

ECONOMIC HEALTH OF THE AGRICULTURAL SECTOR

In the early 20th century, families operated most farms using local resources and labor. The farmers recycled organic material, and used rainfall and built-in biological controls. Farms had both livestock and cropland. Farmers safeguarded production through rotating crops in space and time to reduce risk. Legumes were grown in rotation to provide inputs of nitrogen. These techniques suppressed insects, weeds and diseases by breaking the lifecycles of these pests. Only limited equipment and services were purchased off farm.

Today as more and more farmers are integrated into international economies, imperatives to diversity disappear and monocultures are rewarded by economies of scale. In turn, lack of rotations and diversification take away key self-regulating mechanisms, turning monocultures into highly vulnerable agroecosystems dependent on high chemical inputs.¹

FARM CHARACTERISTICS

In 2011, 96% of U.S. crop farms were designated as family farms, and they accounted for 87% of the value of crop production. In recent decades the percentage of farms designated as “family farms” has remained steady (from 97.1% to 98.3% of all farms from 1996 to 2011), but the definition of a family farm has changed. According to the latest USDA definition, a family farm is “any farm organized as a sole proprietorship, partnership, or family corporation. Family farms exclude farms organized as nonfamily corporations or cooperatives, as well as farms with hired managers.” Even very large farms, farm businesses that own or rent multiple locations, and farms managed by non-resident owners may be classified as family farms.

Both small farms and very large farms have increased in number with a decrease in midsized farms. Since 2,000, the number of small farms has increased and the USDA indicates this may reflect life style decisions and the ability to farm part time while holding an off-farm job. Small residential farms, where owners are retired or derive some of their income from off-farm work, have increased in number in recent years, as have very large farms. However, farms with at least \$1 million in sales accounted for 24% of the value of agricultural production in 1982 and 59% in 2007. Meanwhile the share (of sales) held by small commercial farms with \$10,000 to \$250,000 in sales fell by two-thirds.

The growth of farm size reflects a shift in agriculture production from smaller to larger commodity crop farms (field corn, soybeans, wheat, hay) referred to as cropland consolidation. The practice of monoculture (growing a single crop intensively over a large area of land) has increased. Typically corn and soybeans are raised in rotations designed to maintain soil quality and limit pest infestations. The trend is strongest in the more rural areas of the country, most significantly in the Midwestern states. Both owned and rented property may be managed as a single farm and are so considered in USDA statistics. About 40% of U.S. farmland has been rented over the last 25 years. In the USDA report on farm size,² the authors observe three trends in this crop consolidation:

- Four crops (field corn, wheat, hay and soybeans) accounted for over 83% of the crop acres. “Twenty-two percent of crop production occurred on farms that produced only a single commodity crop, while 30% occurred on farms growing two crops. Only 11% occurred on farms with five or more crops.
- The three high-value categories—vegetables and melons; fruits, nuts, and berries; and greenhouse/nursery crops—accounted for nearly 37% of all cash receipts from crops in 2007 but less than 4% of harvested acreage.” The high-value categories have high yield per acre and use labor and physical capital intensely.
- A long-term shift in the mix of crops is occurring with cotton, tobacco and oats decreasing and field corn, hay and soybeans increasing as well as “high-value categories.”

There are several basic advantages of size that apply to large farms including better financial performance, higher rates of return on equity and decreased labor hours. A farm harvesting 2,000 acres uses less than half the labor of a farm harvesting 500 acres. Larger farms have 35% to 50% lower costs per acre for assets and equipment. The same cost

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savings apply to the fruit and vegetable operations. This huge increase in efficiency is the result of many factors, including the use of fertilizer and pesticides, introduction of farm machinery, development of hybrid strains, and increased knowledge about farm management practices producing higher yields using less labor and less land. Most of these factors and their issues are discussed under specific short agricultural update papers including soil management, animal management, pesticides, water management, plant breeding and genetic engineering found in www.mont.lwvmd.org.

This intensification of agriculture has increased environmental impacts such as potential degradation of the soil and water resources vital to both farm productivity and human health. For more information on specific environmental concerns see the updates cited above. Specifically, these impacts include:

- Environmental impacts of pesticide use, including potential damage to pollinator populations and human health implications of toxic residues in water sources
- Nitrogen run-off, resulting in impaired waterways and dead zones
- Soil erosion as a result of the loss of wind-breaks, hedge-rows, and swales
- Human health implications of pesticide and herbicide residues
- Increased reliance on irrigation that increases water usage
- Reduction in biodiversity

Some organizations suggest that the industrialization of agriculture has depleted the economic and social energy of rural America, with the loss of local food sheds, local food security, incomes, and revenues for services and infrastructure when markets for mid-sized farms contract.

Changes in Practices

Current modern practices are the result of basic changes in practices beginning around the end of World War II. These changes include:

- **Technology:** Larger production runs allow for the use of more capital equipment that increased efficiency and reduced labor. Mechanical harvesters, sprayers, and planters saved time and labor by enhancing the ability to seed and harvest large acreages. Innovations that provide the farmers with more accurate information increase the farmer's ability to manage land without additional labor or workers
- **Chemical Pesticides:** Historically farmers have controlled plant pests through weeding or mechanical tilling, natural soil amendments such as manure, crop rotation, tillage and leaving land fallow. The use of pesticides can significantly reduce the amount and cost of labor to complete these tasks. From 1950 to 1980 the use of pesticides rose, but leveled off after 1980 as better pesticides were developed.
- **Plant Breeding and Genetically Engineered Seeds:** Seeds designed to produce crops that better resist pests, which exhibit greater stem strength or more rapid growth, provide the farmer with more efficiency. Genetically engineered seeds are proprietary and need to be purchased every year,
- **Tillage Practice:** "No till" systems leave crop residue from the previous harvest on the soil. Soil is left undisturbed, not plowed or harrowed from prior harvest to planting, except for the injection of nutrients. This saves on passes of machinery. However, this practice appears to encourage more pesticide use and opponents of no-till cite thousands of years of use when animals rather than heavy machinery were used and synthetic chemicals were used less or not used at all.
- **Information Technologies:** Management practices and information technologies (IT) allow the farmers to measure and manage intra-field variations in soil attributes, pest presence, product attributes, and production outcomes.

Aging Farm Population

Deputy Agriculture Secretary Kathleen Merrigan sees an epidemic sweeping across America's farmland of aging farmers and ranchers and fewer people in line to take their place. "If we do not repopulate our working lands, I don't know where to begin to talk about the woes," she said in a recent interview.

Contract Farming and Vertical Integration

The ability of the farmer to contract with a buyer for sale of a crop before the harvest may reduce the financial risk for the farmer by providing a secure outlet for crops and price supports that may ease credit risks. Under production contracts for poultry, livestock, and even nursery plants, the buyer owns the commodity and the farmer contracts to provide the services to bring it to market. There will be a more detailed discussion of animal management practices in a later fact sheet. A company with a related business at different points on the same production path is vertically integrated. An example is Perdue, which provides chicks to the farmer, mandates the type of feed and other practices, and then controls the processing and marketing of the broilers. Critics of this vertical system argue that the contractual farmers bear risks and costs, while control of prices paid to the farmers and most of the profit goes to Perdue.

Under more common *marketing contracts* a price, delivery outlet and quantity are set for the commodity, thus reducing risk. Usually there are specifications of acceptable product standards. Large farms are more likely to use contracts and contracts covered more than 40% of crop production in 2011.

There are concerns that contracting produces “a tilt in market power with a possible shift in bargaining power as input suppliers and output processors (and first purchasers otherwise) gain greater economic power, undoubtedly at the expense of producers. Firms not engaged in contract or ownership integration, usually smaller farms, may be unable to process or market their products or purchase needed components from firms that are vertically integrated. However, there are innovations such as mobile butchering processors that go from farm to farm and more farmers’ markets.

Organic Agriculture

The USDA defines organic as:

Organic is a labeling term that indicates that the food or other agricultural product has been produced through approved methods that integrate cultural, biological, and mechanical practices that foster cycling of resources, promote ecological balance, and conserve biodiversity. Synthetic fertilizers, sewage sludge, irradiation, and genetic engineering may not be used.

The USDA provides detailed guidance relating to organic production, handling, processing, labeling, marketing, certification, allowed and prohibited substances and policies. In 2010, a mere eight years after USDA’s regulations officially went into effect, sales of organic foods and beverages were \$26.7 billion. Organic agriculture follows practices for crop rotation, biodiversity and mixed cover crops to enhance the health of the soil and protect the environment.

Pesticides are used in organic farming but must be natural, processed lightly, and not synthetic. Around 20 chemicals are approved for use in the USDA program. Large organic farms may be using liberal amounts, but usage is not tracked. There are some concerns about their safety. Pesticides used in conventional agriculture are often synthetic and are regulated by the Environment Protection Agency (EPA). More information on pesticides is available at www.mont.lwvmd.org.

Organic farming is a growing industry that may add significantly to the development of sustainable agriculture practices. There are those that have argued for this approach exclusively. Others have insisted organic farming cannot feed the world. Organic farms are not limited to small niche farms and may become part of the large farm universe as farmers recognize the value of the products. Universities are working with farmers to improve organic methods. These and nutritional and taste issues of alternate farm systems are discussed in the nutrition section at www.mont.lwvmd.org.

Sustainable Agriculture

Examples of these practices vary depending on regional soil and weather conditions. Generally, they include crop rotation, tillage practices (animals often replace expensive machinery that can compact the soil and emit CO₂), use of cover crops, soil enrichment through plant and livestock inputs, use of natural pest predators, and bio-intensified integrated pest management² as well as use of energy conservation technology and renewable energy sources (solar water pumps).

Results of an eight-year farm study conducted in Iowa that compared two-, three-, and four-year crop rotations indicate that more diverse crop rotation systems can use smaller amounts of synthetic agrichemical inputs as powerful tools to tune, rather than drive, agro-ecosystem performance while meeting or exceeding the performance of less diverse systems. These practices also reduce freshwater toxicity.

The Union of Concerned Scientists sees four major factors in healthy farm planning: a landscape that allows for the continuous rotations of uncultivated (resting fallow) areas; crop diversity and rotation using long crop rotation; expanding crop selection to include fruits and vegetables to build diversity and improve the soil; integrating livestock to increase diversity through well-managed pastures and the availability of manure; and using cover crops to prevent exposed, bare soil, the loss of topsoil, and sediment runoff. These practices may have a lower gross return per acre, but the reduced gross income can be balanced and exceeded with lower input costs for machinery and synthetic chemicals, fertilizers, pesticides, and fuel, so that net returns can be the same or better.

THE INFLUENCE OF GOVERNMENT POLICIES

Subsidies such as the ethanol corn subsidy of 46 cents per gallon that stopped in 2011 encouraged corn production. When that subsidy stopped, the renewable fuel standard, which mandated that at least 37% of the 2011-12 corn crop be converted to ethanol and blended with the gasoline, kept corn prices high. Crop insurance has influenced farm growth because farmers are eligible for payouts not only when their crops fail due to drought or flood, but also when the prices of their crops decline. Critics say crop insurance has reduced the risk of farming so much that farmers are now incentivized to farm on marginal lands, such as wetlands or lands with less than optimal soil. The national Farm Credit System created by the U.S. Congress in 1916 provides a source of financing for expensive farm equipment. Conservation subsidies encourage environmentally sound practices through cost sharing. EPA's Confined Animal Feeding Operation rules induced some farmers to constrain farm size, so as to remain just small enough to evade EPA rules and regulations.

Subsidies

The federal government supports the agricultural sector through a variety of direct and indirect subsidies. The direct subsidies receive the most attention in the press and in Congress, because they tend to involve some type of direct payment to farmers. The government also indirectly subsidizes agriculture by funding activities such as agricultural research and development (R&D), extension programs, and maintaining agricultural databases.

Farming is an inherently risky business. Some risks relate to decisions exclusively under the farmers' control. For example, knowing how to select the best seeds for local conditions; deciding how much of which crops to plant; knowing which combination of crops can deter pests; and correctly timing the need for pesticide application or knowing how to naturally amend the soil to avoid synthetic pesticides and fertilizers are all part of the calculus. The wrong decisions can dramatically affect profitability.

However, considerable risks fall outside the farmers' control:

- Catastrophic weather events such as floods, droughts, and recent severe snow storms in Colorado that killed thousands of cattle can be financially devastating. Even an untimely two-night freeze can wipe out an entire year's production, which happened two years ago when Michigan lost most of the fruit crops from a spring freeze.
- The availability of farm labor to harvest crops where mechanization is not used; produce can only be sold if it is harvested as it ripens; a timely harvest is critical.
- Farmers do not control the prices they are paid for commodities traded on exchanges such as the Chicago Mercantile Exchange/Chicago Board of Trade. Mainly large farms producing sugar, milk, frozen orange juice, live cattle, feeder cattle, hogs, cotton, wheat, oats, canola, corn, and soy must be vigilant about market prices for futures and options contracts in deciding when to sell. However, as described above, choices may be limited.
- The often-volatile and fluctuating price of energy affects the costs of operating machinery during planting and harvesting, synthetic (petroleum-based) inputs such as fertilizer, and transporting products to markets.

Given the uncertainty in crop and animal production as well as post-production factors, Congress has adopted a variety of agricultural subsidies. Between 1995 and 2012, the USDA farm programs paid out \$292 billion in subsidies, of which

\$17.6 billion were direct payments, \$53.6 billion were crop insurance subsidies, \$38.9 billion were conservation subsidies and \$22.5 billion were disaster relief. Ten % of the farms reportedly collected 75% of the subsidies, while 62% of the farms received no subsidies.

Direct Payment Subsidies – The direct payment subsidy which is paid at a set rate every year was established in 1996 and designed to pay out smaller amounts each year over a period of seven years at which point it would be terminated. Payments were calculated based upon a farmer’s past harvests; in the future he could grow the same crops or different ones or none. In 1998 farm income fell because of drought and Congress added \$2.9 billion in extra payments and eliminated the declining payment provision. In 2002 Congress eliminated the end date. In 2008 the payments were renewed, and again in January 2013 the payments were renewed through 2013. The payment is the same each year and is not adjusted for commodity price levels.

Direct payments are cash subsidies for producers of 10 crops: wheat, corn, sorghum, barley, oats, cotton, rice, soybeans, minor oilseeds, and peanuts. The last three were added in the 2002 farm law. Direct payments are based on a historical measure of a farm’s acres used for production and are not related to current production or prices.

A recent GAO analysis found that the program subsidizes some people who are not really farmers. According to the study, over 2,000 farms receiving payments have not grown crops during the past five years. Payments have also been paid to owners living hundreds of miles from the land. Under the rules this is permitted only if the owner shares in the farm’s financial risks and remains actively engaged, but these rules do not seem to be strictly enforced. A comprehensive data base on payments made under this provision as well as other subsidy payment information is online at <http://farm.ewg.org/region.php?fips=00000>.

Crop Insurance – Crop insurance subsidies are a reduction of calculated premium owed by a farmer for an insurance policy he or she voluntarily purchases. Federal crop insurance was first authorized by Congress in the 1930s in conjunction with other initiatives to help agriculture recover from the impact of the Great Depression and the Dust Bowl. In 1938, the Federal Crop Insurance Corporation (FCIC) was created to administer crop insurance. Federal crop insurance was generally an “experiment”, providing limited coverage in limited areas for only major crops, like corn and wheat, until the Federal Crop Insurance Act of 1980. This Act expanded the crop insurance program to many more crops and regions and encouraged expansion to replace the free disaster coverage offered under Farm Bills in the 1960s and 1970s. To grow participation in the program, the 1980 Act subsidized 30% of the crop insurance premium owed by the farmer.

The 1994 Federal Crop Insurance Reform Act made participation in the crop insurance program mandatory for farmers to be eligible for deficiency payments under price support programs, certain loans, and other benefits. In the 1996 Freedom to Farm Act, the Risk Management Agency (RMA) was created to administer the federal crop insurance program under the USDA. Through the Act’s new requirements and geographic and crop expansion, crop insurance participation jumped to 180 million acres of farmland insured by 1998, three times the number of acres insured in 1988.

There are currently two types of crop insurance available to United States farmers and ranchers: Federal crop insurance programs, generally discussed as multiple-peril crop insurance (MPCI), and crop insurance products that are developed and underwritten solely by private insurance companies (private products) and are not subsidized by any entity. The most common private product is crop-hail coverage.

Federal crop insurance offers separate, tailored policies for more than 100 commodities, both conventional and organic. There are 15 different plans of insurance, with six plans based on a farmer’s individual historic production records, five based on an area average (a county or weather grid), two using a producer’s business tax information, and two livestock plans based on a combination of market pricing and producer sale records. Within these plans, some offer yield-only coverage, some provide yield and revenue coverage, and some cover the producer’s risk using a set dollar amount of insurance.

Additionally, there are several policy endorsements and options, a growing number of third-party-developed programs that are offered as a pilot program through the RMA (not all such policies are subsidized), and a variety of levels of coverage that determine what portion of the farmer's historic crop productivity he or she will "self-insure" (the deductible). All federal crop insurance policies consist of the general crop insurance provisions (basic provisions), crop-specific provisions, special provisions, and, if applicable, policy endorsements and commodity exchange price provisions. More detailed information on crop insurance is given at www.mont.lwvmd.org.

Other Insurance – Other insurance programs include:

- Average Crop Revenue Election (ACRE) is a revenue-assurance program that provides for overall profitability for a given crop if a farmer meets strict guidelines (this is paid several years after that crop year).
- Counter-cyclical payments are triggered when market prices fall below certain thresholds.
- Marketing loans offer favorable terms through loan deficiency payments (LDPs) and commodity certificates.
- Disaster assistance programs can help a farmer recoup large losses resulting from natural phenomena, if the farmer meets the program requirements. These are disaster assistance programs. The Supplemental Revenue Assistance Payments Program (SURE), in particular, was implemented to eliminate costly and difficult-to-monitor-and-administer ad hoc disaster programs.

There is considerable dissatisfaction with the current structure of the subsidies. A Food and Water Watch Fact Sheet³ describes the concerns as:

The 2002 and 2008 farm bills largely maintained the commodity programs created by Freedom to Farm. This effectively replaced the supply and price management policies in place since the 1930s with payments designed to keep farmers from going bankrupt due to low prices generated by overproduction. Since then, taxpayer money has been used to make up some of the income lost by farmers who grow commodities that get sold cheap. Instead of programs that could put a brake on collapsing prices, government payments make up the difference between the low price agribusiness pays for commodities and the farmers' cost of sowing, growing, harvesting and transporting crops. Farm programs that allow prices to fall below production costs and then pay farmers some of the difference with taxpayer dollars are really subsidizing meat-packers, factory farms and food processors.

Food and Water Watch, like many other groups, wants reform rather than removal of subsidies. Critics argue that agriculture continues to be a high risk activity and a blanket removal of the farm subsidy program would hurt the small-scale, family farm sector and producers of non-commodity crops that many want to see expand and evolve into more local and regional (rather than global) food systems. (See the book *Foodopoly* for clarifications and information).

Indirect Agricultural Subsidies for Research & Development - Research is a cornerstone of economic growth and development. The federal government has played a major role in supporting agricultural research for over a century, transforming U.S. agriculture from a resource-based industry to a science-based industry. Benefit/cost analyses have shown that although it may take 20 years to realize the benefits of some agricultural R&D, such research generates social benefit-cost ratios in the range of 20:1 or higher, with about half of the total benefits accruing to farmers and the other half being shared between landlords and consumers. However, supporters of small-scale ecological farming practices disagree with what they characterize as corporate-driven research. (For example, the infamous tasteless winter tomato)

Basic and applied research and development (R&D) affecting the agricultural sector is conducted and/or funded through a number of avenues:

- Conducted and funded in-house by government agencies, such as by the USDA: Agricultural Research Service, which has more than 100 laboratories in the U.S. and overseas and the FDA National Center for Toxicological Research,
- Funded through government grants awarded by USDA's National Institute of Food and Agriculture (NIFA) to more than 100 land-grant universities through the 50 State Agricultural Experiment Stations (SAESs); in 2009 the states provided approximately 38% of the agriculture R&D funding to the SAESs, and to other federal agencies (both within and outside of the USDA); non-profit associations; professional societies; commodity groups and grower associations; multistate research committees; private industry; citizen groups; foundations; regional centers; the military; task forces; and other groups.

- Conducted and funded by a small number of large corporations, whose R&D capability tends to dominate certain research areas. In 2010 these included eight seed-biotechnology companies that accounted for 76% of all R&D spending; five agricultural chemical companies that were responsible for more than 74% of that sector's R&D; and eight companies that accounted for more than 66% of animal health R&D.
- Funded by commodity groups and grower associations through check-off programs.

Funding for public agricultural R&D has steadily decreased and by 2009, real spending was 7% below the 2004 level. Based on 2009 data, \$11.1 billion was spent on agriculture R&D, just 2.8% of all U.S. spending on R&D and 1.7% of USDA's expenditures. The federal share of that agriculture spending was 11.3%; SAESs and other college and university spending totaled 31.5%; and corporate spending was 57.2%.

A recent (April 2013) paper on agricultural Research and Development (R&D)⁴ summarizes recent discussion about federal support to R&D:

- Agricultural R&D "...spending is a critical policy instrument that governments can apply to influence the path of agricultural productivity and the food and agricultural economies.
- "Agricultural R&D has consequences for food processing, nutrition, health, the agricultural workforce, consumer and producer household well-being, rural and community development, and food safety. It can also help sustain and enhance the value of ecosystem services used in, produced by, and otherwise affected by agriculture, and can reduce negative externalities from agricultural production and other sectors of the economy.
- "Even though rates of return for productivity-enhancing research are ... high, we have seen a slowdown in both public and private spending on agricultural R&D in the United States and a diversion of public research funds away from farm productivity enhancement. Together these trends spell a further slowdown in U.S. farm productivity growth at a time when the market has begun to signal the beginning of the end of a half-century and more of global agricultural abundance.
- "It is a crucial time to rethink national food and agricultural R&D and innovation policies and reposition the U.S. food and agricultural research and innovation system to address the changing scientific and market realities in the century ahead.
- "To make informed public policy choices regarding federal roles in food and agricultural R&D requires a strategic understanding of the present patterns of investment in food and agricultural R&D in the United States and elsewhere in the world. The long lags between investing in food and agricultural R&D and realizing a social return on that investment dictate taking a very long-run perspective on these R&D spending trends, one spanning many decades, not just several years."

Public and private research play different, though often complementary, roles:

The different roles played by public and private research are revealed to some extent by the substantial differences in the composition of the research performed by both sectors...around 44 percent of the food and agricultural research performed by the US public sector is considered "basic" research, where the notional objective is the pursuit of new knowledge or ideas without specific applications in mind. The insights gained through basic research feed into the development of future innovations and technologies that increase productivity and economic growth over the longer run. Another 47 percent of public research is classified as "applied," or research done to meet a specific need. Only 9 percent is deemed "developmental" and directed towards the production of specific products and processes with nearer-term commercial potential. By contrast, the National Science Foundation reports that US private research is overwhelmingly "developmental" in nature, intended to develop prototypes, new processes, or products for commercialization. Overall, 63 percent of private US R&D was of this type in 2009, with only 18 percent of private research considered applied and 19 percent considered basic.⁵

CURRENT POSITION OF THE LEAGUE OF WOMEN VOTERS

The current League of Women Voters' position on Federal Agriculture Policy was announced by the National Board in October, 1988 following a two-year study. The LWVUS believes that federal agriculture policies should promote adequate supplies of food and fiber at reasonable prices to consumers, farms that are economically viable, farm practices that are environmentally sound and increased reliance on the free market to determine prices.

Sustainable Agriculture. Federal policy should encourage a system of sustainable, regenerative agricultural production that moves toward an environmentally sound agricultural sector. This includes promoting stewardship to preserve and protect the country's human and natural agricultural resources.

Research and Development. Agricultural research, development and technical assistance should continue to be a major federal function. Resources should be targeted to developing sustainable agricultural practices and addressing the needs of mid-sized farms.

Agricultural Prices. The LWVUS supports an increasing reliance on the free market to determine the price of agricultural commodities and the production decisions of farmers, in preference to traditional price support mechanisms.

Agriculture and Trade. U.S. efforts should be directed toward expanding export markets for our agricultural products while minimizing negative effects on developing nations' economies. Consistent with the League's trade position, multilateral trade negotiations should be used to reduce other countries' barriers and/or subsidies protecting their agricultural products.

Farm Credit. Farmers should have access to credit with reasonable terms and conditions. Federally provided farm credit is essential to maintaining the viability of farm operations when the private sector is unable or unwilling to provide the credit farmers need.

Of these positions, the League believes the most essential for the future of agriculture are: encouraging sustainable agriculture; providing research, information and technical assistance to agricultural producers; and increasing reliance on the free market to determine prices.

In addition, a portion of the **Natural Resources** position states: To assure future availability of essential resources, government policies must promote stewardship of natural resources. Policies that promote resource conservation are a fundamental part of such stewardship. Resources such as water and soil should be protected. ...The federal government should provide leadership guidance and financial assistance to encourage regional planning and decision making to enhance local and state capabilities for resource management. The **Social Policy** position includes: Persons who are unable to work, whose earnings are inadequate or for whom jobs are not available have the right to an income and/or services sufficient to meet their basic needs for food, shelter and access to health care.

The study to update these positions focuses narrowly upon current technology issues in agriculture including genetically modified organisms (GMOs), pesticides, agricultural water pollution, water technology, antibiotics in livestock and accurate food labeling; and upon current agriculture finance issues including consolidation in agricultural industries, crop subsidies and the federal agricultural regulatory process. This paper provides some information to support discussion of these latter topics.

This Fact Sheet was prepared by the LWVMC based upon research conducted for the LWVUS Agricultural Update. The LWVMC committee is: Margaret Chasson, Chair; Elaine Apter, Maxine Montgomery, Judy Morenoff, Lorna Post, Alyce Ortuzar, and Marilyn Smith.

¹ Altieri, Miguel A.: "Modern Agriculture: Ecological Impact and the Possibilities for Truly Sustainable Farming." *Agroecology in Action*, 7/30/2000, http://nature.berkeley.edu/~miguel-alt/modern_agriculture.html

² Carolyn Dimitre, Anne Efland, Neilson Conklin: *The 20th Century Transformation of U.S. Agriculture and Farm Policy*. Economic Research Service, USDA, Economic Information Bulletin Number 3, updated May 26, 2012

³ Food and Water Watch: *Farm Subsidizes 101*. Fact Sheet, February 2011, <http://documents.foodandwaterwatch.org/doc/FB-subsidies101.pdf>

⁴ Pardey, Phillip G., Julian M. Alston, and Connie Chan-Kang: *Public Food and Agricultural Research in the United States: The Rise and Decline of Public Investments, and Policies for Renewal*. AGree, Transforming Food and Agriculture Policy, April 2013, p. iv <http://www.foodandagpolicy.org/sites/default/files/AGree-Public%20Food%20and%20Ag%20Research%20in%20US-Apr%202013.pdf>

⁵ Pardey, Phillip G. and Jason M. Beddow: *Agricultural Innovation: The United States in a Changing Global Reality*. Chicago Council on Global Affairs, April 2013, http://www.thechicagocouncil.org/UserFiles/File/GlobalAgDevelopment/Report/Agricultural_Innovation_Final.pdf