides. Instead, he relies on screening, which is a spider-web material placed over plants that keeps bugs out while allowing light in.

“We occasionally use Bacillus Thurengensis, a one-cell bug that only kills moth and butterfly larvae and has no hazards to vertebrates or other insects,” he says. “But we rarely use it more than once a season.”
For the last few years, Finger has relied heavily on mushroom compost and smaller quantities of blood meal and fish meal to fertilize his crops.

Finger says he doubts that it is harmful to use chemical fertilizers to grow food, as long as the fertilizers are used wisely. But he also believes food that is over fertilized with synthetic chemical fertilizers may be cancerous because it may contain too much nitrate, a known carcinogen.

"Chemical fertilizer is also highly soluble and plants can take it up too quickly, causing them to have too high of a nitrogen content," he says.

Synthetic fertilizers remain in the environment longer and this allows them to concentrate, especially in water, Smith says.

In his book, "Diet for a Poisoned Planet," David Steinman reported that dairy farmers in the Little Switzerland region of northwest Iowa could once sink wells to only 50 feet to tap a good water source. Today, they must go down 200 feet to find water free from nitrates, a result of the use of synthetic fertilizers.

But Robin Matthews, director of the Institute for Watershed Studies at Western Washington University, asserts that organic as well as conventional methods of fertilization may pose safety hazards. Sickness-causing bacteria that gets into drinking water can come from both organic and conventional farms.

Finger says he believes that both conventional and organic farmers may increase the safety and efficiency of both synthetic and organic fertilizers by using compost.

"Our main strategy is to make manure into a compost that has reached stability. The compost buffers the manure and it is held in a form that is in the best form for plants to absorb," he says. "If manure is properly composted, most of the pathogens are properly broken down."

Many conventional farmers are now making use of organic farming methods such as composting. Many are also working toward more environmentally sensitive methods of pest control by adopting Integrated Pest Management systems.

According to the EPA Office of Pesticide Programs, IPM systems use current, comprehensive information on the life cycles of pests and their interaction with the environment in combination with available pest control methods to manage pest damage with the most economical means—and with the least possible hazard to people, property and the environment.

Although IPM does take advantage of all appropriate pest management options, including synthetic chemicals, and doesn’t limit use of pesticides to those produced from natural resources, Finger sees the adoption of such methods as a step in the right direction.

"It’s a positive sign that conventional farmers are learning lessons from organic farmers," concludes Finger, his voice deepening with conviction. "At one time, the operating paradigm of conventional farming was war on nature. Most don’t feel that way anymore."
In Ferndale, a ball thumps across a wooden floor as farmers play basketball after a long day. Mud flakes off Ned Herbert’s worn Carharts as he dribbles down the barn toward the hoop.

“I tried to get an organic farmers basketball league going,” he says with a laugh. “But the first farm we challenged thought we were too competitive.”

After unwinding with his co-workers at Evergreen Station, Herbert will drive back to his home in Bellingham. If light remains in the sky, he will work in his own garden before pulling off soiled clothes, brushing out his blond hair and slipping into bed with a stack of organic gardening books.

“It’s the happiest I am—in the middle of the season. All I can think about is my plants. I’m obsessed,” Herbert confesses.

The focus of Herbert’s life once involved working on movie sets and theater projects in California.

“As I was developing my political ideologies and philosophies, I started to explore environmentalism, materialism, consumerism,” he says. “As I started to analyze American culture, I realized I wanted a simpler life. Part of that is growing my own food.”

Five years ago, as a Fairhaven student, Herbert started a small garden at a rental house near campus. Since then, the project has expanded.

The lack of permanent land for working is the biggest frustration Herbert feels as a young organic farmer.

Not only is financing an obstacle when starting a farm, but zoning laws decree what types of crops can be grown on certain land. Through zoning, Whatcom county encourages large parcels of dairy silage—food for cows—and berry farming.

“I want the government to encourage local diversified agriculture because it is healthier for the county.”

He grimaces and shrugs, as if recognizing that his focus on varied small-scale farming is not getting the same support or attention as the federal organic certification process currently under revision.

“I don’t see the national organic standards addressing that issue. Organic standards are going to affect larger growers,” Herbert says. “They aren’t going to affect the small farmer at the Farmer’s Market who has a personal connection with the customer.”

Evergreen Station and similar sized farms in Whatcom County sell directly to customers at the Farmer’s Market and roadside stands.

The national organic standards are aimed at farms with national distribution who cannot experience the same connection with consumers. Modern farmers often grow hundreds of acres of a single crop. A 1993 USDA survey found that the average farm in the United States was 437 acres.

“They don’t consider a small farm a 10 acre farm,” Herbert says. “They don’t consider that a farm at all.”

He says the choice to grow his own food without chemical fertilizers and pesticides was logical.

“Organic farming is not necessarily a reaction to chemical agriculture. It’s happening because it is how most people have grown food throughout history,” Herbert says.
tion creates a challenge for farmers, who must examine the land in order to know what needs to be done. If a winter is mild, for example, more insects will survive to eat crops. One year a particular moth or beetle may not pose any threat to crops and the next season it could spoil the plants if action is not taken. Scale plays a large role in the methods used. Small farms tend to weed, plant and harvest by hand. Larger farms tend to rely on machines and organic or chemical sprays.

“When growing organically, you are feeding the soil. You are concerned with soil life and soil structure,” Herbert says.

All farmers add nutrients to the soil. Conventional farmers use a chemical compound known as NPK, which is nitrogen, phosphorus and potassium. Organic farmers add organic material to the land. Organic matter contains trace nutrients as well as the NPK nutrients.

“Everything that was once alive is organic matter,” Herbert explains. “When a plant is grown in soil with about five percent organic matter, it is going to be more resistant to bugs and disease, and it’s not going to need pesticides and fungicides as much.”

Herbert examines a carrot for any dirt that missed the garden hose. He takes a bite and taps the air with the orange root as he illustrates another benefit of organic farming.

“A study came out this summer that found sugar content in foods was directly related to organic matter in the ground,” he says. “Carrots grown in organic matter are sweeter than those not.

“If you are not diversified, you are at risk.” He uses the raspberry monocrops in Whatcom county as an example.

Two summers ago, there were heavy rains in May and June, which caused the berries to mold. Some growers who depended on selling that crop went out of business.

Supporting a diversified local economy is a topic likely to come up among many farmers.

“In this county, if you are working on an organic farm you are going to be working with like-minded people—politically, ideologically,” Herbert says. “It makes for good conversation in the fields.”
For a man with a degree in accounting and a masters in education, running a small organic bread bakery is an unlikely occupation. But if you get acquainted with Larry Cohen, owner of Raymond St. Microbakery, you would have a difficult time picturing him doing anything else—especially your taxes.

Peering down at me, Cohen interrupts my conversation with a local grocery cashier. He extends a thin hand and introduces himself. His aberrant behavior catches me off guard; I think he wants to sell me something. He explains that he overheard my conversation about organics and before I know it, the bearded man is handing me two loaves of his favorite bread and a spiel on their worth.

"Almost every ingredient in my breads is organic," Cohen says proudly. "It's about the only stuff you'll find like it in town."

Before long, I find myself in the basement of a weathered, but attractive, old house. Wearing an apron and an eager grin, Cohen invites me in for a tour of his bakery. Expecting to be led through a cavern of enormous flaming ovens, I'm surprised to find everything within full view. His bakery is a flawless 8-by-15 foot corner room, just large enough for a brawny table, a silver mixer, a bread rack, sink, an archaic oven and, of course, the baker himself standing in the middle, anxious to show me his trade.

Tall and gaunt, Cohen hardly fits the stereotype of a full-bellied baker. Nevertheless, he seems to be filling a niche. He moves methodically through his tiny bakery, reminding me of a scientist moving about a lab. And a scientist he is.

"I experimented a lot when I started," he says, his European accent sharp. "It's fun; when I get a failure, I say, 'Great ya' know, I've learned something.'"

"The failures become pig food or compost," he adds, noting that his botched attempts are often the result of poor timing or the wrong mix of ingredients.

Proceeding with the tour, he points out the obvious—the table, oven and sink. He smiles and laughs when finished, aware of the simplicity of the entire display.

"I love baking. I love working with the bread and dough; it's a passion," Cohen says. "When I bake, I'm happy." His affinity for the trade is apparent as he turns his conversation into a whistle, and offers the bread in the oven his full attention.
Despite my mother's many home-made bread loaves, I am surprised to hear that there are only three basic ingredients in each loaf: water, flour and salt. Cohen describes how the dough rises, taking the yeast from the air. He says it is in the time allowed to rise that many of the breads come to their ideal taste. The flour, he says, is purchased directly from Fairhaven's organic mill.

I begin to realize that like his tiny bakery and basic ingredients, Cohen likes things simple and uncomplicated. And, somehow, it makes sense that he's using organic ingredients.

"You taste and look at (organic farmer's) food; it has real nourishment," Cohen says. "Partly, it's the way that it's grown; partly, it's the care that people are putting into it. I try to place that same care into my bread."

The key to quality, he says, is a producer's relationship with his or her food. Removing the racks from the oven, Cohen taps each loaf with a slender index finger, adding his magic touch to each one.

Although his bakery is smaller than most kitchens, Cohen manages to make about 50 loaves every other day and 25 on the days in-between. He distributes his bread around Bellingham to places like the Food Co-op and Terra Organica.

"I picked apples for awhile in a (pesticide)-sprayed field," Cohen says. "I couldn't do it for more than three days a week ... the trees had all this dust on them; I knew they were making me sick ... so I don't believe in using agrochemicals."

Cohen extends his support of organics to his belief in supporting a local economy, saying local food is commonly comprised of organic products, though not always certified ones.

Cohen's business itself is not certified organic, although he hopes it will be within a year. He explains that certification would require all of his herbs and lesser ingredients to be recognized as organic, while currently a few are not.

"Getting certified is just another process with many regulations which cost money," Cohen says. "Just knowing the people I buy ingredients from and knowing what they do with their products are safe enough procedures for me."

"No matter how the standards are in the future, I'm going to keep eating the same way, and I think people who want to continue eating organics will just have to get to know the producers," Cohen says.

"And I think organics will definitely have to be the way of the future since the health of people and the health of the planet are all tied together."

...
Carl Weston waxes sentimental the days as a child visiting Joe’s Garden and its sprawling acres of arable land that stretched even beyond a young boy’s imagination. Heading off to Joe’s to select fresh produce was an implicit family ritual passed down from his mother.

The impact of those trips to Joe’s proved indelible on Weston. Even as he aged, he never grew out of his affinity for farming, and when the opportunity arose to roll up his sleeves and labor in the fields of Joe’s Garden, Weston seized it.

Weston, a native of Bellingham, started working at Joe’s Garden in 1959, and was employed there off and on for almost 10 years.

“When I was a kid working here, I loved it so much,” he said, his lips surrendering to a moment of revelry.

While working at Joe’s Garden was a dream realized, as Weston asserts, it was only the first of several goals he would make good on.

“Owning the farm was always my dream,” Weston said. “I was 18 when I first asked Joe if I could buy this place.” In 1983, Weston purchased Joe’s Garden.

Since its opening around the turn of the century, Joe’s Garden, has burgeoned into a venerable staple of the community. Spread over six-and-a-half acres, the garden principally harvests 150 plant starts and vegetable starts, and sells produce straight from the garden, traditions that have maintained through the years.

Joe’s Garden provides produce for a myriad of local stores and supplies plant starts for stores in Whatcom County and parts of Skagit County.

Ostensibly, Weston appears every bit the “conventional” farmer, sans the sullied overalls and archetypal tools of the trade. Weston has an easy look that belies his deep roots in the farming industry. A barley-hued cap obscures his sandy blonde hair spiked with brushes of gray. His hands are pink and callused, palpably cracked from toil, his fingernails lined with traces of crusty earth. A forest green pullover exposes swatches of flannel shirt checked in blue, green and yellow. The knees and cuffs of Weston’s ice-blue jeans are caked with mud. Rather than heavy steel-toe boots, he opts for sturdy tennis shoes.

Carl Weston is, however, not a “conventional” farmer. And Joe’s Garden is neither exclusively “traditional” nor “organic.” Instead, it employs elements of both.

Although it is, by standards, a non-organic farm, everything in the fields at Joe’s Garden is grown organically. Joe’s Garden uses only organic fertilizers in its fields, which is where most of the growing occurs, and doesn’t use any pesticides.

One of the benefits of organic fertilizers is that they decompose slowly and thwart a rapid release of nutrients, said Ray Rothenberger and K. Hildahl, of the department of horticulture at the University of Missouri-Columbia. Because most organic materials break down gradually, often over lengthy periods of time, they supply nutrients to plants for greater periods of time and without re-applications.

“We consider ourselves better than organic,” said Jason Weston, Carl’s son. “Organic (farming) uses pesticides and herbicides; we don’t use any on our fields.”

“We haven’t [used sprays in the fields] for more than 10 years,” said Carl, citing its ineffectiveness and the paper work—not potential health risks—as principal factors in the deci-
decision to stop using pesticides.

"When I took over the garden years ago, they used to use pesticides on it," Carl continued. "Even though we used pesticides, we kept getting worms. ...They weren't doing any good and we've had far less problems since not using them."

The EPA’s 1994-1995 report on conventional farming pesticides reveal some startling information on the industry of synthetic pesticides and its known impacts on the health, safety and vitality of both farmers and their crops:

- An estimated 911 million pounds of chemical synthetic pesticides were applied to conventional agricultural crops in the United States;
- About 2.2 billion pounds of pesticides are used annually in the U.S. Pesticides are used for conventional crops as well as in homes, gardens, schools, golf courses and parks, according to the EPA’s Office of Prevention, Pesticides and Toxic Substances;
- In 1995, Americans spent more than $10 billion on pesticides, according to the Natural Resources Defense Council and U.S. Public Interest Research Group.

However, many of the studies conducted regarding the effects of synthetic fertilizers and pesticides on soil, water and humans are inconclusive or hotly debated.

In “Pollution and the Use of Chemicals in Agriculture,” a book published in 1974 on traditional farming and the effects of its practices on the environment, Crop Production Specialist E.R. Armitage wrote, of the effects of fertilizers on soil and water, “It does not appear that either potassium or phosphorous applied in fertilizers is having any serious effects on the general environment. The evidence presented in regard to nitrogen would indicate that the levels in the water, while rising, do not at present time [mid-1970s] give rise to concern and the point has not yet been reached where they are a general health hazard.”

Weston said he wanted neither his employees nor himself spraying the pesticides. Instead, he researched and experimented with other methods.

Weston discovered and employed the Reemay method, which involves placing an impervious cover over the crop. The cover precludes flies and other insects from infiltrating the crop, he said.

The greenhouse at Joe’s Garden includes a plethora of plant starts and herbs. Condensation licks the windows of the greenhouse where inside herbs such as rosemary and thyme reside among rows of pine green baskets cradling fledgling flowers.

The only manufactured chemical fertilizers Weston uses are in the greenhouse and only in small doses. The fertilizer is pumped into the water system in the greenhouse.

Weston said the use of commercial fertilizers in the greenhouse is more a necessity than a choice. “We draw most of our income off of the greenhouse,” he said, “and there’s no way you can grow healthy plants without using commercial fertilizers.”

Another method that has proved fruitful for Weston is the removal of plants from the field during the winter months. The land is thoroughly watered and the soil is tested annually, which is a preventative method for the farm in apprising Weston of how healthy the soil and, in turn, the plants are. “We keep the plants healthy and they can fight the insects,” he said.

For farmers like the Westons, “conventional” farming means a hybrid of organic or natural methods and traditional means of harvesting without mechanization, as most of the daily operations are accomplished by hand.

But increasingly, people involved in the agricultural industry are utilizing all-organic farming practices. "Organic farming is a production system which avoids or largely excludes the use of synthetically com-
compounded fertilizers, pesticides, growth regulators and livestock feed additives,” according to the USDA guidelines.

A 1995 USDA study found that more than 5,000 U.S. farmers were using organic methods, harvesting primarily fruit and vegetable crops.

Organic agriculture is an ecological production management system that promotes and enhances biodiversity, biological cycles and soil activity. Organic agriculture is based on minimal use of off-farm inputs and on management practices that restore, maintain and enhance ecological harmony, according to the National Organic Standards Board.

Preventive — not corrective — measures underpin the systems of organic farming.

“When you garden organically, you think of your plants as within nature that starts in the soil and includes the water supply, people, wildlife and even insects. An organic gardener strives to work in harmony with natural systems and to minimize and continually replenish any resources the garden consumes,” the principles of organic farming systems, as described in Organic Farming, an industry magazine.

Organic farmers employ crop rotation, plant cover crops and aim to enhance and maintain soil quality by adding organic matter, such as lawn clippings or leaves, to the soil. An integrated pest management approach, which involves the use of beneficial insects and biological products, is at the heart of an organic farming operation.

The Soil Conservation Service estimates that every year, more than 30 billion tons of topsoil erosion occurs on crop lands in the United States. Topsoil is, typically, nutrient-rich and where most of the roots of plants are.

In her studies of organic farming and permacultures, Dr. Mary Peet, professor of horticulture science at North Carolina State University, cites reduction of soil erosion, enhancement of the physical, biological and chemical properties of soil, and a decrease in the loss of nutrients from soils as some of the benefits of organic farming.

In organic farming, compost, green manure and mulches are supplanting the potentially toxic fertilizers, fungicides and herbicides used on many crops.

Compost, made of lawn clippings, leaves and other plant materials, is an effective — and inexpensive — means of improving soil tilth; sawdust is another source of organic matter for soil, and it may be used as compost, mulch or infused directly into the soil. Green manuring is growing a cover crop and plowing it under, a process that adds organic matter to the soil.

Traditional farming’s mono-cropping, the planting of one specific crop, burgeons into a diversity of crops as crop rotation is critical in organic farming. Such alternatives are rendering substantive and propitious results for organic farmers. Soil enrichment and replenishment are achieved and maintainable, and pest populations are controllable as organic farmers cultivate companion plants, insect predators or traps to reduce pest attacks on existing plants.

Organic farming practices have been widely heralded as effective, efficient means of maintaining healthy, arable soil, and markedly reducing the amount of chemicals that may infiltrate water supplies by way of synthetic fertilizers and pesticides.

The exclusion of synthetic pesticides and manufactured fertilizers in organic farming may translate into a significant reduction in the release of potential toxins into ground water and drinking water supplies.

Many studies strongly suggest that residual amounts of pesticides have been traced to water that is consumed daily by people in communities and states across the U.S.

The EPA’s Office of Wetlands, Oceans and Watersheds recently reported that “a contamination of ground and surface water from nutrients is a common problem in agricultural areas, often leading to eutrophication and excessive algae growth in lakes, estuaries and near-shore coastal waters. When fertilizers, in either synthetic or organic form, are applied in excess of crop demand, nutrients can leach from the soil into ground water.”
estuaries and near-shore coastal waters. When fertilizers, in either synthetic or organic form, are applied in excess of crop demand, nutrients can leach from the soil into ground water."

In 1994-1995, the Natural Resources Defense Council and the Environmental Working Group reported that more than 45 million Americans consumed drinking water polluted with unsafe levels of pesticides, toxic chemicals, parasites and lead, among other chemicals. Researchers also found that almost a half-million people in the U.S. drank from water supplies that violated the EPA's standard for nitrate contamination, which is the result of an overuse of nitrogen fertilizer. The EWG estimates that every year, 23 million people drink water contaminated with herbicides, and that some 1,000 deaths are associated with consumption of such contaminated water.

However, the disparities between the methods utilized in organic, or natural, farming, and those in "traditional" farming have produced two dominate schools of thought: if a product or material used in farming is "made by a plant or mined from the earth, it is good," and "if it is made from a laboratory, it is bad," said Seth Zuckerman in "Across the Great Divide," an article in *Sierra Magazine* in the early 1990s. These distinctions have created a "Great Wall" between the standards of organic and traditional farming, Zuckerman said.

"Certified-organic methods can affect more than farmland," Zuckerman said. "... Mining for naturally occurring fertilizers and fungicides such as sodium nitrate, phosphorous and sulfur has scarred landscapes from the Everglades to Australia, from Chile to Idaho."

Zuckerman cited "natural" pesticides used in organic farming that are potentially detrimental to plant life and animals. Powdered pyrethrum flowers are natural pesticides that are dusted onto crops, even though the flowers kill both beneficial insects and those intended to quarry. Organic farmers are prohibited from using synthetic vitamin D to exterminate rodents, but they may use strychnine, which, unlike vitamin D, is poisonous to raccoons and skunks, among other animals.

The misconceptions and miseducation about organic farming may play a central role in the florescence of misinformation about what is "organic" and how it compares to more "traditional" practices. Weston said he believes he has to apologize, at times, for the way he grows, in part because some people believe "organic" and "natural" are interchangeable.

"What irritates me about organic is that [when people hear the word] they think it means 'no pesticides,'" Carl asserted. "I have problems with (organic) where people are misled on organic."

Weston said he doesn't believe organic farming is a fad, but the novelty that surrounds it has translated into a marketing tool for some farmers.

"I started working down here 40 years ago and when organic farming came around, it found a market for people to sell their products," Weston said. "I don't need a gimmick of 'organic' to sell my products."