

U.S. CORN

A GLOBAL LEADER IN SUSTAINABILITY

In Brief:

- America's corn farmers are committed to meeting sustainability challenges through careful stewardship of the land, constantly improving technology to support sustainable intensification globally, and expanded trade to minimize the use by marginal producers of low-productivity and environmentally fragile lands.

Environmental Stewardship: A commitment to continuous improvement

- Advanced production methods such as low-till and no-till planting greatly reduce energy consumption, soil loss, pesticide use, and greenhouse gas emissions while enhancing yields.
- From 1980 through 2011, U.S. corn yields (tons/hectare) increased 64%, a pace unmatched by any other major world crop.
- In the 1980-2011 period, U.S. corn producers achieved declines per unit of production in soil erosion (-67%), irrigation (-53%), energy use (-44%), and greenhouse gas emissions (-36%).
- Biotechnology is a critical tool used by U.S. corn farmers to produce a safe, high-yielding, quality crop in varying growing conditions while reducing the use of pesticides and fertilizers.
- Biotechnology is scale neutral, with 90% of current users being small-hold farmers in developing countries.
- GPS technology integrated with modern equipment allows farmers to map their fields with high precision, and to vary plant density and the application of other inputs, all optimized for field conditions with accuracy measured within millimeters.
- Unmanned aerial vehicles (UAVs), commonly known as drones, are making their way into precision agriculture as a valuable tool for monitoring crop health.

U.S. Grain: Methods to Ensure Quality



When it comes to delivering high-quality grain to the world market, U.S. farmers have several options to maintain quality attributes.

Dry Storage Bags
When existing facilities reach capacity, overflow storage is sometimes in temporary unprotected stockpiles. Now, huge polyethylene bags can be used both on- and off-farm. These bags have a capacity up to 254 metric tons (10,000 bushels) for grain with less than 15 percent moisture.

On-Farm Storage Monitoring
A series of sensors inside bins monitor moisture, temperature and carbon dioxide. In addition to the externally-mounted control panels, many systems link to wireless networks to allow monitoring by computer and mobile devices and sending of automatic alerts.

Portable Moisture Testing
Hand-held units that measure the temperature and moisture content of grain are especially helpful with temporary storage systems and spot-checking. Most include easy data transfer software to track readings over time.

Conveyer Systems
Especially designed to preserve grain quality while grain is transferred, these systems can be belt-style, which provide gentle handling, or pneumatic, which uses air to remove dust and non-grain material in addition to moving grain.

Cleaning
Several methods exist to remove broken kernels and debris as grain goes into storage in an effort to reduce further handling, aeration costs and in-storage shrink.



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- U.S. corn producers now supply more than 10% of U.S. automotive fuel needs (derived from ethanol), reducing carbon dioxide emissions by 34% compared to gasoline. In 2013, this was equivalent to removing 8 million cars from the road. The ten largest U.S. corn harvests have occurred in the last eleven years, demonstrating the reliability as well as the productivity of modern agricultural technology.

Social Responsibility: A commitment to future generations

- U.S. corn farmers grow the feedstock for an ethanol industry that in 2014 helped support nearly 380,000 jobs.
- An ethanol plant doesn't just make fuel. Co-products include livestock feed, corn oil and other products that add to the food supply. In other words, U.S. corn farmers are working to make food, feed and fuel from a bushel of corn.
- Efforts to manage mycotoxins in U.S. corn to safe levels continue to be a priority, especially due to increasing public emphasis on the safety of our food supply.
- Corn consistently makes its way into rations for beef and dairy cattle, poultry, swine, aquaculture and companion pets because of its high energy content and its availability.
- Research shows that U.S. beta-glucan barley has heart-healthy properties.
- An estimated 60% of U.S. grain exports travel on U.S. waterways en route to export grain elevators for inspection and loading onto bulk cargo ships.
- The high productivity of U.S. farmers enables 340,000 sq. km. to be set aside in national and state parks – an area larger than the UK, Ireland, and Croatia. It allows approximately one-third of the U.S.'s land area to remain forested; there is more forest in the U.S. today than in 1900.

Economic Profitability: A commitment to long-term viability

- The United States is the largest global producer of corn, growing nearly a third of the world's corn supply.
- In the 2013/2014 marketing year, U.S. farmers generated a record \$153 billion in corn exports.
- In 2014, the U.S. ethanol industry contributed more than \$52 billion to U.S. Gross Domestic Product (GDP) and added \$26.7 billion to household income. This generated more than \$10 billion in tax revenue for federal, state and local governments.
- A 2015 study found that there are sixteen sectors—from fast food companies to grocery retailers— that depend on U.S. corn as a key ingredient of their products or as a market for their inputs and services.
- In 2013, the top 45 U.S. companies in the corn value chain earned \$1.7 trillion in revenue.

Resources

Water and Climate Risks Facing U.S. Corn Production: How Companies and Investors Can Cultivate Sustainability. CERES, 2015.

Ethanol Facts. National Corn Growers Association, 2015. <http://ethanolfacts.com>.

Navigating Global Markets For American Farmers. 2014 Annual Report. U.S. Grains Council, 2014.



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