

MAJOR CHANGES AND TRENDS IN THE PAST 20 YEARS

Agriculture has developed more rapidly in the 20th century than all previous centuries combined. The adoption of mechanization, technology, high yielding seeds, commercial fertilizers, and plant disease and weed control products have enabled nearly 99 percent of the US population to spend its time in pursuits other than food production.

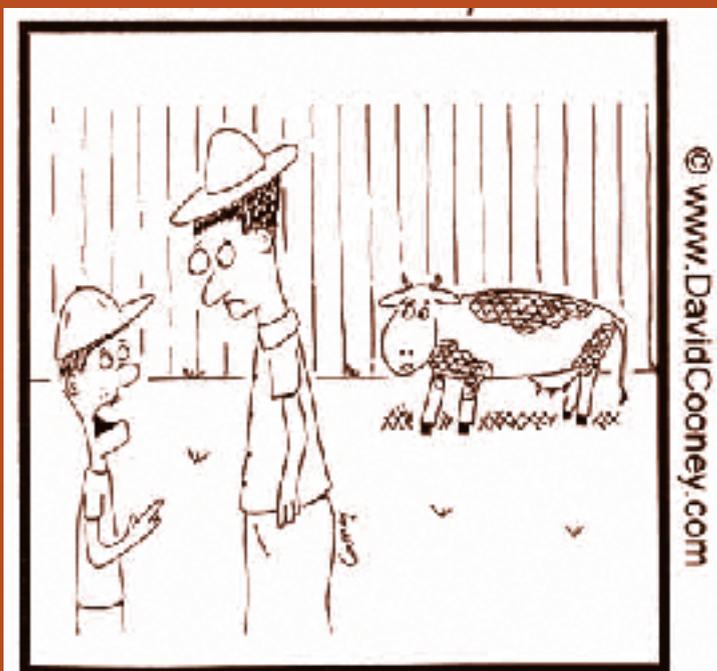
A cow or potato field is as foreign to many of today's children—and adults—as an elephant or a far-away jungle. In fact, more children in the US have visited a zoo than a farm.

But there is a growing interest in where food comes from, stirring a renaissance of sorts among urban consumers about food and agriculture.

Food production and distribution have changed more in the past two decades than in the previous 100 years. The data demonstrates that agriculture is not in decline, but it certainly is facing change. The industry is evolving, adjusting, and adapting.

Goals of public farm and food policy in the US, 1860 to the present

- Raise the standard of living for farmers and non-farmers.
- Stabilize farm income, prices, and production.
- Support the private ownership of farmland.
- Encourage public and private research to increase production efficiencies and technology improvements.
- Provide an ample supply of food at reasonable prices to consumers.
- Address hunger and malnutrition.
- Improve human health and reduce health hazards by ensuring a safe food supply.
- Preserve natural resources of land and water for use by future generations of producers.
- Produce feedstock for domestically-derived fuels and energy sources.



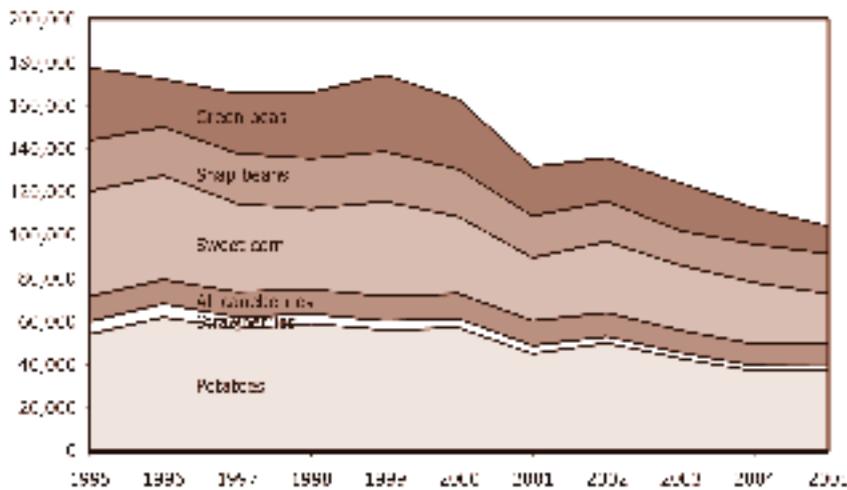
"Is that where you download the milk?"

CONSOLIDATION AND TAKEOVERS IN THE FOOD PROCESSING AND RETAIL INDUSTRIES

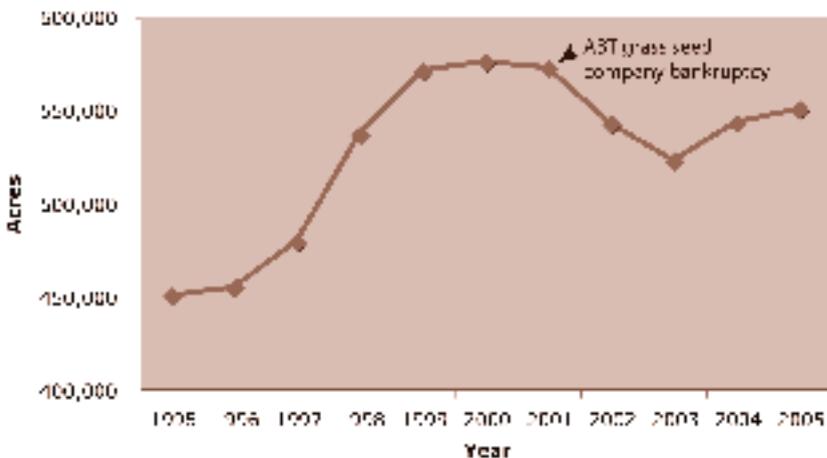
In the past decade, food businesses (processors, wholesalers, and retailers) have structured between 600 and 800 buyouts, takeovers, or consolidations each year. Six food retailers now control nearly half of all retail food sales in the US and even higher amounts in the urban areas—75 percent of food sales in the 100 largest US cities. Wal-Mart alone accounts for 12 percent of US food sales

and is projected to have more than 20 percent of the market share in another eight years. The other five companies are 75 percent shareholder owned, hence they are driven by profit motive. While sharing Wal-Mart's mantra of low prices, these companies have sought a 15 percent annual compound return over the past decade. This has led to sourcing worldwide—wherever the food product is least expensive. Oregon is not a cheap supplier, due to its distance from markets, input costs related to labor and land, and lower volumes of production.

Acres in production



Total grasses & legume seeds



The value of the dollar is also a factor in farm profitability. When the dollar is strong, imports are cheaper and Oregon's exported ag products appear more expensive, hurting Oregon producers who sell locally and those that export. A weak dollar is better for Oregon agriculture, as nearly 45 percent of production goes overseas.

Oregon's food processing industry has not been isolated from the consolidating pressures in the food business. Recent examples of impacts in Oregon include Simplot closing potato processing and fertilizer plants, costing 500 jobs, and building new plants in Canada, Chile, and China. The AgriPac bankruptcy (1999-2000), the ABT bankruptcy (2001), and the AgriLink/AgriFrozen bankruptcy collectively took about \$80 million of equity from Oregon producers, due to production expenses incurred and the value of crops for which they were not paid. Loss of major processors means fewer buyers, fewer options for

cropping alternatives, and generally lower prices.

The lost capacity of local vegetable and berry processing in Oregon resulted in a 73,000 acre loss of primary processing crops between 1995 and 2005.

Most of the acreage in the Willamette Valley has been converted to various grass and vegetable seed crops, increasing nearly 100,000 acres over this same period.

GLOBAL TRADE AND MOVEMENT OF GOODS—INCLUDING PESTS



Worldwide movement of foods, plants, and livestock creates opportunities for diseases and invasive species to be introduced, incidentally or intentionally. This adds costs to the food system and the economy. These costs are associated with human health, biocontrol on the farm, and monitoring and eradication efforts. Examples of recent concerns include Avian influenza, anthrax, *E.-coli*, Asian longhorned beetle, Japanese beetle, gypsy moth, noxious invasive weeds... just to name a few.

Global trade presents opportunities and costs. Agriculture sees both sides. Nearly 45 percent of Oregon's agricultural production goes overseas, much more than the national average of 25 percent. Product reaching our shores, however, can carry hitchhiking

pests or diseases. This requires vigilant monitoring and eradicating of pests and diseases before there is an impact on domestic production or health.

The results of a March 2006 survey show that, on average, Americans say funding to protect against terrorist attacks on our food supply should be increased. While people think the most likely target of a terrorist attack would be a train or a subway, they are actually more concerned about an attack on the food system. The National Center for Food Protection and Defense, an organization created by the Department of Homeland Security, sponsored the survey

ESCALATING COSTS

Fuels, fertilizers, electricity and other energy inputs, labor, land, and equipment costs have escalated at unprecedented rates in the past three to five years.

Fuel and related components—fertilizers, chemicals, etc.—have increased upwards of 200 percent in the past two years. Fuel and fertilizer are two constants all farmers have to deal with year in and year out. These “core costs of production” continue to reflect changes in petroleum costs. Fertilizer has gone from 17 cents a pound to 37 cents a pound in the past year.

Land prices, particularly around urban areas, are being pushed upward. Measure 37, opening the potential for residential development in farm zones, could have dramatic impacts on agricultural land values, driven by



A recent example of global trade and rising cost

After 19 years growing garlic, Madras-based farmer Loren Roff, of Roff Farms Inc., left the garlic business this year, but not due to white rot. “We thought white rot would get us first, but our partner in California went broke due to falling prices,” he said.

Roff had worked with a 30-year-old, family-owned farm in California for the past 19 years, but the California farm went out of business when Chinese garlic farmers offered cheaper garlic to larger retailers such as Wal-Mart and Costco.

“The larger companies didn’t want to pay what it cost us to produce,” he said. “As a result, [the California farm] went out of business fully stocked with fine quality garlic powder and nowhere to sell it.”

So far, Roff has not found any new crop to replace garlic and doesn’t expect to find anything soon. He estimated that the loss of the garlic crop cost his business one-third of its total income. “There’s nothing of the same caliber,” he said. “And there’s nothing on the horizon.”

“Garlic fungus haunts high desert farmers,” By Jeff McDonald, WesCom News Service, May 12, 2006.

development pressures. In Eastern Oregon, the pressure comes more significantly from non-farm interests purchasing farm or ranch lands for recreational purposes.

Labor costs have risen in connection to the indexed minimum wage, pushing wages higher throughout the industry. In caneberries and fruit production, labor costs can constitute upwards of 70 percent of the cost of producing the crop. Competition for workers with other industries, including construction, retail, food service, and hospitality/tourism, have also pushed wages higher. Agriculture, however, does not compete in a local economy alone. The products produced on Oregon farms compete head-to-head with similar products from Mexico, Chile, China, and other areas of the world where labor costs are a fraction of that paid in Oregon. Taken in the aggregate, labor/wages is the single highest expense for Oregon farms.

Farmers cannot, in most cases, pass on the cost increases for commodities they produce. Since buyers can source anywhere in the world where the commodity is cheapest, Oregon growers must continually find ways to reduce costs or reduce the already marginal profits to the business.

Additionally, many retailers are increasingly demanding traceability of product—another added cost with difficulty of implementation in a diversified industry with many small farms. Further, retailers are demanding many different packaging forms for segmented consumer preferences

that add costs to growers involved in value-added processing.

CONSUMER TRENDS AND SEGMENTED MARKETS

American consumers are fickle. Do we really want healthy foods and will we choose to have healthy diets? Food producers, processors, and retailers are confused by the trends and are trying to identify which markets will gain traction.

Considering that 23 percent of Americans pay no attention to nutritional facts and figures on food labels, 59 percent are aware of but do not follow the USDA Food Pyramid, and only 26 percent are aware that the pyramid was recently revised, it’s no wonder that food producers, processors, and retailers are struggling to understand public desires. (2005 survey by PARADE Magazine, What America Eats).

When it comes to eating habits, what Americans say and what they do are two different things. Tim Ryan, President of the Culinary Institute of America, says we suffer from “dietary schizophrenia. Americans tend to ‘talk skinny’ but ‘eat fat.’” For example, 84 percent say they try to eat a well-balanced diet but mostly fail; and 42 percent eat a healthy mix of foods, yet undermine their efforts by indulging in snacks and other pleasure foods as a reward.

We’re eating more vegetables (but only 2.4 servings per day when USDA guidelines recommend five), salads, whole grains, and chicken, yet continue to snack in the evening and eat more dessert than

is healthy. We are concerned with the obesity crisis, yet nearly half of surveyed parents say their own kids' weight is just fine, and only 25 percent of adults are on diets to lose weight.

Some interests are taking the approach that healthy food should be mandated and food companies should be responsible for unhealthy products. Others argue that informed consumers make their own choices and should accept responsibility for how and what they eat. History has shown it is hard to legislate consumer choices.

Despite the influx of health-focused food and beverage products produced each year for retail store shelves, US consumers are still spending one-third of their food budget on products consumed for pure enjoyment rather than nutritional value.

("The Enjoyment Factor: Consumers' Unwavering Demand for Taste, Indulgence and Variety," Information Resources, Inc., 2005)

Some companies are reacting to these mixed consumer signals. After a fan-fare introduction in 2006, Wendy's International, Inc. pulled fresh fruit from the menu at its burger restaurants because sales did not live up to expectations.

Other trend indicators are sending mixed messages, leading to market segmentation, increased numbers of niche products, and diversity of marketing venues. Some of these major trends follow.

Diet craze and food for function

Two years ago, approximately 10 percent of the US population was on a low-carb diet, affecting products made with wheat, potatoes, and some other starch-based commodities. Today, less than 3 percent of the population is on a low-carb diet. "Functional foods" are now taking the lead. This includes foods containing probiotics, energy-boosters, vitamin and mineral supplements, cholesterol-lowering foods, and "diabetes friendly" foods. Whole-grains, for example, are recommended because of their benefits to the heart and digestive systems. Sales of whole-grain bread and baked goods in the past year have risen more than 18 percent to about \$1.1 billion.

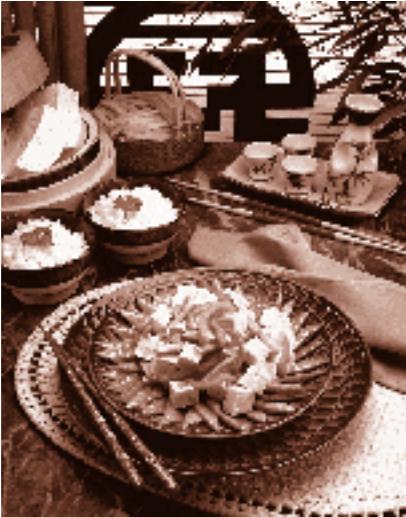
Preferred purchase

Another 10 percent of the US population consistently makes food purchases based on specific production or processing traits, organic, kosher, sustainable, location of production, "free-from foods" such as wheat-free or dairy/lactose-free, or other features of preference.

Organic

Growing consumer demand for organic food is outstripping supplies of organic vegetables, grain, dairy products, and other commodities, partly due to the intense labor requirements for organic production. This has created a vacuum for imports of organics from Mexico, China, Chile and other locations where labor is cheaper, but presents a





dilemma defining a “sustainable” food being shipped thousands of miles to market. Wal-Mart recently announced it is doubling its organic offerings, which may lead to a broader price appeal, but may complicate the sourcing issue.

Fast-food breakfast market

This segment is growing at three times the rate of the overall food market, hitting \$30.6 billion in 2005, up 22 percent from \$25 billion in 2001. Chains including Carl’s Jr., Papa John’s Pizza, Dunkin’ Donuts and Chick-fil-A are rolling out new breakfast products.

Online

About 10 percent of consumers are doing some amount of grocery buying online, affecting how products are displayed, packaged, and distributed. The percentage of retailers with an online presence has almost doubled to 94 percent in 2005 from 50 percent the year before. For many specialty retailers, including those using direct ag marketing, the Web site is their largest store.

Pets and what they eat

More US households now have pets than have children. Currently, 63 percent of all US households own a pet—73 million dogs, 90 million cats, 148 million fish, 18 million small animals, 16 million birds, and 11 million reptiles. Think about this for a minute and how it affects food purchases and other resource issues. There is more pet food than baby formula on

the grocery store shelves. Pets are increasingly viewed as part of the family, even taken out to dinner and on vacations. The implications are significant. In June 2006, a Chicago restaurant introduced “doggie dining” to give owners a chance to dine with their dogs, selecting exclusive doggie menu foods.

Ethnic foods

Thirty of the 100 largest US cities now have a “minority” as the “majority” population. Increasing numbers of ethnic groups are seeking foods that fit their culture and tastes. The US Department of Agriculture says Americans are eating four times more Mexican food than they ate 20 years ago, and sales of salsa—once a specialty condiment used for tacos—are outstripping ketchup sales. The estimated sales of tortillas topped \$6 billion in 2004—twice the sales of a decade ago.

Quick or cheap

The number of meals eaten in a restaurant annually has decreased from 93 meals per person in 1985, to 80 meals per person today. However, the number of meals to-go purchased at a restaurant and eaten elsewhere has increased from 19 meals per person in 1985, to 32 meals per person today. About 92 percent of take-out lunches come from fast food restaurants today, and 92 percent of individuals consume some form of “ready-to-eat” foods in the home on a daily basis. As a result of time-pressed lifestyles, the major factors that drive our eating habits seem to

be time and money. If a meal is not cheap, it better be quick, and vice versa. Prepared meal consumption in Europe and America is forecast to double in the next ten years.

Demographics

The baby boomers are now gray-haired and wanting smaller portions, more convenience, and more variety in the foods they buy.

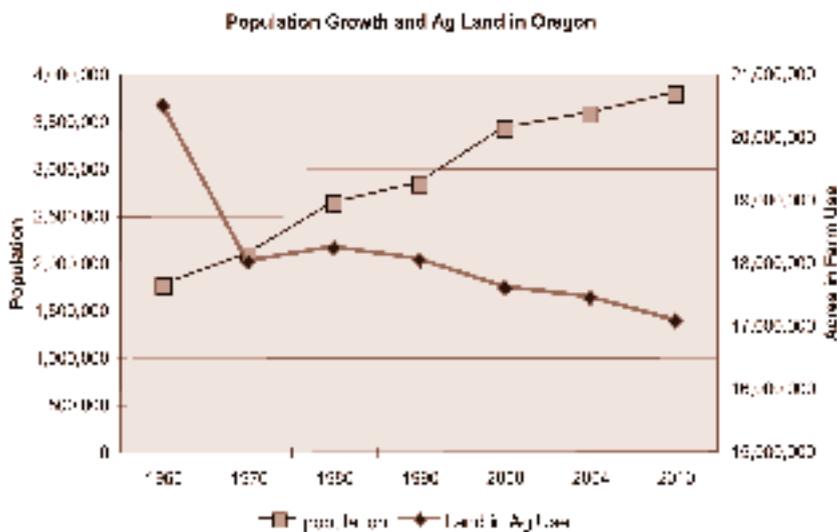
All of these trends and others will determine which products are successful in the marketplace. They will require close scrutiny and skilled marketing, and top quality production and processing to keep the agricultural industry viable. Oregon producers and processors are following these trends, trying to understand them, and modifying their production to satisfy consumer demands. Many growers are also venturing into value-added processing and direct marketing as they adapt.

POPULATION GROWTH AND COMPETITION FOR NATURAL RESOURCES

As evident from the following graph, population growth in Oregon has a significant upward trajectory, while land in farm use shows a trend line in the opposite direction.

Significant conversion of farm land during the 1960s led to the passage of Oregon's landmark zoning laws which provided designated areas of growth for urban communities, and exclusive farm and forest zones for commercial production of crops, livestock, and forestry products.

The implementation of land use laws slowed the erosion of farmland conversion but did not stop it. As population in the state increased, particularly in the Willamette Valley, urban areas stretched their growth boundaries onto surrounding farmlands.



Population increases also create more water needs in urban areas, and public interest in retaining more water in-stream for fish and other wildlife also puts pressure on water availability for agriculture.

Without technological improvements in water efficiency and increased production, agriculture cannot keep up with the demand to “produce more with less.”

However, it is unrealistic to hypothesize that a long-term strategy of conservation and downsizing of land and water devoted to agriculture and natural resources will lead to an endless supply of food, fiber, and other products in demand.

NEW TECHNOLOGIES

While one-third of the world’s crop production increases in the past three decades have come from more land placed under cultivation, mostly in developing countries, two-thirds have derived from improved farm practices. These practices include the use of fertilizers and pest control products, higher yielding seed varieties, and irrigation development. More recently, new technologies have included precision application through GIS/GPS-adapted equipment, biotechnology, mechanization of planting and harvesting, computer-controlled machinery, and other dynamic applications of technology to agriculture.

Farmers around the world used the same basic technologies of human and animal labor for

thousands of years. The “green revolution,” between 1950 and 1970, introduced new plant varieties, fertilizers, chemicals, and irrigation to increase farm output 50 percent while consumer prices remained stable. Wheat yields in Mexico increased over 400 percent, rice yields in Asia were doubled. If the same farming methods of 1950 had been used in 1970, an equivalent abundance of food and other products would have cost consumers two to three times as much due to higher costs associated with labor, land, and fuels (National Academy of Sciences, 1975).

The ratio of outputs to inputs, however, has leveled off. All this new technology required more capital and financing—farmers took on an increasing amount of debt. In the US, increased debt load, coupled with falling prices and decreased world demand for ag products in the 1980s, led to widespread defaults on loans, foreclosures on farmland, agricultural banks going out of business, and a very challenging decade of restructuring.

A second “green revolution” is taking place today in agriculture through a bifurcated scenario with the dramatic adoption of genetically modified seeds and other technologies on the one hand, and “organic” or “natural” agriculture on the other. Both offer tactics that can be sustainable when applied with good management techniques. Growers that use GMO seeds and no-till planting have dramatically reduced chemical use, soil erosion, fuel, and other inputs costs—and have

increased outputs. Growers that use organic methods of farming also reduce chemical inputs, build up soil humus, and replace purchased fertilizers with animal and other natural plant nutrients. Research into both of these and other “sustainable” farming practices is increasing, and farmers are adopting what they perceive as the best of these approaches to fit their markets, soils, and cropping opportunities. In fact, it is not uncommon for growers across the US to have conventional, organic, and genetically modified production on the same farm in response to various market niches.



REGULATORY ISSUES

The last four decades have brought about monumental changes in farming practices with passage of federal laws such as the Endangered Species Act, the Clean Water Act, the Clean Air Act, the National Environmental Policy Act, the Wild and Scenic Rivers System, and many program requirements in various farm bills related to wetlands, sod or grass lands, water quality, soil erosion, pest management, and other natural resource management protocols.

The results of these programs are mixed. Some programs have produced widely recognized benefits to land and water quality, while others appear to have a much higher cost than return of benefit. The agriculture industry largely feels over-regulated and stifled by the mounting costs of complying with more and more rules and requirements. Record keeping is a monumental task. The “regulatory

burden” is often cited as a major reason that the younger generation isn’t returning to the farm. “It just isn’t enjoyable any more as a lifestyle,” is an often heard statement.

Indeed, farming is no longer a lifestyle for full-time operators. It is a complex, fast-paced, management-intensive, technologically-advanced business. Costs associated with regulatory compliance are significant, but difficult to quantify.

Cost of compliance is not the only consideration. Growers who undertake projects to improve their operation and enhance environmental benefits often face a daunting regulatory maze that requires time taken away from operating the farm, often hiring lawyers or other specialists, and “one size fits all” options that are difficult to adapt to a specific farm site.

Many growers, however, are taking an approach of documenting their efforts and having them certified, providing the marketplace with evidence of the production methods used, the location, or special quality of their products and how they interact with the environment. This has led to a rise in many certification programs. If a market niche can be identified and consumers are willing to support specific activities (with their related costs), growers are finding a way to help take the sting out of some regulatory requirements.

Even so, the pressure and costs of regulatory impacts have an influence on the make-up of

agricultural operations. Whereas larger operations have the resources and employees to oversee compliance with the hundreds of regulatory requirements, smaller operations don't.

Regulatory compliance can contribute to farm consolidation, driving farms to become larger to enable the resources required to address compliance costs. Medium-sized operations that simply don't have the economies of scale either get bigger or smaller. "Micro-farms" fall under the regulatory requirements in some instances due to the limited size of the operation, fewer employees, etc. As an example, unemployment insurance exemptions exist for growers with fewer than 10 employees or \$20,000 in quarterly payroll. Scale makes a difference—both in terms of potential impacts and ability to mitigate those impacts.

A compilation of many of the regulatory requirements applicable to farm operators can be viewed online.

- http://oregon.gov/ODA/pub_fh_index.shtml