First Research

INDUSTRY PROFILE

Grain Farming

10.7.2013

NAICS CODES: 11114, 11115, 11116

SIC CODES: 0111, 0112, 0115

Industry Overview

Farms in this industry generate at least half of their revenue from growing field corn, wheat, or rice crops and seeds. No major companies dominate the industry.

Global revenue from corn, wheat, and rice production is about $332 billion annually, according to the Food and Agriculture Organization of the United Nations. The US is the largest cultivator of corn, the world's most-produced crop. China and the EU are the largest wheat producers. China is also the leading producer of rice. Demand for grain crops is expected to grow in developing countries, where populations are rising rapidly.

The US grain farming industry includes about 200,000 farms with combined annual grain revenue of about $98 billion.

Producers of sweet corn, a vegetable, are included in the Vegetable & Melon Farming industry profile.

Competitive Landscape

Demand is driven by **government policies** and **consumer trends** in eating grains, meat, and corn-based sweeteners, such as high-fructose corn syrup. The profitability of individual companies depends on maximizing crop yield and minimizing disease risk. Large companies have advantages in highly mechanized operations and access to the latest in genetically modified (GM) grains. Small operations can compete by specializing in organic or non-GM grains.

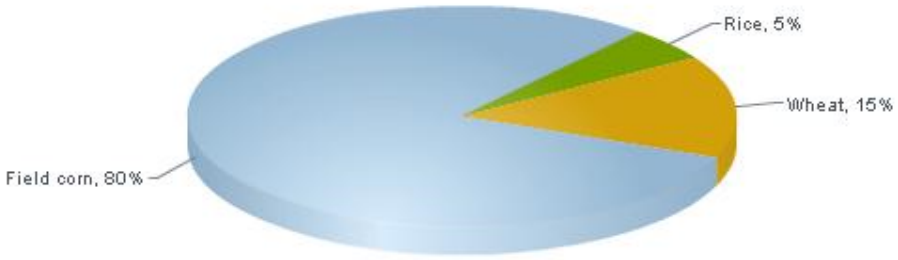
Grain farms compete against oilseed and vegetable crops for farm acreage, as farmers tend to plant and harvest crops with the highest yield and payout. Field corn competes against crushed oilseed as a livestock food source.

The US is a **net exporter** of grains. About 15 percent of all US corn production is shipped for export. About half of US wheat production is exported. Primary markets for corn and wheat include Japan, Mexico, and South Korea. Nigeria is also a top export market for US wheat. Imports, mainly from Canada, make up about 8 percent of the US wheat market. About 20 percent of US rice production is exported. Leading markets include Mexico, Turkey, and Venezuela.

Products, Operations & Technology

Major products include **field corn** (about 80 percent of revenue), **wheat** (15 percent), and **rice** (less than 5 percent). Half of all field corn is used for **livestock feed**. Field corn is also used in **industrial applications** like biodegradable plastic; **processed foods** like breakfast cereal, salad dressing, margarine, soft drinks, and syrup; and **ethanol fuel** production.

Product Segmentation by Revenue - Census Bureau



Corn, the nation's largest crop, is grown on about one-fourth of the cropland harvested in the US. Each year, farmers produce around 13 billion bushels of corn on more than 85 million acres of farmland. Nearly all corn is **hybrid**, which provides a higher yield, responds better to fertilization, and can better withstand large-scale mechanical harvesting. Modern field corn is bred to grow only one large ear per stalk. **Corn seed** can cost anywhere from $50 to $300 a bag, depending on how much the corn has been genetically modified; a bag of seed plants about three acres of corn. The average corn farm is around 700 acres and yields 140 bushels per acre (around four tons of shelled corn).

Corn is planted in spring after the danger of frost has passed. **Wheat** is planted in fall to allow its root system to develop during the winter. Farmers must accurately measure the number of seeds per acre, as crowded seeds can delay maturity and stunt growth, while low plant populations result in poor yields. Corn needs only moderate amounts of water, but irrigation may be required during drought. Heavy spring rains can create muddy soil, which can rot corn seedlings.

Farmers harvest **corn for grain** when the plant's moisture content is around 28 percent. **Corn silage**, used for livestock feed or ethanol, is picked earlier, as it requires a moisture level of 50 to 70 percent to encourage fermentation during storage. Short-season corn hybrids can be harvested about 110 days after seed emergence; full-season hybrids take around 125 days to mature. A **combine** threshes the corn from the stalk, removes the husks, shells and cleans the corn, and collects grain in a holding tank until it's unloaded and moved on- or off-farm for storage.

Field corn must be dried to lower **moisture content**. Corn can be naturally air-dried or heated in a storage bin. Airflow moves from the bottom of the silo up, so that the grain on the top is last to dry and is easiest to survey for moisture.

Farmers typically grow grains in a **crop rotation** with oilseed or broadleaf plants. Planting the two crops in succession improves weed control, lowers pest and disease risk, and requires less fertilizer.

Common inputs include seed, fertilizer, chemicals for weed control, fuel, electricity, machinery, and repairs. Fertilizer, soil conditioning, and manure can run from 20 to 25 percent of operating costs, depending on the type of grain. Labor costs tend to be very low in grain farming.

Recent **technological advances** include new strains of hybridized corn; improved fertilizers and chemicals for controlling weeds, pests, and disease; and the genetic modification of corn engineered to resist weed-killing agents, mold, and disease. Farm machine innovations have improved seed planting, threshing, and the transfer of grain to silos and elevators.

Sales & Marketing

A grain farmer's primary customer is a **grain elevator operator** or **cooperative**. Indirect customers include food processors, ethanol plants, and livestock farms. Grain producers will sometimes sell to local ethanol plants or cattle and hog farms, but most grain is sold through (and held by) an intermediary.

Individual sales and marketing efforts are minimal. Instead, most grain farmers contribute funds to a mandatory or voluntary state **checkoff program**. Checkoff programs ask or require farmers to pay between a half to one cent per bushel toward grain marketing and promotional programs. Twenty states have corn checkoff programs; 18 manage similar initiatives for wheat.

Elevator operators buy grain from farmers for cash or at a contracted price. This physical buying and selling of grain is known as the **cash market.** Elevator operators profit on the **basis**: the difference between the local cash price they just paid against the grain's **futures price**. Future contracts are traded at a commodity exchange for a specific contract delivery month; location (primarily Chicago); seed grade; and quantity. Future contracts are

sold in 1,000 bushel increments.

Farm operators can sell crops pre-harvest, at harvest, and post-harvest. Farmers typically price only 25 to 30 percent of a crop during the growing season, preferring to wait to price out a crop at harvest. Adverse weather conditions, disease, and volatile pricing make it very risky for a farmer to price 100 percent of a crop prior to harvest.

Cash forward contracts allow farmers to lock in a price or basis for grain that will be delivered in the future. Contracts are typically signed in spring for fall delivery. In a **basis contract,** farmers lock in a basis but the future price is left open. Farmers can take advantage of rising grain prices, but are exposed to risk if futures prices fall before the contract is priced out. In a **minimum price contract (MPC)**, an elevator operator guarantees that the farmer will receive a floor price. Both the operator and the producer can profit should grain prices rise.

Prevailing market prices generally exceed federal government payout rates. Specialty grain prices are typically priced as a premium to local cash or futures prices, subjecting premium grains to price volatility within the commodity market. Immature and drought-stressed corn can sometimes be sold as silage, even if it was grown to be sold as grain. However, a drought-stricken region may have an oversupply of stressed corn, which can lower corn feed prices dramatically.

Finance & Regulation

Cash flow is somewhat seasonal. Producers can store most grains on-farm or pay an elevator operator to warehouse grain for future payment and delivery, providing a farm with regular sales and improved annual cash flow. However, one-third of all grain farms operate at a net loss, so many farms sell off all grain at harvest.

Fertilizer is the most costly input for grain farmers, often accounting for between 15 and 20 percent of total expenses. Fuel accounts for about 5 to 8 percent of expenses. Because grain farming is highly mechanized, labor costs are extremely low, typically less than 1 percent of sales. The industry is capital-intensive: average annual revenue per worker in the US is about $3.9 million.

Every five years, the USDA Farm Bill authorizes and sets **agricultural price support policies**, which are managed by the USDA's Farm Service Agency. Commodity Credit Corporation (CCC) loans provide operators with interim financing at harvest to meet cash flow needs.

The USDA's Risk Management Agency administers Federal Crop Insurance Corporation (FCIC) programs, which underwrite crop insurance policies. Crop insurance policies are sold and serviced by private companies. The US government repays farm loans that become deficient when crop prices fall below established levels.

The federal Conservation Resource Program (CRP) extends 10- to 15-year contracts to farmers who establish grass, shrub, and tree cover on environmentally sensitive land. Enrollment in the program has declined in recent years as CRP rates have failed to keep pace with increased grain prices.

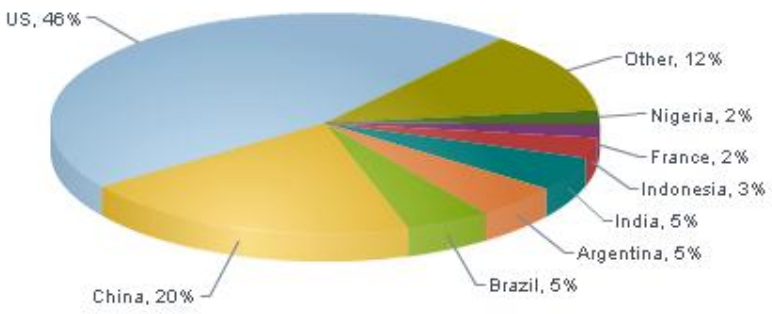
The USDA oversees grain inspections, imports, and fair trade practices through its Grain Inspection, Packers, and Stockyards Administration. The USDA also regulates grain farm standards for organic certification and ensures compliance with national checkoff programs. The EPA regulates the use of fertilizers, herbicides, and pesticides on grain crops and chemicals on stored grains; erosion control; and ensures operator compliance with the Clean Water Act. The FDA oversees grain food safety, labeling, and health claims regarding whole grains in packaged foods.

International Insights

Global revenue from corn, wheat, and rice production is about $332 billion annually, according to the Food and Agriculture Organization of the United Nations (FAO). Worldwide coarse grain production, which includes corn, is more than 1 billion tonnes per year. **Global wheat production** totals about 690 million tonnes annually, and rice production, about 460 million tonnes annually, according to Organisation for Economic Co-operation and Development (OECD).

Global trade of **coarse grains** is expected to grow more than 20 percent between 2011 and 2020. Corn will continue to be the most widely used coarse grain, accounting for about 80 percent of global production by 2020. The global wheat market is predicted to increase 15 percent. The global rice trade is predicted to expand about 3 percent annually over the next decade, according to the USDA.

World Corn Production by Value - Food and Agriculture Organization of the United Nations, 2011



The US is the largest cultivator of **corn**. After the US, China, the EU, and Brazil are the largest corn producers. The US accounts for about 60 percent of the global corn export market. Japan is the largest corn importer.

The EU and China account for about 20 percent and 17 percent, respectively, of global **wheat** production. Other top producers include India, the US, and Russia. The US is the largest wheat exporter; Egypt is the largest importer.

China is the leading producer of **rice**. Rice farming is concentrated in the Asia/Pacific region; India, Indonesia, and Bangladesh are also large producers. Thailand is the leading rice exporter. China is the largest rice consumer, according to the USDA.

Demand for grain crops is expected to grow in developing countries, where populations are rising rapidly. Rising incomes in countries like **China** and **India** are also increasing demand for meat. Support for more domestically raised meat is expected to grow, leading to higher demand for grain as feed. Those countries with limited area for crop expansion and growing livestock feed demands will fuel the global grain trade over the next decade. Industrial uses for grain, such as starch and ethanol, are also expected to grow rapidly. **Africa** and the **Middle East** are expected to account for about 35 percent of both coarse grain and rice import increases and about 60 percent of increases in wheat imports between 2011 and 2020. China may account for about a third of the increase in the coarse grain trade, and **Mexico**, about a quarter, according to the USDA.

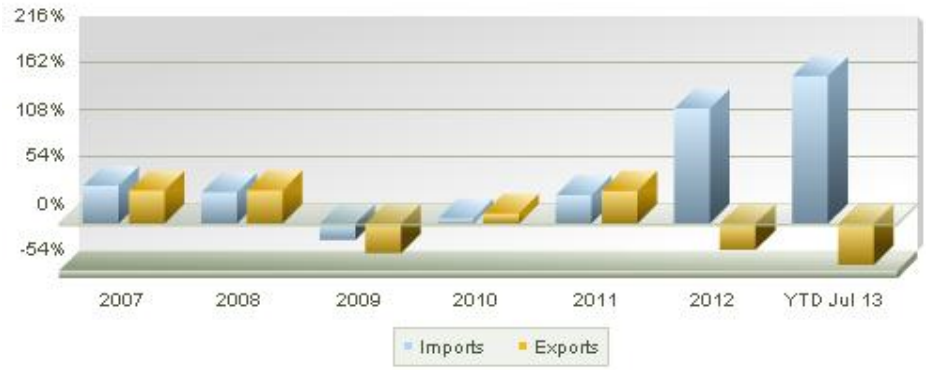
Disruptions in grain production and imports and exports in one part of the world have a ripple effect across the globe. For example, **severe drought** in Russia, Ukraine, and Kazakhstan reduced wheat production in 2010 and 2011. Prices for wheat and substitute grains then increased worldwide. China's growing appetite for agricultural imports is also of concern. As such a dominant player in the international commodities market, shifts in China's import demand can greatly affect global supply and prices.

Agricultural subsidies in developed countries are a point of contention among groups such as the World Trade Organization (WTO) and various political leaders. **Subsidies** were originally designed to insulate farmers from volatile commodity prices; however, some argue that farm subsidies restrict trade and distort prices. Many poorer countries cannot afford to subsidize crop production, which gives farmers in developed nations an advantage over those in developing countries, according to the WTO. As a result, **developing nations** without subsidies often enact tariffs, quotas, or other trade barriers to protect domestic markets. Both subsidies and tariffs are major obstacles to international agricultural trade.

Change in Dollar Value of US Trade - US International Trade Commission

Imports of nursery products to the US come primarily from Colombia, Canada, Netherlands, Ecuador, and Costa Rica. Major export markets for US nursery products include Canada, Mexico, Netherlands, China, and Spain.

11115 CORN



Regional Highlights

In the US, Midwestern states account for the majority of corn production. Iowa, Illinois, Indiana, South Dakota, Nebraska, Kentucky, Ohio, and Missouri are top corn growing states. Iowa and Illinois together account for about a third of all US corn production.

The Great Plains states account for the majority of US wheat production. Kansas produces about a quarter of hard red winter wheat, the primary wheat crop grown in the US. Colorado, Oklahoma, and Texas are also top hard red winter wheat growers.

Rice is grown mostly in southern states and California. The Gulf Coast region, the Mississippi Delta, and the Arkansas Grand Prairie are the most fertile southern growing regions. Of the three rice varieties, long grain, medium grain, and short grain, long grain accounts for about 70 percent of US production. Most long grain rice grown in the US is grown in the South.

Human Resources

The grain farming industry is highly mechanized, and demand for labor is seasonal. Grain farmers may employ private contractors to help with harvesting. Average wages for grain farming workers are significantly lower than the US average.

The annual injury rate in crop farming is about 60 percent higher than the national average. Most injuries involve sprains and strains resulting from equipment use.

Industry Growth Rating

Demand: Driven by food policies, trends, and exports
Need to maximize crop yield
Risk: Falling commodity prices and crop diseases

Quarterly Industry Update

10.7.2013

Trend: US Farm Production Expenditures on the Rise - US farmers spent a record-high $351 billion on agriculture production in 2012, about 10 percent more than a year before, according to the US Department of Agriculture. Crop farms, including grain farms, accounted for the majority of spending, totaling $200 billion, up some 17 percent from 2011. Higher-than-normal income for grain farmers and low interest rates helped boost demand for tractors and other equipment, and as a result equipment prices have increased. Other major expenses, including chemicals, fertilizers, fuel, and seeds, also increased.

Industry Impact - Strong crop prices and and low interest rates create favorable conditions for grain farmers to invest in their operations. But if production expenses rise too much, farmers may put off capital investments such as equipment and land purchases. They also may look to time purchases of seed and fertilizer in order to take advantage of price drops.

7.15.2013

Trend: Corn Prices Rise with Tightening Supply - Despite rising corn acreage in the US, supply stocks have dwindled, pushing up prices. Planted corn acreage in 2013 increased slightly over 2012, marking the fifth consecutive year of acreage expansion and the highest level of acreage planted since 1936. Weather impeded plantings early this year, resulting in 63 percent of the corn crop planted in early June 2013 compared to 72 percent at the same time in 2012. Old corn stocks were also down about 12 percent year over year in early June, according to the USDA. Compared to 2012, corn prices increased in each of the first five months of 2013. Prices rose 11.5 percent in May 2013 compared to May 2012.

Industry Impact - As a result of the tight supply, corn prices will likely continue upward even though acreage planted in corn has increased.

4.22.2013

Opportunity: Corn Demand Rises - Rising demand and higher prices may prompt farmers to plant more corn in 2013. Drought and dwindling corn yields in 2012 squeezed ethanol supplies and put upward pressure on livestock feed prices. Corn-dependent industries want plantings to increase and prices to ease. The USDA predicts corn acreage may hit its highest level since 1936.

Industry Impact - If weather conditions are favorable, increased corn plantings could put downward pressure on prices.

1.28.2013

Trend: Corn Acreage Could Drop - Some US corn farmers will be converting acreage to soybeans in 2013 in hopes of avoiding crop losses from persistent drought conditions, according to Reuters. High corn prices in recent years, partly due to ethanol demand, drove many farmers to plant corn year after year rather than rotate crops. Repeated planting can deplete soil of nutrients and reduce yields. The plan for high prices to offset the possible yield reductions was not successful for many farmers, prompting some to now look to soybeans, which are less dependent on moisture and naturally add needed nitrogen to the soil. Many farms in Iowa and Illinois, the top corn producing states, are expected to switch to soybeans, meaning US corn yields may dip by as much as 320 million bushels in 2013. US corn stockpiles are expected to reach a 17-year low by summer 2013.

Industry Impact - Reduced corn planting by farmers concerned about declining yields and soil conditions could push prices even higher.

Industry Indicators

The consumer price index for food, an indicator of grain values, rose 1.4 percent in August 2013 compared to the same month in 2012.

US retail sales for food and beverage stores, a potential measure of grain demand, increased 3 percent in the first eight months of 2013 compared to the same period in 2012.

Industry Forecast

The output of the US grain farming is forecast to grow at an annual compounded rate of 6 percent between 2013 and 2017. Data Published: September 2013

First Research forecasts are based on INFORUM forecasts that are licensed from the Interindustry Economic Research Fund, Inc. (IERF) in College Park, MD. INFORUM's "interindustry-macro" approach to modeling the economy captures the links between industries and the aggregate economy. Forecast FAQs

Companies

Company	Country	Sales
Heilongjiang Agriculture Co.,Ltd	China	$2,153.73M
SLC Agrícola S/A.	Brazil	$545.95M
Producers Rice Mill, Inc.	United States	$499.99M
Yuan Longping High-tech Agriculture Co., Ltd.	China	$269.95M
Anglo-Eastern Plantations Plc	England	$237.35M
M.P. Evans Group PLC	England	$83.21M
Birdsong Corporation	United States	$50.30M
CROOKES BROTHERS LTD	South Africa	$41.93M

Industry Drivers

Changes in the economic environment that may positively or negatively affect industry growth.

Data provided by First Research analysts and reviewed annually

Energy Prices Change in crude oil and related energy prices

Critical Issues

Highly Volatile Market Prices - Grain prices fluctuate sharply due to demand, acres planted, yield, and inventory levels. In six of the past 10 years, season-average corn prices have varied between 20 and 60 percent from the previous year; wheat prices are just as volatile. Because grain can be stored and sold throughout the year, price fluctuations tend to creep up and down over time, avoiding wild month-to-month swings more common in the oilseed and vegetable markets.

Dependence on Government Support - Grain farmers receive a significant share of US government farm subsidies. Calls for reform of the subsidy system recur every five years when federal farm legislation is

debated, revised, and renewed. A federal policy change on grain subsidies would likely have a major impact on prices, acreage, and the number of farms.

Business Challenges

Dependence on Livestock Feed - Half of all corn is supplied to livestock farms to feed cattle and hogs. Rising grain prices have led some large hog farms to consider reducing livestock inventory. Many farms are looking to other sources for feed, primarily soybean meal and distiller's dried grains with solubles (DDGS). DDGS comes from grain corn, but is a byproduct of ethanol production. Revenue generated from its sale supports ethanol plants, not grain farmers.

Weather, Disease, Mold - As with almost all agricultural crops, weather is a constant challenge. Drought, floods, and warming trends can greatly reduce grain yields. Corn is susceptible to aflatoxin, a grain mold that can damage the livers of livestock, poultry, and people. Aflatoxin can spread in storage, wiping out an entire elevator bin. Farmers depend on ever-evolving fungicides to keep ahead of emerging diseases, and chemical sprays to ward off pests.

Concerns About Genetic Modification - The top three seed manufacturers supply 85 percent of all corn seed. Companies like Monsanto have sued farmers who harvest patented seed stock instead of buying new seed each year. Seed prices have risen steadily over the years as genetically modified (GM) seed outnumbers and outsells traditional seed. The EU has proposed a ban on the sale of GM seed, claiming it could harm butterflies, modify food chains, and disturb life in rivers and streams.

Environmental Issues - The increase in the number of grain farms is often blamed for producing an environmental "dead zone" at the base of the Mississippi River. Corn requires heavy doses of the fertilizer synthetic nitrogen, much of which washes into streams that feed into the Mississippi and is carried to the Gulf of Mexico. In a process called hypoxia, vast deposits of nitrogen feed a giant algae bloom and destroy most of the life underneath. Not only is the pollution environmentally destructive, but hypoxia kills Gulf shrimp, impacting local shrimp farmers.

Business Trends

More Corn Used for Ethanol Production - Land for corn production is expected to increase more than 3 percent by 2015 to meet the demands of the Energy Independence and Security Act of 2007. Corn used for other food, seed, and industrial uses - namely corn syrup, starch, and sweetener - has remained flat. Lower-cost biomass ethanol from switchgrass or rice straw is years away from being commercially viable.

Operating Costs Rise - Seed, fertilizer, electricity, fuel, and machinery are getting more expensive for US grain farmers. Many farmers believe that the increased yield from genetically modified seed is essentially wiped out by higher operating and overhead costs. Operating costs, for items such as seed, fertilizer, and gas, have risen steeply, under pressure from worldwide demand for agricultural inputs.

Corn Acreage Displacing Wheat, Soybeans - Farms on a traditional corn-soybean crop rotation are increasingly shifting to a corn-corn-soybean pattern. Some farms are taking a chance on abandoning crop rotation, believing that higher payouts are worth the increased risk of disease or poor yield. A number of farms are abandoning wheat entirely in favor of federally subsidized corn. Because demand remains high for both soybeans and wheat, prices have risen for both commodities as farmers turn to corn.

Industry Opportunities

Wheat Straw for Cellulosic Ethanol - Wheat straw and other crop wastes are being tested to produce cellulosic ethanol, an environmentally efficient alternative to traditional corn-based ethanol. The US Department of Energy invested nearly $400 million in six US biorefinery projects between 2007 and 2011. Though the refining process is more complex, cellulosic ethanol produces more energy than traditional.

Soil Nitrogen Test for Higher Yields - A test to determine nitrogen levels in soil may benefit both corn producers and the environment. Historically, nitrogen levels have been tested using the yield-based method, where producers apply nitrogen for each bushel of estimated yield. Producers consistently over-fertilize fields, causing environmental damage from nitrogen runoff. The Illinois Soil Nitrogen Test (ISNT) examines natural nitrogen levels in the soil to more accurately assess the optimal nitrogen fertilizer rate.

New Industrial Uses for Grains - Researchers are testing new applications for corn-based polylactic acid (PLA) as well as new corn- and wheat-based polymers like isosorbide. PLA can be made into fibers for woven and non-woven fabrics. A tire company has introduced a line of tires that includes micro-droplets of corn starch to reduce tire weight and rolling resistance. Other new applications for wheat and corn starches include cosmetics, packaging, and pharmaceuticals.

Direct Sales - Ethanol plants are expanding capacity and coming online throughout the upper Midwest. Ethanol companies are often willing to buy corn directly from farmers, if quality is high and the corn is mold-free. Selling directly to ethanol plants or food processors is a significant shift in a corn farmer's business model, which traditionally relied on sales to a grain elevator or cooperative.

Executive Insight

Chief Executive Officer - CEO

Lowering Operational Costs
A grain farm requires a wide range of inputs to successfully harvest, including seed, chemicals, fuel, and electricity. Most of these inputs are significantly more expensive today than five years ago. Farm operators must find ways to lower operational costs and overhead expenses without reducing grain yield.

Managing Daily Operations
While many grain farms are large, most farm owners are hands-on operators. Farmers must be able to manage all aspects of the business, from planting seedlings to fixing the combine. Planting season and harvest can be make-or-break periods for a grain farm, requiring an active leader who can quickly fix and anticipate problems.

Chief Financial Officer - CFO

Establishing Insurance Strategy
A farm operator must carefully plan an insurance strategy to protect against the likelihood of weather-related losses. Federally backed crop insurance covers all major grain crops. Perhaps more important, crop insurance is an important financial instrument to hedge against risk.

Applying for Federal Subsidies
Federal subsidies, such as loan programs and direct payments, can be complex and time-consuming, but can be a tool to increase profits, particularly for large farms. Corn, rice, and wheat farmers depend heavily on federal incentives and subsidies. A farm that doesn't draw income from government payments is the exception, not the rule.

Chief Information Officer - CIO

Selecting Seed
Scientists and geneticists have made huge advancements in hybrid grains and genetically modified corn, but the number of seed choices can sometimes be overwhelming. A farm operator must carefully evaluate the latest scientific advances to determine if the added cost provides a higher return. Seed selection influences the purchases of other critical inputs like fertilizer and chemicals that kill certain weeds and pests.

Managing Inventory
Managing inventory after harvest can be a key factor in profitability. The technical capacity of farms to manage inventory can vary considerably: small family farms might get by with a ledger in a notebook; larger farms and cooperatives can invest in agricultural software solutions.

Human Resources - HR

Hiring Seasonal Workers
Farms large enough to hire outside workers must be able to find and retain qualified employees. Demand for workers is highest during spring seed planting and fall harvest. However, that's when most farms need workers, so securing and retaining qualified labor can be a challenge.

Training Workers on Pests and Mold
Farm workers must know how to look for signs of mold outbreaks and pest infestations in grain crops. Pests like cutworm and toxic molds like Mycotoxin and Fumonisin can wipe out an entire crop. Even worse, corn molds can spread in grain elevators, causing widespread damage. Fumonisin outbreaks can lead to increased rates of cancer and birth defects, and cause severe illness in livestock.

VP Sales/Marketing - Sales

Negotiating Contracts

Grain farmers essentially play the commodity market when pricing corn, wheat, or any major grain. Securing the right contract can mean the difference between losing money and making a significant profit. Key sales decisions include when to lock in a contract, how much of the harvest to price, and what type of pricing contract can maximize profitability and limit risk.

Exploring Direct Sales
Grain farmers, rethinking traditional sales channels, are increasingly interested in selling directly to ethanol plants and food processors. A sales effort that bypasses grain elevators may be risky, depending on the farm's relationship with the grain operator. Unlike the elevator market, there's no established pricing policy for selling grain directly.

Executive Conversation Starters

Chief Executive Officer - CEO

How does the farm deal with rising operational costs?
Farm operators must find ways to lower operational costs and overhead expenses without reducing grain yield.

What are the main daily job functions of the farm operator?
Farmers must be able to manage all aspects of the business, from planting seedlings to fixing the combine.

Chief Financial Officer - CFO

How does crop insurance help the farm minimize risk?
A farm operator must carefully plan an insurance strategy to protect against the likelihood of weather-related losses

How critical are government subsidies to the farm's bottom line?
Federal subsidies, such as loan programs and direct payments, can be complex and time-consuming, but can be a tool for increased profits, particularly for large farms.

Chief Information Officer - CIO

How does the farm determine what seed to buy?
A farm operator must carefully evaluate the latest scientific advances to determine if the added cost provides a higher return.

What type of inventory management does the farm use?
The technical capacity of farms to manage inventory can vary considerably: small family farms might get by with a notebook; larger farms and cooperatives can invest in agricultural software solutions.

Human Resources - HR

How does the company recruit and retain seasonal labor?
Farms large enough to hire outside workers must be able to find and retain qualified employees.

What types of training does the farm offer to reduce the risk of plant disease?
Farm workers must know how to look for signs of mold outbreaks and pest infestations in grain crops.

VP Sales/Marketing - Sales

How does the farm determine when to lock into a price contract?
Securing the right contract can mean the difference between losing money and making a significant profit.

What are the risks and advantages to selling directly to processors and plants?
Grain farmers, rethinking traditional sales channels, are increasingly interested in selling directly to ethanol plants and food processors.

Call Prep Questions

Conversation Starters

How does the farm deal with the volatile price of grain?

Grain prices fluctuate sharply due to demand, acres planted, yield, and inventory levels.

How important are federal subsidies to the farm's operations and profitability?
Grain farmers receive a significant share of US government farm subsidies.

Who are the farm's key customers?
Half of all corn is supplied to livestock farms to feed cattle and hogs.

What opportunities does the farm see in cellulosic ethanol?
Wheat straw and other crop wastes are being tested to produce cellulosic ethanol, an environmentally efficient alternative to traditional corn-based ethanol.

How does the farm test field nitrogen levels?
A test to determine nitrogen levels in soil may benefit both corn producers and the environment.

How does the farm benefit from agricultural research and crop science?
Researchers are testing new applications for corn-based polylactic acid (PLA) as well as new corn- and wheat-based polymers like isosorbide.

Quarterly Industry Update

What major investments is the farm considering in the next six to 12 months?
US farmers spent a record-high $351 billion on agriculture production in 2012, about 10 percent more than a year before, according to the US Department of Agriculture.

Operations, Products, and Facilities

What is the farm's main product?
Most US grain farms produce corn (80 percent of sales) or wheat (15 percent).

What type of seed does the farm plant?
Nearly all of grain corn is hybrid, which provides a higher yield, responds better to fertilization, and can better withstand large-scale mechanical harvesting.

How does climate impact the farm's yield?
Corn needs only moderate amounts of water, but irrigation may be required during periods of drought. Muddy soil from heavy rains can rot corn seedlings.

What are the farm's seed costs?
Corn seed can cost anywhere from $50 to $300 a bag, depending on how much the corn has been genetically modified. A bag of seed plants about three acres of corn.

How often does the farm rotate its crops?
Farmers typically grow grains in a crop rotation with oilseed or broadleaf plants to improve weed control and lower pest and disease risk and fertilizer needs.

What type of equipment does the farm use?
A combine threshes, removes husks, shells and cleans the corn, and collects grain in a holding tank until it's taken to storage.

How is the grain dried and stored?
To further lower its moisture content, corn can be naturally air-dried or heated in a storage bin.

What are the farm's major operating expenses?
Major oilseed farm inputs include seed, fertilizer, chemicals for weed control, fuel, electricity, machinery, and repairs.

Customers, Marketing, Pricing, Competition

Who are the farm's customers?
Grain elevator operators and cooperatives are a grain farm's top customers. Indirect customers include food processors, ethanol plants, and livestock farms.

How satisfied is the farm with the state checkoff program?
Most grain farmers contribute around one-half to one cent per bushel to a mandatory or voluntary state checkoff program for marketing and promotions.

Does the farm buy or sell future contracts?
Future contracts - sold in 1,000 bushel increments - are traded at a commodity exchange for a specific delivery month, location, seed grade, and quantity.

How much of the farm's crop is under contract?
Farm operators rarely contract out an entire crop unless it's fully owned by a processor or seed manufacturer. Farmers can choose from several types of contracts, including cash forward, basis, and minimum price.

What does the farm do with grain that can't be sold at market?
Immature and drought-stressed corn can sometimes be sold as silage; however, sometimes crops are too damaged to find a buyer.

Regulations, R&D, Imports and Exports

How much does the farm depend on cash subsidies?
Grain farming is the most heavily subsidized US crop. Every five years, the USDA Farm Bill authorizes and sets agricultural price support policies.

How important are loan programs to the farm's overall operations?
Commodity Credit Corporation loans provide operators with interim financing at harvest to meet cash flow needs.

What type of crop insurance does the farm have?
The USDA Risk Management Agency administers Federal Crop Insurance Corporation programs, which underwrite crop insurance policies that are sold and serviced by private companies.

Does the farm participate in the Conservation Resource Program (CRP)?
The federal CRP extends contracts to farmers who establish grass, shrub, and tree cover on environmentally sensitive land.

Organization and Management

Who is responsible for the farm's harvesting and threshing?
Grain farmers may employ private contractors to help harvest and with threshing.

What skills or training does the farm require of its workers?
Grain farm operators typically have a background in science, horticulture, and machinery. Large farm operations require good management skills.

How does the farm protect workers from injuries?
The annual injury rate in crop farming is about 60 percent higher than the national average; most injuries are sprains and strains from equipment use.

Financial Analysis

How does seasonality impact the farm?
Cash flow is somewhat seasonal. Most grains can be stored on-farm or at an elevator for regular sales and improved annual cash flow.

How challenging is maintaining profits for the farm?
One-third of all grain farms operate at a net loss, so many farms sell all grain at harvest.

What are the farm's largest expenses?
Fertilizer is the most costly input for grain farmers, often accounting for between 15 and 20 percent of total expenses.

How do labor costs impact the farm?
Because grain farming is highly mechanized, labor costs are extremely low - less than 1 percent of sales for corn and 5 percent for rice.

Business and Technology Strategies

What technologies does the farm use to improve germination rates and yields?
New strains of hybridized corn and improved fertilizers and chemicals have improved grain germination and yields.

How modern is the farm's machinery and equipment?
Farm machine innovations have improved seed planting, threshing, and the transfer of grain to silos and elevators.

How much of the farm's crop is genetically modified (GM)?
About 90 percent of all US corn is GM to resist weed-killing agents, mold, and disease.

What plans does the farm have to expand?
Large companies have advantages in highly mechanized operations and access to the latest in GM grains.

If a small farm, how can it compete against larger operations?
Small operations can compete effectively by specializing in organic or non-GM grains.

Financial Information

COMPANY BENCHMARK TRENDS

Quick Ratio by Company Size

The quick ratio, also known as the acid test ratio, measures a company's ability to meet short-term obligations with liquid assets. The higher the ratio, the better; a number below 1 signals financial distress. Use the quick ratio to determine if companies in an industry are typically able to pay off their current liabilities.

Financial industry data provided by MicroBilt Corporation collected from 32 different data sources and represents financial performance of over 4.5 million privately held businesses and detailed industry financial benchmarks of companies in over 900 industries (SIC and NAICS). More data available by subscription or single report purchase at www.microbilt.com/firstresearch.

COMPANY BENCHMARK INFORMATION

NAICS: 11114, 11115, 11116

Data Period	Last Update October 2013
Table Data Format	Mean

Company Size	All	Large	Medium	Small
Size by Revenue		Over $50M	$5M - $50M	Under $5M
Company Count	4813	1	12	4800

Income Statement				
Net Sales	100%	100%	100%	100%
Gross Margin	34.4%	19.2%	31.9%	35.8%
Officer Compensation	2.9%	1.3%	1.7%	3.1%
Advertising & Sales	0.2%	0.1%	0.2%	0.2%
Other Operating Expenses	28.6%	15.2%	27.3%	29.8%
Operating Expenses	31.7%	16.7%	29.2%	33.1%

Operating Income	2.7%	2.6%	2.8%	2.7%
Net Income	1.6%	1.9%	1.6%	1.6%

Balance Sheet

Cash	7.0%	7.3%	7.1%	7.0%
Accounts Receivable	14.0%	19.0%	16.0%	13.4%
Inventory	13.2%	13.8%	11.6%	13.4%
Total Current Assets	41.3%	46.3%	40.3%	41.1%
Property, Plant & Equipment	35.9%	31.8%	39.8%	35.6%
Other Non-Current Assets	22.8%	21.9%	19.9%	23.3%
Total Assets	100.0%	100.0%	100.0%	100.0%
Accounts Payable	5.9%	3.5%	5.7%	6.1%
Total Current Liabilities	21.1%	12.8%	21.5%	21.6%
Total Long Term Liabilities	37.6%	18.4%	36.1%	39.0%
Net Worth	41.3%	68.8%	42.4%	39.5%

Financial Ratios

Quick Ratio	1.07	2.13	1.14	1.02
Current Ratio	1.96	3.62	1.87	1.91
Current Liabilities to Net Worth	51.1%	18.6%	50.8%	54.6%
Current Liabilities to Inventory	x1.59	x0.93	x1.85	x1.60
Total Debt to Net Worth	x1.42	x0.45	x1.36	x1.53
Fixed Assets to Net Worth	x0.87	x0.46	x0.94	x0.90
Days Accounts Receivable	39	47	47	37
Inventory Turnover	x6.58	x8.69	x7.42	x6.34
Total Assets to Sales	69.1%	60.5%	73.9%	69.1%
Working Capital to Sales	14.0%	20.3%	13.9%	13.5%
Accounts Payable to Sales	4.5%	2.4%	4.6%	4.7%
Pre-Tax Return on Sales	2.6%	3.0%	2.7%	2.5%
Pre-Tax Return on Assets	3.7%	5.0%	3.6%	3.6%
Pre-Tax Return on Net Worth	9.0%	7.2%	8.5%	9.2%
Interest Coverage	x1.90	x2.84	x2.01	x1.84
EBITDA to Sales	4.3%	3.0%	4.7%	4.3%
Capital Expenditures to Sales	-1.2%	-4.4%	-1.0%	-0.9%

ECONOMIC STATISTICS AND INFORMATION

Change in Producer Prices - Bureau of Labor Statistics

Industry Websites

AgWeb.com
News, analysis, market information.

Amber Waves newsletter
USDA monthly newsletter with a focus on grain farming.

American Coalition for Ethanol
Coalition of suppliers and ethanol manufacturers.

American Corn Growers Foundation
Progressive industry association for corn farmers.

Canada Grains Council
News and reports.

Canadian Wheat Board (CWB)
News and industry resources.

Farms.com
Agriculture industry news.

National Corn Growers Association
National checkoff program and industry association for corn.

US Grains Council
International grain news.

USDA's Economic Research Service (ERS) Corn Overview
Corn market overview, analysis, and USDA publications.

USDA's National Agricultural Statistics Service
Databases, charts, and maps.

Glossary of Acronyms

CCC - Commodity Credit Corporation

CRP - Conservation Resource Program

cwt - hundredweight

DDGS - Distiller's Dried Grains with Solubles

ERS - Economic Research Service

FCIC - Federal Crop Insurance Corporation

FSA - Farm Service Agency

FAO - Food and Agriculture Organization of the United Nations

GIPSA - Grain Inspection, Packers, and Stockyards Administration

GM - genetically modified/genetic modification

HFCS - high-fructose corn syrup

ISNT - Illinois Soil Nitrogen Test

MPC - minimum price contract

OECD - Organisation for Economic Co-operation and Development

RMA - Risk Management Agency