



Strengthening the Foundation for Future Growth in U.S. Agriculture

Executive Summary September 2006

This paper is the fifth and final in a series of briefing papers that assess general themes advanced at the 2007 Farm Bill Forums held during 2005 by Secretary Mike Johanns as well as related issues that have emerged in recent months. This final paper provides an overview of the major trends in the food marketplace, the strategies that farmers have employed to remain competitive, and the key driving forces shaping agricultural markets. These key forces include issues related to international trade, the research and development that leads to the creation of new technologies, and the protection of agriculture from pests and diseases. Lastly, the paper discusses the challenges and issues in preparing farmers and ranchers for this competitive marketplace, especially the next generation of farmers and ranchers. The paper also presents some key issues and challenges for further discussion for the 2007 Farm Bill.

The Changing Agricultural Marketplace

A farmer in the 21st century produces for an increasingly complex and competitive marketplace driven by today's varied consumer demands and supplied by highly competitive producers from around the globe. Consumers seek tasty food that is convenient, nutritious and inexpensive. Farmers and ranchers have responded to these opportunities through changes in the crops and animals they produce, closer links with food manufacturers, and by adopting new technology and management practices.

Consumers' high expectations for their food have driven change across the entire food system. Their varied preferences for price and quality support multiple business models in food retailing, manufacturing, and farming. To remain competitive, farmers have followed diverse paths that include changes in the crops and livestock produced, size of operation, types of business arrangements, and increased participation in off-farm jobs.

While farms have generally increased in size over the past century, farming today consists of enormously different farms growing numerous crop and livestock products for sale in markets that range from their immediate neighbors to consumers worldwide. Farms differ in size, type, and value of commodities produced, technology used, resource endowment, financial status,

and other attributes. Farmers also differ in their time commitment to the farm enterprise, management abilities, business goals, and financial resources.

In 2004, there were 205,000 commercial farms. This group includes farms with sales above \$250,000 and nonfamily farms. This small proportion of farms, just under 10 percent of all farms, accounted for about 75 percent of total sales of agricultural products. Despite their large share of farm production, they only own about 29 percent of farmland.

A second group of farms, 1.4 million rural-residence farms, account for about two-thirds of all farms but only 8 percent of total output. They own nearly one-third of all farmland. These farm operators combine nonfarm jobs with farming.

A third group of about 528,000 farmers consider farming their primary occupation and share goals with both commercial farms and rural-residence farms. These intermediate farms account for about 16 percent of total production and own about 31 percent of all farmland.

Off-farm income is especially important for rural-residence farms, which on average regularly generate little or no income from the farm, with many actually reporting negative net farm incomes. Off-farm income also is critical for many intermediate farms, especially for those with sales under \$100,000. The widespread importance of off-farm income and related benefits, such as health insurance, illustrates that for the majority of farm households, the economic state of the general economy may be more important to their economic well-being than the level of commodity prices.

The key to agricultural production is the control of land and other assets. This control can be accomplished through renting or leasing rather than purchasing. Farms can also use hired labor, contract labor, or custom work rather than family labor. Today, almost one-half of the acreage in production is rented.

The complexity and diversity of the farm sector suggests a wide divergence in the realities of farming across the country. The issues, concerns, and opportunities of larger, commercially oriented farms differ substantially from those of smaller rural-residence and most intermediate farms, regardless of location. Moreover,

the challenges of commercial farms in one region may be vastly different from those in another.

The Role and Contribution of International Trade

Major changes in the world's population and economy in coming decades will offer the prospect for greatly expanded agricultural trade. More people, with greater disposable income, will get their food and fiber from a constantly changing global production, processing, and marketing system. The world's population is projected to increase by over 1 billion people to 7.5 billion by 2020. More than 95 percent of this increase will be in developing countries.

International trade is a key part of the U.S. agricultural and food economy. In FY 2007, U.S. agricultural exports are forecast to reach \$72 billion, up from 68 billion in FY 2006 and \$62.5 billion in FY 2005. In 2004, every dollar of direct export sales generated another \$1.48 in supporting economic activity, while creating some 825,000 jobs on farms and in food processing, transportation, and supporting activities.

Although traditionally a bulk commodity exporter, U.S. exports of high-value products—meats, fruits and vegetables, dairy products, and processed foods—expanded rapidly through the mid-1990s, accounting for an increasing share of growth in U.S. agricultural exports. However, bulk agricultural commodities still account for almost 40 percent of U.S. agricultural exports.

The United States is the world's second-largest food importer in value behind the EU. U.S. demand for imports of agricultural products is driven by strong purchasing power, low import barriers, and tastes and preferences for food products not widely produced in the United States, or produced more competitively elsewhere. About 11 percent of the value of U.S. food consumption is imported.

The U.S. agricultural trade surplus has shrunk since 1996. Although the agricultural trade balance is a closely watched measure, it is not an indicator of competitiveness or import dependence. In the future, U.S. competitiveness, foreign economic growth, U.S. consumer demand, barriers to trade, and exchange rates will determine the size of the U.S. agricultural trade balance.

Because of the importance of trade to U.S. agriculture, the United States has long worked with other countries to reduce barriers to trade in various ways, primarily through multilateral negotiations, originally under the auspices of the GATT (1947-94) and now under the WTO (1995-present). The United States has also negotiated a number of regional and bilateral trade agreements. The most prominent of these is the North

American Free Trade Agreement (NAFTA, 1994-present) with Canada and Mexico.

The importance to U.S. agricultural exports of trade agreements can be seen in changes in the destinations of U.S. agricultural products. Exports to Europe and East Asia have fallen, while trade with the NAFTA countries has increased steadily. China has become a growing market, particularly following its accession to the WTO in 2001.

USDA has a variety of international trade programs that support the expansion of U.S. agricultural exports, provide technical assistance to developing countries, and support international development objectives. The programs fall into five broad categories: market development, export subsidies, commercial export financing, international development, and food aid.

The 2007 Farm Bill offers an opportunity to discuss the role of trade in the U.S. agricultural economy as well as the appropriate programs and policies concerning export promotion and import adjustment. The future direction of U.S. export programs should consider the following:

- **Competing effectively with more open trade.** Further reductions in trade barriers and expanding international markets for agricultural products will provide new opportunities for U.S. products to compete in international markets, but only if products are of high quality and reasonable cost. USDA programs affecting risk management, research, technology, and plant and animal diseases will continue to be important in ensuring that U.S. products remain competitive in world markets.
- **Facilitating transition while facing greater global competition.** New multilateral and bilateral trade agreements could expose some U.S. products and sectors to greater global competition. Policy reforms may be needed to ease the transition, such as changing production-distorting farm support to less distorting forms of support, strengthening the rural economic infrastructure, and providing adjustment assistance to those adversely affected.
- **Enhancing market orientation.** Export subsidies, export credit guarantee programs and food aid are subject to WTO disciplines, and depending on the outcome of the Doha Round negotiations, could be subject to new disciplines. Changes in these programs would enhance the market orientation of U.S. exports and would be consistent with the objectives of trade reform in the current Doha negotiations.
- **Supporting market and international development.** A review of the effectiveness of USDA trade programs could be part of the 2007 Farm Bill process, including whether the current structure and authorities for these programs provide sufficient resources and flexibility to address sanitary and phytosanitary measures and other technical barriers to trade.

Enhancing Competitiveness and Efficiency

Technological advances that save scarce resources and enable producers to produce more output with fewer inputs have been a critical source of income growth, wealth creation, and international competitiveness. In U.S. agriculture, virtually all the growth in agricultural output over the last 50 years was derived by growth in agricultural productivity. Despite growth in agricultural output, the growth in the total amount of inputs used has been quite modest.

Conventional estimates of the return on investment in agricultural research have ranged from 35 to 70 percent. Returns on investment in agricultural research reflect the benefits to producers and consumers of agricultural products. These benefits are shared widely—producers have benefited from things like higher yielding seed varieties, improved production technologies and cultivation practices, and resource-saving methods like drip irrigation and more efficient delivery of plant nutrients and pest control. Advances in livestock research and veterinary medicine have enabled livestock producers to produce higher yielding cattle, hogs, and poultry that are also leaner and grow more rapidly.

Consumers are also key beneficiaries of agricultural research. Food in the United States is abundant, safe, and affordable. All Americans benefit from advances in agricultural productivity through increased access to food. Given this abundance, what may be more important for consumers is research that seeks to maintain the safety of food within the supply chain and to provide information regarding food nutrition and food choice.

The Federal government plays a unique and critical role in scientific research. Disease eradication, resource conservation, and environmental protection are all results of national efforts from Federally funded and performed research. The Federal government has the unique capacity to identify national needs and coordinate research efforts to address these needs—both for short-term and long-term goals.

While the Federal government is by far the single largest source of public agricultural research funding, not all of the advances in agricultural productivity are derived from the public sector. Private firms produce and market most agricultural inputs, from seeds to pesticides and farm machinery. Some of the underlying research into producing those inputs is undertaken by the private sector. The key difference between the public and private sectors regarding their roles in research is the marketability of the research. The public sector produces research that is valuable to society but which may not have direct or obvious commercial value or an existing market. The private sector, on the other hand, pursues research efforts in areas for which there are strong

prospects of developing marketable products not long after research investments are made.

The public agricultural research system in the United States comprises a Federal-State partnership. The Federal government funds both intramural research through USDA agencies—the Agricultural Research Service (ARS), Forest Service (FS), and Economic Research Service—and extramural research at State institutions. The State institutions—the State Agricultural Experiment Stations (SAES) that are housed at Land-Grant Universities, 1890s Institutions, Forestry Schools, and Veterinary Colleges—are funded by a combination of Federal, State, and private sources. In inflation-adjusted (2001) dollars, USDA research funding declined until about 1999, when total spending fell to about \$1.4 billion. Since that time, real spending increased to about \$1.7 billion by 2004.

Therefore, it is the responsibility of the Federal government to assure that funding for both in-house research and research grants are used for the highest quality research and that an appropriate balance between National priorities and regional and local needs. This implies a strong and continuing emphasis in funding determined through a competitive, peer review process. This may change the way funding is traditionally provided.

The Federal government has played a unique and critical role in agricultural research and will remain a key player. In the context of the overall Federal research program, several issues emerge for 2007 Farm Bill discussions as especially important for setting research priorities to benefit agricultural producers and consumers in the near and distant future. These issues include:

- **Food safety and biosecurity.** Consumers must have confidence that their food is wholesome and safe. This includes protection from biosecurity threats, such as plant and animal diseases and pests and invasive species, whether intentionally or accidentally introduced.
- **Bioenergy and biobased products.** Agriculture is both a consumer and producer of energy. Fully developing agriculture's potential as a producer of bioenergy and developing new uses for agricultural products through research will improve the efficiency of the agriculture sector, and help provide an alternative and sustainable source of energy.
- **Genomics and informatics.** Mapping genomes and informatics provides enormous potential for enhancing crop and livestock production and creating more safe and nutritious food.
- **Agriculture and the environment.** Mitigating agriculture's impact on the environment and agriculture's role in lessening the effects of climate change are potential areas where social returns from investments in agricultural research could be high.
- **Human Nutrition.** Research is needed to respond to the alarming increase in obesity, especially among

teenagers, and for improvements in overall nutritional well being among all sectors of the population, including the poor.

Protecting Agriculture

U.S. agriculture is complex, diverse, open, and affected by both local and global events, making it vulnerable to natural, unintentional, or intentional attacks from diseases, pests, and other agents that can result in significant production and economic consequences. Policies designed to protect U.S. agriculture and markets work together with other policies aimed at reducing vulnerabilities and promoting the development of capabilities to detect and respond to agricultural threats, mitigate events, enhance response and recovery procedures, and apply the lessons learned from previous experiences and events both here and abroad. U.S. agriculture faces two general types of threats: those limited to production effects and those that affect consumer confidence and, potentially, human health.

USDA plays a major role in protecting U.S. agriculture and consumers. Two key objectives of USDA's FY 2007 Budget Summary and Annual Performance Plan include: (1) reducing the incidence of foodborne illnesses related to meat, poultry, and egg products in the United States and (2) reducing the number and severity of agricultural pests and disease outbreaks. To advance these objectives, total USDA program level funding is estimated to be \$2.7 billion in FY 2006, with \$1.2 billion directed toward reducing the incidence of foodborne illness and \$1.5 billion directed toward reducing the number and severity of agricultural pest and disease outbreaks.

The lessons gained over many years of experience with animal and plant disease outbreaks both in the United States and abroad provide an excellent foundation for strengthening existing programs and designing programs to fill important gaps in our capacity to prevent or recover from disease outbreaks or other disruptive events. Recent experiences also highlight the limits of government intervention and the need to foster the private sector's ability to adapt to new pressures while facing competing demands for resources. These experiences emphasize the need to continue to support research on detection methods and the development of better outbreak management strategies and tools that can be applied domestically and internationally. It also calls for increased cooperation and sharing of responsibility among the Federal government, State and local government, and the private sector in responding to these threats.

One of the clearest lessons learned is the importance of maintaining confidence in the safety of U.S. agriculture by both domestic and international customers. Recent experiences highlight the importance of potential gains that can be achieved by working with both foreign

governments and international organizations and institutions, such as the OIE, to design the protocols used during disease events, especially as they relate to the determination of risk status and resulting trade conventions. Those processes must be supported by current, science-based analysis that is accepted by both the international organizations responsible for carrying out trade-affecting disease management and recovery protocols and by our trading partners.

The U.S. agricultural sector cannot ignore that it is part of a global marketplace. Given the global nature of diseases and agricultural commerce, continuing efforts to improve policies implemented by international institutions and the use of scientifically sound protocols by our trading partners represent important opportunities for reducing disease risks and minimizing the subsequent consequences of disruptions in world markets. Farm policy and programs historically have played an essential role in strengthening and safeguarding U.S. agriculture. The 2007 Farm Bill discussion should consider improvements in existing programs and institutions and new efforts to more effectively address the challenges faced by U.S. agriculture. This discussion should include:

- **Emphasizing sound science and private action.** The most effective policies are likely to be those that exploit public/private partnerships and those based on sound scientific information and analysis. Economic incentives often place private sector partners in the best position to address their own needs, which in turn places them in a preeminent role of protecting U.S. agriculture.
- **Strengthening international organizations and capacities in foreign countries.** Protection policies must recognize the importance of cross-border and international vulnerabilities, and acknowledge the importance of strengthening the international institutions that develop and oversee the protocols that affect our trade opportunities. Strengthening international organizations and capacities in foreign countries could include continuing efforts to improve policies implemented by international institutions, promoting the use of scientifically sound protocols, and assisting foreign nations in addressing disease risks.
- **Investing in research and education.** New investments in research and education should be based on filling the greatest gaps in understanding pathogens, diseases, and pests that affect the competitiveness of U.S. agriculture. In addition, public and private efforts should be coordinated to enhance our ability to prepare for and respond to animal and plant disease introductions.
- **Providing accurate information.** Consumer confidence is a critical element of U.S. agriculture's current and future success. Therefore, the availability and delivery of accurate information to the public should be a foremost consideration.

Preparing the Next Generation of Farmers and Ranchers

Issues which have been raised about the adequacy of the future workforce needed to farm the nation's agricultural lands include: (1) a potential divergence between the level of younger, new farm entrants and the exit of older retiring farmers, (2) potential barriers to entry for new farmers, (3) the rising complexity of farm production caused by changing markets, globalization, new technologies, economies of scale, environmental concerns, and other factors and (4) uncertainties about the future supply of hired farm workers.

In 2002, farms with over \$10,000 in annual sales and that were operated by individuals under 35 years of age accounted for less than 7 percent of all farms, as compared to 19 percent in 1982. Meanwhile, the share of farms with over \$10,000 in sales operated by farmers over 65 increased from 14 to 25 percent. The sharp decline in young farmers has raised concerns that an insufficient pool of new entrants will be available to replace a large and growing pool of retiring farmers.

There is no evidence, however, that a shortage of farm operators and farm workers will lead to lower agricultural production and higher farm prices. Data indicate that many commercial-sized farms with older operators also have younger operators involved in their operations. These secondary operators in many cases represent future primary operators. The rising average age of primary operators may also reflect technology change that has enabled older farmers to more readily meet the physical demands of operating a farm.

Older farmers hold a large share of farm assets. Primary operators over the age of 65 own over one-fourth of farm assets and one-third of the total acres of land in farms. Ultimately, these assets will either be sold or passed on to heirs. This future transfer of assets raises concerns about farm consolidation and its effects on the structure of agriculture, local economies, and rural landscapes. These concerns must be balanced against the economic benefits of technology advancement and economies of scale, which enable larger and fewer farms to capture an increasing share of agricultural production.

In 2002, the value of land and buildings averaged \$710,000 for U.S. farms that were principally engaged in agriculture. Though farmland values have been increasing rapidly for many years, more recently the values surged ahead by 15 percent in 2005 after a 21-percent increase in 2004, adding to the cost of entering farming. Rising prices for land, machinery, and equipment suggest that the capital needed to enter farming may represent a significant hurdle for many young farmers. However, renting land is an important option for new farmers, and rental rates have increased less than farmland values in recent years.

U.S. agricultural production overall is not heavily reliant on hired labor, with hired labor costs accounting for about 13 percent of total farm production expenditures. However, hired labor approaches or exceeds 30 percent of total production costs for many horticultural crops, and hired labor exceeds 20 percent of total farm production expenses in Arizona, California, Florida, Oregon, Washington, and many Northeastern States.

In 2001-02, 53 percent of hired workers in the crops lacked work authorization. As concerns over homeland security and efforts to deter illegal immigration have increased, some farmers have indicated that hiring farm workers has become more difficult and costly. Farm labor use in California has fallen from about 380,000 workers in 2002 to less than 340,000 in 2005, while hired farm labor in all other States has remained relatively stable at about 1 million workers.

The Agricultural Credit Improvement Act of 1992 required USDA to provide special assistance to beginning farmers and ranchers. The law required the Secretary to establish: (1) beginning farmer loan programs; (2) Federal-State Beginning Farmer Partnerships for the purpose of providing joint financing to beginning farmers and ranchers; and (3) an Advisory Committee on Beginning Farmers and Ranchers. The Act also required that loan funds be targeted to beginning farmers and ranchers.

The 2002 Farm Bill authorized the Secretary to provide higher payments to beginning farmers and ranchers in some of USDA's conservation programs. It also authorized the Secretary to provide incentives to beginning farmers and ranchers to participate in conservation programs to foster new farming and ranching opportunities and enhance environmental stewardship over the long term. In addition, USDA provides grants to organizations that assist beginning farmers and ranchers.

The Department of Labor (DOL) administers, in consultation with USDA, the Temporary Nonimmigrant Worker Program (H-2A) that allows farmers to employ workers from outside the United States. Farmers must recruit domestic workers, demonstrate that domestic workers are not available, and pay transportation, housing, and a wage rate established by DOL. The program is not widely used because of its complexity, the costs imposed on potential employers, and historical lack of enforcement against individuals without proper documentation. Future farm labor programs are expected to be addressed in immigration reform.

The 2007 Farm Bill could consider current or new programs to assist in the entry of beginning farmers. Assistance to targeted groups of producers must be balanced against budget limits and resource adjustments indicated by market forces. Some general alternative approaches include:

- **Facilitating the transfer of farms to new and beginning farmers.** Options include providing young farmers access to affordable capital necessary to fund farm acquisitions. Examples include increasing loan limits on USDA's operating and farm ownership loan guarantee programs and providing flexible repayment schedules and
- **Reducing reliance on direct loans.** Young and beginning farmers rely heavily on direct lending, which has high administrative and loan subsidy costs. Incentives could be considered which encourage lenders to make greater use of the guaranteed program in financing young farmers.
- **Providing research, education, and outreach to address the needs of farmers in transition.** Many socially disadvantaged, limited resource, and small and beginning farmers may lack technical expertise to achieve financially sound farming operations.
- **Enhancing benefits under USDA risk management programs.** Financial enhancements may be considered for beginning or young farmers under USDA's risk management programs.