



U.S. Farm Bill Forecast

Prepared for

International Certified Crop Advisers

By

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Farm Bill Changes Ahead

Agricultural policy is in a season of transition. Since 2012 is the last year for the 2008 Farm Bill, the jockeying, posturing and positioning has begun in earnest in preparation for the serious debates on the next farm bill. This is also a season of fiscal austerity, and virtually every legislator is combing through individual programs and budgets, line by line to identify potential savings. The future has a lean look. Despite the downsides, there will be opportunities for those with the technical skills and know-how to help farmers boost production to feed a hungry world.

Overarching Issues

Worldwide Food Security

America is blessed with abundant fields and forests. Year after year, American farmers provide a plentiful supply of high-quality, low-cost food. In fact, Agriculture Secretary Tom Vilsack points out that Americans spend only 6 or 7 cents out of every dollar to pay for the food they eat.¹ On the other hand, there are 1.4 billion people who share the planet who live on less than \$1.25 per day.² Food represents their major expense. For them, the slightest increase in food prices means foregoing education, reducing healthcare and cutting back on vital nutrients.

Today, the world's population stands at 7 billion. More than 925 million people around the globe—13 percent—are considered undernourished by the United Nation's Food and Agriculture Organization.³ Those who live in extreme poverty spend 85 cents—or nearly 70 percent of their income—on food.⁴ Further, an estimated 12 children die every minute from hunger.⁵

By 2050, another 2 billion people will be added to the planet. Increasing numbers along with an expanding middle class around the world seeking more and better food mean food production needs to double. Former Agriculture Secretary Dan Glickman has said in essence, “the world's farmers, ranchers, and fishers will be expected to produce more food in the next 40 years than they have had to in the last 8,000 years combined.”⁶

The U.S. has experienced phenomenal increases in productivity, thanks to advances in technology—both in the development of hardier, more productive varieties, improved farming practices and increased use of herbicides and pesticides. In 1940, less than a century ago, each

¹ Agriculture Secretary Tom Vilsack, remarks as prepared for delivery before the Senate Committee on Agriculture, Nutrition and Forestry, 26 May 2011, Washington, D.C.

² The Global Poverty Project. “1.4 billion reasons.” Accessed 24 June 2011. <www.globalpovertyproject.com>

³ Food and Agriculture Organization of the United Nations. “Global hunger declining but still unacceptably high.” Accessed 24 June 2011. <www.fao.org>

⁴ World Bank. “Put Food First” video. Accessed 24 June 2011. <www.worldbank.org>

⁵ Simmons, Jeff. “Technology's role in the 21st Century: Making safe, affordable and abundant food a global reality.” 2011, Elanco Animal Health.

⁶ Dan Glickman, co-chair of The Chicago Council on Global Affairs' Global Agricultural Development Initiative, remarks as prepared for delivery before the Senate Committee on Agriculture, Nutrition and Forestry, 26 May 2011, Washington, D.C.

American farmer fed 19 people; today each farmer produces food for 155.⁷ That's because yields have greatly increased. Corn production jumped from 24.5 bushels per acre in 1931 to a projected 158.7 bushels per acre in 2011, more than a six-fold increase. Grain sorghum is up from 16.2 bushels per acre in 1931 to 65 bushels per acre projected for 2011. And wheat production has risen from 14 bushels per acre in 1930 to 42.5 bushels per acre projected for 2011.⁸

Unfortunately, production has not risen as greatly on other continents. For example, in Africa, yields are, on average, seven times lower than those in America. Further, only about 20 percent of the arable land in Africa is under cultivation.⁹ So, production in Africa, and in other food-challenged areas, needs to increase significantly, presenting long-term opportunities for professional crop advisors.

The U. S. continues to be a major food exporter, with record agricultural exports projected for 2011.¹⁰ In Fiscal Year 2010, U.S. producers sent abroad nearly 26 million metric tons of wheat, 4.3 million metric tons of rice, nearly 42 million metric tons of soybeans and nearly 50 million metric tons of corn.¹¹ To maintain America's export customer base, farmers must produce excellent commodities, and the U.S. must be seen as a reliable supplier.

However, even as American productivity must continue to increase, productivity across the globe will need to rise substantially as well. Meeting the food needs of the future will take everything American farmers can produce combined with all that farmers on every other continent can produce. The U.S. has a dual role and responsibility—to grow all it can and maintain its reputation as a reliable source of high quality food and feed. As a world power and leading agricultural producer, the nation must also do whatever it can to help producers across the globe boost their yields as well.

In that regard, idling land through the Conservation Reserve Program or by restricting technology adoption sends a mixed message to customers. Markets are important, but holding back production primarily to maximize prices also is a consideration. Helping farmers do well is critical, but making sure that hungry men, women and children have the food they need for good health is equally vital. It's no longer about managing production to meet targets; job one is how to responsibly maximize production.

Further, agricultural research has not sufficiently emphasized increasing productivity, especially for those crops that are not as popular in the U.S., but serve as primary food sources in the developing world. The U.S. needs to spearhead development of higher-yielding crops, more

⁷ American Farm Bureau Federation. "Your Agriculture" video. Accessed 24 June 2011. <www.fb.org>

⁸ Economic Research Service, U.S. Department of Agriculture. Database accessed 24 June 2011. <www.ers.usda.gov>

⁹ Dan Glickman, co-chair of The Chicago Council on Global Affairs' Global Agricultural Development Initiative, remarks as prepared for delivery before the Senate Committee on Agriculture, Nutrition and Forestry, 26 May 2011, Washington, D.C.

¹⁰ Agriculture Secretary Tom Vilsack, remarks as prepared for delivery before the Senate Committee on Agriculture, Nutrition and Forestry, 26 May 2011, Washington, D.C.

¹¹ Economic Research Service and Foreign Agricultural Service, U.S. Department of Agriculture. "Outlook for U.S. Agricultural Trade," 11 May 2011.

efficient livestock and improved farming practices, both for farmers and crop advisors at home and abroad to produce quantum leaps in food production.

Expanding research that leads to productivity increases—developing hardy, drought-, heat- and pest-resistant varieties of food and feed grains and disease-resistant fish, fowl and cattle—is a vital part of the U.S. role as a world leader in agriculture. Research dollars must go toward developing varieties and improving species that may benefit other climates and soils beyond American borders and also to passing along technologies and farming practices that can increase productivity throughout the world.

This means more than just sharing seeds and providing breeding stock. It means looking at ways to improve storage, transportation and preservation. It means professionalism of the food production personnel to accelerate the adoption of technology, tools and products that can increase production efficiencies.

Fiscal Realities

The new Congress sworn in this past January looks significantly different from the 111th Congress. The House has changed from a Democrat-controlled body to a Republican-led institution, thanks to a large crop of freshmen who swept in on promises to reduce federal spending and cut deficits. They've been making their voices heard throughout the ongoing budget debates. The Senate remains in the hands of Democrats, but their majority has shrunk.

The impact is already being felt. A budget agreement for FY 2011 settled on halfway through the fiscal year reduced anticipated budgets, including slicing \$3 billion out of the U.S. Department of Agriculture (USDA) appropriations. Of that amount \$800 million or 25 percent, came from conservation programs.

This year's budget deal is just the beginning, the down payment toward reducing deficit spending. Further trims will take place with the FY 2012 budget and through the August 2 deficit reduction agreement that authorized the debt ceiling increase. So as the farm bill comes up for reauthorization, Congress is looking at programs to eliminate and appropriations to reduce to move toward cutting spending and balancing the federal budget.

Not only have the players shaping the budget changed, the decision makers who are likely to make the most direct impact on agricultural issues have changed as well. The House Agriculture Committee has a lot of new faces, reflecting the make-up of the House. Sixteen of its 46 members—one third—are among the GOP freshmen who came to town to slash spending. Their perspectives will directly influence both the budget and the next farm bill. The leadership of the House and Senate agriculture authorization committees has also changed with Senators Debbie Stabenow and Senator Pat Roberts and Representative Frank Lucas taking on new roles and new staff serving the committees as well.

Another consideration is the fact that when the 2008 Farm Bill was passed, about 37 provisions or programs in it were established with funds intended to cover a only limited period of time or expire with the end of the bill in 2012. In other words, there is no baseline funding to continue

them in the next farm bill, which means that funding for other programs would have to be reduced or eliminated to continue them. Among them are the Wetlands Reserve Program (WRP), the Grassland Reserve Program (GRP), Value-Added Agricultural Market Development Program grants and Biorefinery Assistance.

Even for those programs with baseline funding, appropriations established for FY 2012 are particularly important as funding agreed to for the coming year will serve as the new baseline for the next farm bill. Allocation of 2012 funds will provide a clear indication of the priority for spending on agricultural programs, including conservation. The FY 2012 agriculture appropriations bill passed by the House includes a \$2.7 billion cut in discretionary spending from FY 2011, a 13.4-percent reduction. That reduction includes a \$99-million-cut for conservation operations—the technical assistance the Natural Resources Conservation Service (NRCS) provides to farmers to help them establish conservation practices on their land—and nearly \$1 billion in reductions to conservation spending for FY 2012.

Technological Advances

Technology also must be factored into the mix. By and large, technological advances that benefit production agriculture over the past 10 to 15 years have been interwoven and interlinked. For example, with increasing use of insect-resistant and herbicide-tolerant seed varieties comes a corresponding increase in the use of conservation tillage, and particularly no-till. No-till acres more than doubled around the world from 1999 to 2009, rising particularly in Brazil and Argentina, which fall next in line behind the U.S. in using no-till.¹²

The most popular crops for genetically engineered seeds are soybeans, corn, cotton and canola.¹³ And the market is continuing to expand in the U.S. For example, in 1996, only about 24 percent of the corn planted in the U.S. came from GE seed. By 2010, 86 percent did.¹⁴

While some advanced machinery may only be cost-efficient for large operations, improved seed varieties, pesticides and fertilizers are size-neutral. Small farms can benefit equally from these technological advances to boost yields and increase incomes.

Increased Yields—Although the land area devoted to crops has remained virtually constant over the past 40 years, yields have increased dramatically, thanks to genetically engineered crops and accompanying herbicides and pesticides. The use of crop protection products is estimated to increase productivity by 20 to 50 percent.¹⁵

¹² Sexton, Steven and Zilberman, David. 2010. Agricultural Biotechnology Can Help Mitigate Climate Change. *Agricultural and Resource Economics Update*. Giannini Foundation of Agricultural Economics, University of California, 14 (Nov/Dec), no. 2:1.

¹³ Animal and Plant Health Inspection Service, “Biotechnology Regulatory Services Qs&As,” August 2006. Accessed 29 June 2011. <http://www.aphis.usda.gov/publications/biotechnology/content/printable_version/RS_QA_biotechandusda.pdf>

¹⁴ Economic Research Service, “Adoption of Genetically Engineered Crops in the U.S.: Corn Varieties.” Accessed 29 June 2011. <<http://www.ers.usda.gov/Data/BiotechCrops/ExtentofAdoptionTable1.htm>>

¹⁵ CropLife America “Crop Protection Facts and Pesticide Data.” Accessed 29 June 2011. <www.croplifeamerica.org/crop-protection/pesticide-facts>

GE seeds have increased yields as much as 45 percent for corn and produced significant increases for other crops as well. Higher yields, and in some cases the opportunity for double-cropping with no-till, may reduce the pressure to convert environmental sensitive and highly erodible land to cropland.¹⁶

Reduced inputs—Although pesticides have been important in increasing yields in some cases, GE seeds have reduced the need for them in others as the specific seeds have been engineered to be insect-resistant.¹⁷ In addition, no-till cuts fuel consumption—as much as 5.7 gallons per cultivated acre.¹⁸

Decreased Environmental Impacts—Reduced tillage, and no-till especially, helps prevent soil erosion, improves moisture and nutrient content in the soil and decreases the likelihood of flooding. Ongoing practice of no-till leaves more crop residue on the land and eventually helps return the soil to near-native condition.¹⁹

Added Environmental Benefits—Another conservation bonus from no-till operations is increasing carbon sequestration—more than 100,000 million metric tons from 1996 to 2008, according to one study.²⁰ Further, leaving crop residue on the land provides increased habitat for birds and mammals. Earthworm populations also expand with less tillage.²¹

Limitations—At the same time, new options for farmers cannot make up for impediments in developing countries such as poor infrastructure, lack of access to markets or inability to obtain the inputs and the training to use them effectively.²² In addition, more research is needed on crops that are especially important to the developing world, including sorghum, pearl millet, pigeon pea, chickpea and groundnuts.²³ In developed markets, new options for farmers cannot make up for impediments posed by regulatory restrictions on land use or regulatory barriers to technology adoption.

Emphasizing crops of particular value to the developing world can be an especially fruitful role for research funded publicly or by nongovernmental organizations, since the focus of private research tends to be on commercial production. One of the easiest ways to improve yields

¹⁶ Sexton, Steven and Zilberman, David. 2010. Agricultural Biotechnology Can Help Mitigate Climate Change. *Agricultural and Resource Economics Update*. Giannini Foundation of Agricultural Economics, University of California, 14 (Nov/Dec), no. 2:2.

¹⁷ *Ibid*, 3.

¹⁸ Fawcett, Richard and Towery, Dan. No date given. Conservation Tillage and Plant Biotechnology: How New Technologies Can Improve the Environment by Reducing the Need to Plow, 11. Conservation Technology Information Center at Purdue University. Accessed 29 June 2011. <www.ctic.purdue.edu>

¹⁹ *Ibid.*, 2.

²⁰ Sexton, Steven and Zilberman, David. 2010. Agricultural Biotechnology Can Help Mitigate Climate Change. *Agricultural and Resource Economics Update*. Giannini Foundation of Agricultural Economics, University of California, 14 (Nov/Dec), no. 2:2, reporting a study by Brookes, G., and Barfoot, P. 2010. Global Impact of Biotech Crops: Environmental Effects, 1996-2008, *AgBioForum* 13(1): 76-94. Available at <http://www.agbioforum.org>.

²¹ Fawcett, Richard and Towery, Dan. No date given. Conservation Tillage and Plant Biotechnology: How New Technologies Can Improve the Environment by Reducing the Need to Plow, 6. Conservation Technology Information Center at Purdue University. Accessed 29 June 2011. <www.ctic.purdue.edu>

²² Food and Agriculture Organization of the United Nations. 2004. *The State of Food and Agriculture 2003-04*, 4.

²³ *Ibid*, 6.

remains genetically engineered seeds, because the technology is embedded in the seed and can be easily transferred, regardless of the size of the grower's operation.²⁴ Other aspects of technology are more influenced by intellectual know-how and will likely increase opportunities for soils and agronomy professionals.

2012 Farm Bill Opportunities and Production Trends

The 2012 Farm Bill will undoubtedly be leaner than the current bill—federal funding for agriculture—and everything else—will be declining in the years ahead. That makes setting priorities for the limited funds available even more important. At the same time, reduced federal funding opens wider opportunities and expanded options for professionals who have the know-how and the skills to help grow the agricultural sector.

In virtually any future scenario, U.S. farmers will plant more acres to crops. If the next farm bill eliminates commodity payments, highly erodible land that today is protected by sodbuster and swampbuster requirements will face greater pressure from the marketplace. Planting fencerow to fencerow may become increasingly attractive. Even marginal land may prove profitable. Finding a way to continue the current environmental protection for highly erodible land—perhaps through linkage to crop insurance purchases—is critical.

Balance is the key. Protecting fragile wetlands, preserving and restoring wildlife habitat and keeping soil on the land and out of waterways is of vital interest to all Americans. Boosting production, strengthening farm incomes and feeding the world are equally important considerations. Accelerating change also increases the need for technical experts to help farmers adjust and adapt to new technologies and adopt more effective farming strategies.

As the next farm bill begins to take shape, three major opportunities are likely to arise for certified crop advisers. First, developing a better targeted, more effective Conservation Reserve Program (CRP), means significant acreage currently idled could be released and effectively utilized for row crops or for cover crops. Soil scientists and agronomists can work with farmers to insure the highest and best use of that land.

Second, agricultural research will be ever more important in the next farm bill. It's essential to begin NOW to find the quantum leaps in production that are critical to feeding the world mid-century.

Third, as conservation policies develop, this is a time to emphasize deploying effective conservation practices and structures on working lands rather than simply idling land as a conservation measure. Conservationists and the environmental community need to understand the value of precision farming and precision conservation, which agronomists and soil scientists are well-versed on.

Reforming CRP

Today, CRP covers about 30 million acres. But a more reasonable approach, given the characteristics of the land idled under CRP, is to drop that to 10 million acres. About 10 million acres are truly fragile, highly erodible land that needs to remain out of production. Leave that

²⁴ *Ibid*, 104.

land in CRP—filter strips, contour strips, grass waterways and buffers. It's marginal for production, and maintaining conservation practices on it keeps the soil on the land.

Roughly another 10 million acres are good for grazing or forage crops. That land can produce hay or biomass for energy production and serve as habitat for nesting birds and pollinators as well. These acres would retain most of the wildlife soils ecosystem services currently provided by the CRP.

The remaining 10 million acres can be responsibly managed to again produce crops to feed people. According to the U.S. Department of Agriculture (USDA), 8 million acres idled under CRP today are prime farmland. Bring them back into production. Use no-till and precision agriculture to minimize environmental risks and yield a cost-effective harvest. Certified crop advisers can provide the technical knowledge to make that happen. In addition, this would greatly expand the number of acres potentially served by CCAs.

Targeting Agricultural Research

The time to prepare for the harvests of tomorrow is today. That means focusing agricultural research on the most promising areas and the most critical issues. A critical goal is developing high-yielding crop varieties that can withstand drought and resist pests. Like everything else, research funds will be limited—and all too often seem to pose an easy target for budget slashers.

But failing to fund now the research budgets necessary to develop the next generation of high-yielding seeds or the next advance in precision technology is short-sighted indeed. Even in a time of pared budgets and tight wallets, putting extra money into research will result in paybacks well beyond the costs—not only for U.S. producers, but also for consumers around the world.

A new study from USDA's Economic Research Service²⁵ found that to meet global agricultural demand, which is expected to rise 70-100 percent by 2050, public spending on research and development must increase. At current rates of research investment, U.S. agricultural output will only increase by 40 percent by 2050. However, ERS found that increasing research and development spending by 3.73 percent annually will boost U.S. agricultural output by 73 percent by 2050 and spending 4.73 percent more (1 percent above inflation) each year will lead to an 83-percent increase in U.S. agricultural output by 2050. Now is the time to make the investment.

As conservation funding continues to move away from idling land to protecting the environment through structures and management practices employed on working lands, the research focus becomes clearer. Farmers would welcome new seed varieties appropriate for double-cropping to make maximum use of productive land as well as strategies to integrate cover crops into working lands for forage, grazing or producing biomass. Agronomists and soil scientists are the ones who can address some of these questions, translate research results and help get best practices implemented.

Like conservation, agricultural research is everyone's priority, but not at the top of anyone's list. It needs to be.

²⁵ Helsey, Paul; Wang, Sun Ling and Fuglie, Keith. Economic Brief No. 17, July 2011. "Public Agricultural Research Spending and Future U.S. Agricultural Productivity Growth: Scenarios for 2010-2050." Economic Research Service, U.S. Department of Agriculture.

Emphasizing Precision Conservation

Conservation management practices supported through agricultural conservation programs like the Conservation Stewardship Program (CSP) and the Environmental Quality Incentives Program (EQIP) should increasingly emphasize precision conservation. Precision placement of fertilizer and chemicals provide tremendous environmental benefits. This approach cuts costs for farmers and also reduces release of excess nitrogen and pesticides into waterways.

Using Global Positioning Systems and precision conservation requires expert assistance and guidance. The greater the emphasis on putting the right amount of chemicals in exactly the right place, the greater the need for the help of certified crop advisers.

As technology advances and change accelerates, more farmers are going to find the help of CCAs useful to maximize their returns. Successful farming operations are becoming increasingly dependent upon new technologies to improve yields and reduce costs. There should be greater emphasis on nutrient enhancements, manure management, water use efficiency and energy efficiency. With the development of new technologies, there will be expanded opportunities for those who can help producers take full advantage of new tools.

Expanding Opportunities for ICCA

As the next farm bill comes together, certified crop advisers may find other opportunities as well. A number of USDA agencies, such as the Natural Resources Conservation Service (NRCS), along with the Environmental Protection Agency, are interested in identifying a set or sets of specific activities that would constitute compliance with various environmental requirements. This concept is sometimes called a regulatory safe harbor or certainty. Direction to develop such strategies could be part of the next farm bill. Expertise in evaluating options, determining the usefulness of different practices and measuring the success of individual approaches would be needed, again drawing upon the services of CCAs.

In addition, the next farm bill may include requirements for nutrient management plans as part of the conservation title. Such plans call for the input and review of soil experts such as CCAs.

Another possibility is the expansion of Conservation Innovation Grants (CIG) under EQIP to reconnect the work with the Agricultural Research Service and the National Institute of Food and Agriculture. CIG's offer an excellent way to experiment with promising strategies for conservation, which can lead to new practices or refinement of current practices. Soil scientists and agronomists can play an important role in analyzing soils to determine appropriate treatments and in evaluating the success of specific approaches.

The NRCS Technical Service Provider (TSP) program, which opens provision of technical services for conservation practices to qualified private sector experts, may also offer opportunities to CCAs. It's important for CCAs to monitor this program. If NRCS streamlines the applications process or makes TSP options more widely available, more CCAs may be able to participate in the program.

Conclusion

Tight budgets for this year and the foreseeable future call for a careful and thorough examination of farm programs to ensure that each program that will continue in the next farm bill makes an essential contribution to the ability of U.S. farmers to produce food and fiber to feed Americans and customers abroad. Budgetary restrictions also bring opportunities for increasing efficiency and targeting funds to ensure the greatest value per dollar spent.

Certified crop advisers can use their professional knowledge and skills to take advantage of challenging times as more acreage comes into production. If federal funds flow into expanded research to boost production to feed both added numbers and an increasing middle class, CCAs will be well positioned to advise farmers on taking advantage of new technologies. Increased emphasis on precision conservation also requires the assistance of experts who can help producers optimize use of inputs and minimize the flow of excess nutrients and chemicals into waterways.

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