Ceres, Inc.
Form 10-K
November 20, 2012
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# UNITED STATES

# SECURITIES AND EXCHANGE COMMISSION

**Washington, D.C. 20549**

# Form 10-K

x **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**
**For the fiscal year ended August 31, 2012**

¨ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**
**For the transition period from to**

**Commission file number: 001-35421**

# Ceres, Inc.

**(Exact name of registrant as specified in its charter)**

| **Delaware** | **33-0727287** |
|---|---|
| **(State of incorporation)** | **(I.R.S. Employer Identification No.)** |
| **1535 Rancho Conejo Boulevard** | |
| **Thousand Oaks, CA** | **91320** |

**(Address of principal executive offices)** **(Zip code)**

**Telephone: (805) 376-6500**

**(Registrant s telephone number including area code)**

**Securities registered pursuant to Section 12(b) of the Act:**

| **Title of Each Class** | **Name of Each Exchange on Which Registered** |
|---|---|
| Common Stock, $0.01 par value per share | The Nasdaq Stock Market LLC |

**Securities registered pursuant to Section 12(g) of the Act: Not Applicable**

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ¨ No x

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Exchange Act. Yes ¨ No x

Indicate by check mark whether the registrant: (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes x No ¨

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes x No ¨

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of registrant s knowledge, in definitive proxy or information statements incorporated by reference into Part III of this Form 10-K or any amendment to this Form 10-K. ¨

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See the definitions of large accelerated filer, accelerated filer and smaller reporting company in Rule 12b-2 of the Exchange Act. (Check one):

| | |
|---|---|
| Large accelerated filer ¨ | Accelerated filer ¨ |
| Non-accelerated filer x (Do not check if a smaller reporting company) | Smaller reporting company ¨ |

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act.) Yes ¨ No x

Under the Jumpstart Our Business Startups Act of 2012, or the JOBS Act, Ceres, Inc. qualifies as an emerging growth company, as defined under the JOBS Act.

As of February 29, 2012 (the last business day of the registrant s most recently completed second fiscal quarter), the aggregate market value of the registrant s Common Stock held by non-affiliates of the registrant was approximately $208,030,775 (based on the last reported trading price of the Common Stock of $13.96 per share on that date, as reported on the Nasdaq Global Market).

As of November 7, 2012, there were 24,803,986 shares of Common Stock outstanding.

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## FORWARD-LOOKING STATEMENTS

Certain statements that we make from time to time, including statements contained in this Annual Report on Form 10-K constitute forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, or the Securities Act, and Section 21E of the Securities Exchange Act of 1934, as amended, or the Exchange Act. All statements, other than statements of historical facts contained in this Annual Report on Form 10-K, including statements regarding our efforts to develop and commercialize our products, our short-term and long-term business strategies, market and industry expectations and future results of operations and financial position, are forward-looking statements. In many cases, you can identify forward-looking statements by terms such as may , will , should , expect , plan , anticipate , cou intend , target , project , contemplate , believe , estimate , potential , continue or other similar words.

We based these forward-looking statements largely on our current expectations and projections about future events or trends that we believe may affect our business and financial performance. These forward-looking statements involve known and unknown risks and uncertainties that may cause our actual results, performance or achievements to materially differ from any future results, performance or achievements expressed or implied by these forward-looking statements. We have described in item 1A, under the heading entitled Risk Factors, and elsewhere in this Annual Report on Form 10-K the material risks and uncertainties that we believe could cause actual results to differ from these forward-looking statements. Because forward-looking statements are inherently subject to risks and uncertainties, some of which we cannot predict or quantify, you should not rely on these forward-looking statements as guarantees of future results, performance or achievements.

The forward-looking statements in this Annual Report on Form 10-K represent our views as of the date of this Annual Report on Form 10-K. We undertake no obligation to update publicly, except to the extent required by law, any forward-looking statements for any reason after the date of this Annual Report on Form 10-K to conform these statements to actual results or to changes in our expectations.

You should read this Annual Report on Form 10-K and the documents that we reference in this Annual Report on Form 10-K and have filed with the Securities and Exchange Commission, or the SEC with the understanding that our actual future results, levels of activity, performance and events and circumstances may be materially different from what we expect.

Unless otherwise indicated in this Annual Report on Form 10-K, Ceres , our company , the Company , we , us and our refer to Ceres, Inc. a subsidiary, Ceres Sementes do Brasil Ltda.

Our logos, Ceres® , The Energy Crop Company®, Blade Energy Crops®, Blade® and Skyscraper® and other trademarks or service marks of Ceres, Inc. appearing in this Annual Report on Form 10-K are the property of Ceres, Inc. This Annual Report on Form 10-K contains additional trade names, trademarks and service marks of other companies. We do not intend our use or display of other companies trade names, trademarks or service marks to imply relationships with, or endorsement or sponsorship of us by, these other companies.

This Annual Report on Form 10-K contains references to acres, hectares, gallons, liters, wet metric tons, dry tons and kilograms. In the United States, blendstock fuels are typically measured and sold in gallons. In other parts of the world, the standard unit is liters. The following table sets forth the conversion factor between metrics.

| | | | |
|---|---|---|---|
| 1 Hectare | = | 2.471 Acres | |
| 1 Gallon | = | 3.785 Liters | |
| 1 Wet Metric Ton | = | 1,000 Kilograms | *(Measurement commonly used to measure feedstock yields)* |
| 1 Dry Ton | = | 907 Kilograms | *(Measurement commonly used to measure dry biomass for cellulosic biofuels and biopower)* |
| 1 Brazilian Real | = | 0.4910 US Dollars | *(As of November 7, 2012)* |
| 1 British Pound | = | 1.5983 US Dollars | *(As of November 7, 2012)* |

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**PART I**

**Item 1.** ***Business***

**Our Company**

We are an agricultural biotechnology company selling seeds to produce dedicated energy crops renewable bioenergy feedstocks that can enable the large-scale replacement of petroleum and other fossil fuels. We use a combination of advanced plant breeding and biotechnology to develop seed products that we believe address the limitations of first-generation bioenergy feedstocks, such as corn and sugarcane, increase crop productivity, reduce crop inputs and improve cultivation on marginal land.

Our first large-scale commercial products are proprietary sweet sorghum hybrids that can be used as a drop-in feedstock to extend the operating season of Brazilian sugarcane-to-ethanol mills, the operating days of which are currently limited due to the inherent limitations of sugarcane physiology and growth patterns. Our dedicated energy crops can also be used for the production of second-generation biofuels and bio-based chemicals, including cellulosic ethanol, butanol, jet fuel, diesel-like molecules and gasoline-like molecules, from non-food biomass. Finally, baseload utility-scale electric power can also be generated from the biomass feedstocks grown from our seeds.

The seed industry has historically required very little capital to produce, condition and package seeds, and seeds have typically been priced based on a share of the value they create and thus have generated high gross margins. As a producer of proprietary seeds, we believe we are in one of the most attractive segments of the bioenergy value chain upstream from the capital-intensive refining and conversion of biomass. Therefore, we believe our success is tied to adoption of our products rather than the relative profitability of downstream participants. Our upstream position in the value chain also allows us to be largely independent of the success of any particular conversion technology or end use.

We develop low input dedicated energy crops capable of producing high yields per acre using innovative plant breeding and trait biotechnology. By developing these types of crops, we enable the scalable, sustainable and economic production of bioenergy. Our proprietary collection of energy crop parent lines, known as germplasm, in combination with our pipeline of biotechnology traits allows us to develop bioenergy feedstocks to meet the needs of ethanol mills, biorefineries and growers of energy crops, all while using less water and less fertilizer than row crops like corn or soybean, even if grown on marginal land. We believe that the strength of our technology has been validated by our receipt of multiple competitive grants and collaborations, including a United States Agency for International Development, or USAID, grant and one of the U.S. Department of Energy s first Advanced Research Project Agency for Energy, or ARPA-E, grants in 2009, as well as a $137 million multi-year collaboration with Monsanto Company signed in 2002. We also have significant intellectual property rights to our technology platforms, traits and seed products.

We market and sell our sweet sorghum seeds in Brazil and our switchgrass, high biomass sorghum and sweet sorghum seeds in the United States under our brand, Blade Energy Crops, or Blade. Our largest immediate commercial opportunity is the Brazilian ethanol market, which currently uses sugarcane as its predominant feedstock. Due to the inherent limitations of sugarcane physiology and growth patterns, Brazilian mill operators typically obtain sugarcane that makes mill operation economically feasible approximately 200 days per year, based on a report issued by the Brazilian Ministry of Agriculture s crop forecasting agency, *Companhia Nacional de Abastecimento* (Conab), dated May 2012. The current crush capacity will need to increase to meet expected domestic demand. The Brazilian government s energy research institute, *Empresa de Pesquisa Energética*, projects that ethanol demand will more than double to 73.3 billion liters per year by 2020, from 28.2 billion liters in 2011.

In the 2010-2011 growing season, in collaboration with several mills, we completed a commercial-scale trial on approximately 250 hectares of our sweet sorghum, which was planted and harvested using existing planting and harvesting equipment, fermented into ethanol without retrofitting or altering the existing mill and the remaining

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biomass combusted for electricity production, using existing boilers in the last growing season. During the following season, we completed our first sales of sweet sorghum, which amounted to greater than 3,000 hectares to more than a dozen mills, including multi-mill conglomerates, which are responsible for approximately 20% of the sugarcane crushed in Brazil, which we derive from the annual sugar and ethanol guide, *Anuario Da Cana 2012*. Proof of concept was again confirmed, and at a greater scale, although yields were less than optimal due to severe drought conditions that affected agricultural crops in the region, including sugarcane and sweet sorghum. We believe these experiences demonstrate the drop-in nature of our sweet sorghum products, and along with higher yielding products in our pipeline, seed-based propagation, shorter growing cycles and lower water and fertilizer requirements of sweet sorghum relative to sugarcane, will serve as the basis for expanded adoption of this product line as a feedstock for ethanol and power production in Brazil and other markets. For the upcoming 2012-2013 season, we have introduced six new hybrids that have significantly outperformed our first generation commercial products in multiple field evaluations. Based on our trial results to date and pipeline of products under development, we believe the adoption of our sweet sorghum hybrids could extend a mill s operations by approximately 60 days. Seed sales and deliveries are ongoing and are expected to be completed by mid-December. While we have increased the number of mills planting our hybrids over the previous season, based on current sales trends, we believe that we will sell or provide trial seed to plant thousands of hectares, which is lower than we originally anticipated. This is due in part to the effects of the drought last season and the focus among our customer base on the field performance of our new hybrids, which can be determined at a smaller scale. We believe that the industrial processing of our products has been validated during the past two seasons.

We also work with refining technology companies in the emerging cellulosic biofuels and bio-based chemicals markets. We believe that dedicated energy crops will enable both individual renewable energy projects and the industry as a whole to reach greater scale and sustainability, at lower costs, than other potential sources of biomass because of their yields, hardiness and relatively low input requirements. We believe our dedicated energy crop portfolio is compatible with a number of developing cellulosic biofuel conversion technologies and we have worked with companies focusing on petroleum-refining technologies such as UOP LLC (a Honeywell Company), as well as chemical companies, such as Europe-based Gruppo Mossi & Ghisolfi, or Gruppo M&G, to test our energy crops in their respective production processes. We have also conducted joint trials with, or sold seed to AGCO Corporation, EdeniQ, Inc., Hawai i BioEnergy, LLC and Sweetwater Energy Inc., among others.

Our dedicated energy crops also can be used to generate electricity in existing solid-fuel power facilities, such as coal-fired generating plants. We believe we will see a material increase in demand for biopower in the event that additional renewable energy legislation is passed in the United States, Europe or other regions that requires a higher percentage of generation from low-carbon sources or provides equal production incentives for the co-firing of biomass with coal, as are currently available for wind and solar power. Based on feedback from customers, partners and industry participants, we believe that our products can be used by existing growers, pellet mills and utilities, and can be cost competitive with existing biopower feedstocks, such as wood pellets.

Finally, due to the nature of biotechnology, we believe other crops can benefit from many of the traits we are developing for dedicated energy crops, such as traits that improve water use efficiency and salt tolerance. By combining genes into a series of stacks, we believe, and our initial results indicate, that we can achieve step-change improvements to the productivity of many row crops, including corn, soybean, rice and wheat. We have also generated many biotech traits specifically for cereal crops, such as rice, that increase grain yields and provide greater yield stability across different environments. Evaluations of these and other traits are now underway in India. Subject to regulatory approval, field evaluations of the first commercial rice hybrids with these traits could begin as early as mid-2013.

**Market Opportunity**

The world continues to seek economically and environmentally sound alternatives to fossil fuel-based transportation fuels, chemicals and power. We believe bioenergy is one of the few viable replacements for fossil

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fuels, particularly petroleum. Unlike other renewable technologies, biofuels are intended to utilize existing vehicles and transportation fuel infrastructure. Similarly, biopower, unlike wind and solar power, can provide baseload and dispatchable generation of renewable electricity. Despite the potential of biofuels, first-generation biofuel feedstocks have demonstrated their limitations in terms of scale, perceived competition with food production, net energy balance and dependence on government subsidies. Similarly, current sources of biomass, such as forestry residues and agricultural wastes, are limited in scale and are not optimized for use in bioenergy. They are also by-products derived from other processes and therefore subject to supply disruptions. Our dedicated energy crops provide an attractive combination of high yield density, high net energy balances, low input requirements, the ability to grow on marginal land and, as a dedicated source of feedstock, the potential to be tailored for specific production and refining processes. As a result, we believe that dedicated energy crops will become a critical component for the growth of the biofuel, bio-based chemicals and biopower markets.

*Biofuels and Bio-Based Chemicals*

Modern lifestyles and economies are highly reliant on petroleum and its by-products across a wide variety of industries, including light-duty transportation, aviation, diesel, shipping, lubricants, polymers and resins. According to the Energy Outlook Report published in September 2012 by the U.S. Energy Information Administration, or EIA, global oil production averaged 88.8 million barrels per day in the second quarter of 2012. The transportation fuel component of petroleum is valued at over $2 trillion per year, according to EIA. The vast majority of bio-based replacements for petroleum and petroleum-based chemicals are currently produced by fermentation of starch sources and free or soluble sugars primarily derived from corn and sugarcane, respectively. Commonly referred to as first-generation biofuels and bio-based chemicals, the production and conversion processes for these feedstocks are well-established. However, as the world looks to increase its consumption of biofuels and their derivatives, these first-generation feedstocks face challenges to meet increased demand.

In Brazil, which has been importing corn ethanol to meet its domestic demand, we believe that mill operators will seek alternatives that will allow them to increase production utilization of their existing mills beyond the average 200 days per year schedule in order to maximize their market opportunity. On a global basis, we expect petroleum consumption will be further supplemented by products made from the conversion of non-food biomass into biofuels and bio-based chemicals. Today, there are more than 50 companies, including large multinational companies, such as BP p.l.c., Royal Dutch Shell plc and Total S.A., and independent companies, such as KiOR, Inc. and Coskata, Inc., focused on improving or interested in licensing and commercializing non-food biomass conversion technologies. The first commercial-scale facility, constructed by KiOR, Inc., began operations in November 2012 in Mississippi. A similar sized facility, built and operated by Chemtex International, Inc., is expected to begin operations by the end of 2012 in Italy. According to a 2011 report published by International Energy Agency, or IEA, biofuel production could reach approximately 112 billion gallons per year by 2030, up from 26 billion gallons in 2010. To meet these targets, the IEA believes feedstock production would need to increase to 150 million acres in 2030, up from 75 million acres in 2010. We believe quadrupling the volume of biofuels while only doubling the feedstock production acres will require higher yielding second-generation feedstocks. Moreover, in the United States, the U.S. Department of Energy, or the DOE, projects that biomass energy crops will represent the largest potential source of biomass feedstock in its August 2011 report titled, *U.S. Billion-Ton Update: Biomass Supply for a Bioenergy and Bioproducts Industry.* The DOE projects that acreage of perennial energy grasses and annual energy crops could reach from 35 to 46 million acres in 2022, depending on productivity gains.

*Biopower*

Globally, 7.7 trillion kilowatthours of electricity were generated from coal in 2008, or 40% of total global power generation, according to the EIA, which we estimate required 3.8 billion tons of coal. By comparison, approximately 270 billion kilowatthours of electricity were generated from biomass and wastes in 2009 which we estimate required 230 million dry tons of biomass. The conversion of biomass to power has traditionally been fueled by bio-based waste products and residues from the paper and timber industries. As is the case for biofuels,

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we believe this practice has limited the size, location, efficiency and scale of biomass power generation because power producers cannot reliably secure long-term supplies of consistent quality feedstock. We believe we will see a material increase in demand for biopower in the event that additional renewable energy legislation is passed in the United States, Europe or other regions that requires a higher percentage of generation from low-carbon sources, or that incentivizes the combustion of biomass.

*Food and Feed Crops*

According to a March 2012 report published by the International Service for the Acquisition of Agri-Biotech Applications, or ISAAA, approximately 395 million acres of biotechnology crops were planted globally in 2011. The global market value of biotechnology crop seeds was $13 billion, as reported in the same report by ISAAA. In the United States, we estimate, based on the price differential between conventional seed varieties and similar varieties with a trait, that retail premiums for traits and stacked trait combinations in row crops range from approximately $10 to $50 per acre, depending on crop and geography. As people in many countries become more affluent, they tend to consume more of their dietary protein in the form of meat and dairy products, driving the demand for animal feed grains higher. Therefore, greater production of food, feed, fiber and fuel will require higher crop productivity levels among all crops over time. In order to continue the productivity gains made in many crops over the past 75 years, and to do so in a more sustainable manner, we believe that advanced breeding methods, and biotech traits, in particular, will be required to produce higher performance crops that make more productive use of cultivated land, as well as to develop more robust, stress-tolerant crops that can grow under more difficult conditions and on marginal land. Our belief is consistent with historical yield improvements achieved via plant breeding and the adoption of agricultural biotechnology.

**Our Solutions**

We believe that nearly all bioenergy and bio-based chemical applications will ultimately depend on high yielding, low-cost, low-carbon, scalable, reliable and sustainable sources of feedstock. We believe that our dedicated energy crops and traits have the potential to become the common denominator in a broad array of bio-based products, including ethanol, butanol, jet fuel, diesel-like molecules and gasoline-like molecules, as well as electric power and heat, and can enable the development of larger-scale processing facilities given the high yield density and conversion efficiency of dedicated energy crops. Specifically, our dedicated energy crops have the following characteristics, which we believe will make them a critical component in the large-scale production of these bio-based products:

*Drop-in Products*

In Brazil, there is a well-established biofuel industry. Our products are drop-in solutions because they can be planted, harvested and processed using existing agricultural equipment with little or no modification and are being developed to be drop-in for all conversion technologies using sugarcane or biomass feedstocks, facilitating their rapid adoption. In the 2010-2011 planting season, in collaboration with several mills, we completed a commercial-scale trial on approximately 250 hectares of our sweet sorghum, which was planted and harvested using existing planting and harvesting equipment, fermented into ethanol without retrofitting or altering the existing mill and the remaining biomass combusted for electricity production, using existing boilers in the last growing season. During the following season, we completed our first sales of sweet sorghum, which amounted to greater than 3,000 hectares to more than a dozen mills, including multi-mill conglomerates. Proof of concept was again confirmed, and at a greater scale, although yields were less than optimal due to severe drought conditions that affected agricultural crops in the region, including sugarcane and sweet sorghum. For the upcoming 2012-2013 season, we have introduced six new hybrids that have significantly outperformed our first generation commercial products in multiple field evaluations. Seed sales and deliveries are ongoing and are expected to be completed by mid-December.

In other countries, there are a wide range of cellulosic to biofuel conversion technologies currently being developed; however none have any appreciable market share at this time. To explore this opportunity, we have

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conducted smaller trials using our other energy crops with numerous industry participants involved in cellulosic or advanced biofuels and biopower production. For example, our products have been tested in the respective conversion processes of Amyris, Inc., Gruppo M&G., EdeniQ, Inc., ICM, Inc., Novozymes North America, Inc., ThermoChem Recovery International, Inc. and UOP, LLC (a Honeywell company), among others. These tests have confirmed that biomass from our energy grasses can be converted and processed into various fuels or bio-based products, and have provided data we have used to further enhance our energy crops for use with these conversion technologies. For similar purposes, DuPont Cellulosic Ethanol (formerly DuPont Danisco Cellulosic Ethanol LLC) also plans to validate our products in its conversion process as part of a publicly announced project with the University of Tennessee.

*High Yield Density*

Our dedicated energy crops are developed to produce high biomass or sugar yields per acre. For cellulosic biofuels, bio-based chemicals and biopower, energy grasses can yield significantly more dry tons per acre per year compared to agricultural residues and woody biomass. This maximizes the productivity of available land and shortens the collection radius for a conversion facility of a particular size. As harvest and transportation costs can be a significant element in the total cost of biomass, we believe our high yield density crops will facilitate the construction of larger processing facilities because more biomass could be collected from a defined area of land around the facility. In turn, these larger facilities will benefit from economies of scale, resulting in lower production and capital cost per gallon produced.

*Dedicated to Bioenergy and Bio-based Chemicals*

Unlike many other bioenergy feedstocks, our dedicated energy crops are currently not intended for other uses and are typically grown exclusively to be harvested as part of the bioenergy and bio-chemical value chain, creating a stable supply that will appeal to owners of conversion technologies who have invested significant capital in their infrastructure and therefore require reliable and cost-effective feedstocks. Additionally, we are working to tailor our products to improve the efficiency and reduce the cost of certain conversion technologies. For example, we are developing a trait that reduces enzyme requirements to convert biomass into certain bio-based products. As high enzyme costs continue to be an issue for some biochemical cellulosic conversion technologies, this trait could be very valuable to refineries employing those technologies. We believe that our ability to deliver products such as these to our customers will facilitate adoption of dedicated energy crops over other forms of biomass.

*Suited to Marginal Land*

Our dedicated energy crops can grow in a broad range of environments, including those not well-suited for most food crops. For example, our sweet sorghum hybrids need substantially less water and fertilizer than sugarcane to grow to harvestable maturity. We are developing biotech traits that provide salt tolerance, drought tolerance and greater nitrogen use efficiency. We believe that by facilitating the use of marginal land, our crops will create opportunities for landowners who previously could not use their land as productively.

*Scalable to Meet Demand*

Our energy crops are highly scalable, allowing us to match our production with growing demand for our seeds on relatively short notice compared to sugarcane, which can take several years to scale up commercially. Our products are generally seed-propagated, similar to row crops such as corn and soybean, which makes them cost-effective to plant on a large scale using existing seed planting equipment. Several of our products also have shorter growing cycles and can be rapidly cultivated as compared to other feedstocks, such as trees or sugarcane. For example, sweet sorghum has growth cycles ranging from 90 to 150 days, while sugarcane has a 12 to 18 month growth cycle and a more laborious planting process because it is vegetatively propagated.

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**Competitive Strengths**

We believe that we possess a number of competitive strengths that position us to become a leading provider of dedicated energy crop seeds and traits, including:

*Commercial Products Available Today*

We currently have a number of commercially available seed products, including sweet sorghum, switchgrass and high biomass sorghum. Our sweet sorghum hybrids have been successfully planted, harvested and processed into ethanol and power in Brazil at commercial scale. We believe that the experience of using our products as a drop-in feedstock for the past two growing seasons, as well as new higher yielding hybrids in our product portfolio, will serve as the basis for expanded adoption of this product line as a feedstock for ethanol and power production in Brazil and other markets. In addition, for the 2012-2013 sweet sorghum growing season in Brazil, we have offered mills the opportunity to participate in various sales incentive and performance based promotional programs.

*Attractive Business Model*

Seed businesses traditionally incur significant research and development expenditures and have long product development time lines, but benefit from a combination of high gross margins, low capital expenditure requirements and intellectual property protection. Once developed, seeds require little physical infrastructure or production cost to be replicated for sale. Seeds are typically priced, however, based on a share of the value created to the customer as opposed to their cost of production. In general, seed costs to a grower are a relatively small percentage of their total production cost, but the performance of those seeds is critical to the growers economics. We believe we can position our business to take advantage of low production costs relative to the high value of our products to our customers.

*Innovative R&D Technology Platforms*

In order to maintain the strong position we have established with our combined strengths in germplasm and field-validated traits, we use our research and development expertise to continually improve our product offerings. To develop higher performing varieties and traits, we use several advanced research and development methods, including biotechnology, marker-assisted breeding and genomics. We believe that our innovative integrated breeding and biotechnology approach allows us to efficiently identify traits, effectively express these traits in crops, and more quickly commercialize new and improved seeds and traits for the market. We have both biotech traits and non-biotech traits. Our biotech traits for high biomass yield, nitrogen use efficiency, water use efficiency, drought tolerance and altered flower development, among others, have been successfully evaluated in the field; however, they are still several years away from commercialization. We believe we were one of the first companies to implement the practice of developing biotech traits using two test species, rather than just one, which we believe allows us to more successfully select gene-trait combinations that enhance commercial crops. We believe that our ability to continue to apply our advanced research and development methods will enable us to further enhance our proprietary germplasm and traits portfolios going forward.

*Extensive Proprietary Portfolios of Germplasm and Traits*

While many companies have developed portfolios of germplasm or traits, we believe we are one of the only companies focused on dedicated energy crops that has large portfolios of both field-validated traits and germplasm, which includes thousands of specimens and breeding lines, as well as multiple pools of regionally adapted germplasm spanning northern temperate to tropical climates. We have also identified to date numerous genes and their relatives from different species that significantly enhance agriculturally relevant traits. Having both germplasm and field-validated trait portfolios allows us to leverage the synergies created by combining the two and facilitates innovation in a way that would not be possible with germplasm or traits alone. We believe new market entrants would need to cultivate several generations of germplasm to achieve performance equivalent to our current product portfolio, by which time we believe we will have further evolved our germplasm.

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Therefore, we believe our proprietary position would be difficult and time-consuming to replicate. We also believe that we have established a strong intellectual property position in plant genes, traits and energy crop germplasm. As of November 7, 2012, we owned or had exclusive licensed rights to approximately 100 issued patents and approximately 210 pending patent applications in the United States and in various foreign jurisdictions.

*Management Team with Significant Industry Experience*

Our Chairman, Walter De Logi, is one of the founders of Ceres. Dr. De Logi and Richard Hamilton, our Chief Executive Officer, have been with Ceres for 16 and 14 years, respectively, and have extensive experience in the field of agricultural biotechnology. Our experienced management team possesses a deep understanding of a variety of agricultural, chemical and industrial biotechnology businesses, including the seed industry, as well as our regional markets of Brazil, the United States and Europe. Our management team also includes top scientists and industry experts, some of whom have served in leadership roles at large, multinational corporations, served on advisory committees for the U.S. Department of Energy, led ground-breaking research studies and published numerous scientific articles.

**Our Strategy**

Our objective is to be the leading provider of dedicated energy crop seeds and traits to the renewable energy industry, including first-generation biofuels such as ethanol as well as cellulosic biofuels, biopower and bio-based chemicals by employing the following strategies:

*Expand Our Presence in Brazil*

During the 2011-2012 season, 14 mill groups representing approximately 20% of the sugarcane crushed in Brazil, planted our sweet sorghum hybrids on more than 3,000 hectares. Our products were grown, harvested and processed, and produced both ethanol and power using existing agricultural equipment and processing infrastructure. We are using this second season of evaluations, and large scale proof of concept, to expand our presence in Brazil by partnering with additional ethanol mills and other industry participants to conduct field trials and larger scale commercial plantings as well as introduce new products into the Brazilian market. We will continue to position our seeds in the Brazilian market as a premium brand that incorporates the latest technology in energy crops. We believe the adoption of sweet sorghum in Brazil can follow similar rapid adoption curves seen for other seed and agricultural innovations such as hybrid corn in the United States and herbicide-tolerant soybean in the Americas. Our belief is based on the drop-in nature of our sweet sorghum products.

*Expand Strategic Collaborations to Develop and Market Cellulosic Biofuels*

We plan to play a significant role in developing the second-generation biofuels and bio-based chemicals market, which we believe represents a significant opportunity. Our switchgrass and high biomass sorghum products are specifically targeted at this market. We intend to establish new collaborations and expand upon our current collaborations with leading cellulosic biorefining companies, technology providers and project developers to further validate our products across various downstream technologies and to produce optimized feedstocks that are tailored to meet the specifications of existing and new refining technologies. Our products have been tested in the respective conversion processes of several companies, including Gruppo M&G, EdeniQ, Inc., ICM, Inc., Novozymes North America, Inc., ThermoChem Recovery International, Inc. and UOP, LLC (a Honeywell company). DuPont Cellulosic Ethanol (formerly DuPont Danisco Cellulosic Ethanol LLC) also plans to validate our products in their conversion process. We have also conducted joint trials, or sold seed to AGCO Corporation, EdeniQ, Inc. Hawai i BioEnergy, LLC and Sweetwater Energy Inc., among others.

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*Expand Our Business into New Markets*

We intend to market our Blade Energy Crops brand as a symbol of quality, innovation and value across multiple biofuel, bio-based chemicals and biopower markets in a broad range of climates and geographies. We intend to use our large portfolios of field-validated traits and germplasm, combined with our advanced technology platforms, to develop products for a wide variety of niches and seize upon future market opportunities, regardless of the fuel or chemical molecule (e.g., ethanol, butanol, farnesene, biogasoline, biodiesel, biocrude), biochemical (e.g., bioplastics, lubricants) or engine choice (e.g., all-electric, E85, E15, diesel, hybrid, plug-in hybrid).

*Build New Relationships and Enhance Established Collaborations in the Global Biopower Market*

Our switchgrass, high biomass sorghum and miscanthus crops can be used in power generation generally, and in particular, for co-firing with coal using the existing power generation infrastructure. To date, we have engaged in field trials of our energy crops with utility companies and independent power producers. We intend to cultivate collaborations with new parties, particularly those in Europe where we believe the market opportunity for biopower is more established today and the market need is more immediate in light of existing government regulations. We will work with utility companies and independent power producers to drive demand for our dedicated energy crops in the biopower market.

*Continue Innovation and New Product Development*

We are continuing to develop innovative solutions using a broad range of technological tools, including genomics, biotechnology and proprietary bioinformatics in order to produce crop varieties with improved yields and other performance characteristics. We believe we can accomplish these goals by finding innovative ways to utilize and combine traits and germplasm to further enhance our products. In addition, we will continue to develop varieties of seeds to meet the specific needs of growers in different geographic regions. For example, we have identified traits that will help optimize results for growers located in geographies with varying day lengths, rainfall, temperatures and soil composition (e.g., salt, aluminum and nitrogen).

*Continue to Build Our Intellectual Property Portfolio*

We believe we have established a strong intellectual property position in plant genes, traits and energy crop germplasm, based on the nature, size and filing dates of our patent portfolio and plant variety protection certificates. We believe we are one of the few companies focused on dedicated energy crops that have this combination of intellectual property assets. We use our integrated technology platforms to continually improve our products and develop innovations that will further strengthen our intellectual property position.

**Our Technology Platforms**

Our integrated technology platforms are a combination of existing genetic assets, specifically germplasm and traits, and competences in genomics, biotechnology and bioinformatics. Integration of these platforms allows us to improve our existing genetic assets as well as develop and commercialize new products from them. This combination of assets and research and development capability has resulted in one of the largest licensing transactions in the agricultural biotechnology industry, multiple competitive grants and collaborations, including a USAID grant to develop several traits in rice and one of the U.S. Department of Energy s first ARPA-E grants in 2009. For the fiscal years ended August 31, 2010, 2011 and 2012, we spent $16.7 million, $19.0 million and $19.2 million, respectively, on research and development, with the main emphasis on traits and breeding.

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*Germplasm*

We believe we have access to the most comprehensive germplasm collections for our dedicated energy crops, and have assembled a leading germplasm portfolio for dedicated energy crops. Our belief is based on the diversity and nature of the entries we have and how well they have been evaluated and measured and cataloged. Germplasm comprises collections of parental lines and other genetic resources representing the diversity of a crop, the attributes of which are inherited from generation to generation. Germplasm is a key strategic asset since it forms the basis of plant breeding programs.

Our early entry into the energy crop industry has allowed us to acquire access to valuable germplasm through strategic collaborations with leading institutions. We believe our competitors would need to cultivate several generations of germplasm to achieve performance equivalent to our current product portfolio, by which time we will have further evolved our germplasm. Therefore, we believe that we have a strong proprietary position that would be difficult and time-consuming to replicate. We are currently involved in three major germplasm development collaborations, each with a history of successful research and germplasm development in an energy crop. When we sell varieties developed during such collaborations, or based on the results of such collaborations, we will typically pay our collaborators royalties on net sales of such varieties.

*Sorghum Texas A&M University.* In August 2007, we entered into an agreement with The Texas A&M University System, or Texas A&M, for the development and commercialization of high biomass sorghum, sweet sorghum and selected related crops as energy crops, together with the discovery of molecular markers for certain traits. The agreement was amended and restated in September 2011 and provides us with exclusive access to a highly regarded sorghum breeding program and the extensive sorghum genetics, breeding and genomics infrastructure of Texas A&M through September 2026. This agreement provides exclusive options and licenses to defined sorghum germplasm, elite sorghum breeding lines, parental lines, advanced hybrids and genomic markers. We have entered into two exclusive world-wide license agreements with Texas A&M for sorghum lines. The terms of such exclusive license agreements provide that the licenses expire on a country-by-country basis upon the expiration of all registered or patented intellectual property rights of Texas A&M covering the licensed line. Pursuant to such agreements, we pay Texas A&M a royalty on sales of varieties developed using the licensed line at a rate that decreases from low double digits to low single digit rates as a percentage of sales when the licensed line is combined with lines from other sources to develop a variety. We also pay Texas A&M a royalty in the low double digits as a percentage of license income if we grant sublicenses and minimum royalties creditable against royalties on sales. Royalty rates for our current commercial varieties developed using lines licensed from Texas A&M are in the mid single digits as a percentage of sales. Minimum royalties payable to Texas A&M under these agreements escalate on a yearly basis and range from zero to $5,000 per year. We also bear reasonable expenses for intellectual property protection. Further, pursuant to our Amended and Restated Sponsored Research Agreement and Amended and Restated Intellectual Property Rights Agreement, we have an option to obtain an exclusive world-wide commercial license with the right to grant sublicenses to the inventions and sorghum lines resulting from our sponsored program. To date, aggregate upfront license fees that have been paid or have become due to Texas A&M under these agreements have been $4,000. There are no milestone payments payable under our agreements with Texas A&M.

*Switchgrass The Samuel Roberts Noble Foundation, Inc.* In May 2006, we entered into an agreement with The Samuel Roberts Noble Foundation, Inc., or the Noble Foundation, a non-profit agricultural institute, for the development and commercialization of switchgrass. This relationship provides us access to extensive breeding infrastructure and exclusive licenses to elite switchgrass varieties, breeding lines and advanced cultivars. We have entered into exclusive license agreements with the Noble Foundation for three switchgrass varieties, which the Noble Foundation has licensed on an exclusive basis from the University of Georgia Research Foundation, or UGARF. Such agreements provide that we will file for intellectual property protection on such varieties at our expense in the joint names of the Noble Foundation and UGARF. The term of each such exclusive license agreement is, on a jurisdiction-by-jurisdiction basis, the longer of the duration of the intellectual property rights covering the licensed variety or 15 years from the first sale of the licensed variety in

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such jurisdiction. Pursuant to one agreement, we pay the Noble Foundation a royalty on sales that ranges from mid single digits to low double digits as a percentage of sales and a royalty on license income in low double digits as a percentage of license income if we grant sublicenses and minimum royalties creditable against royalties on sales and license income. Pursuant to the second agreement, we pay the Noble Foundation a royalty on sales in mid single digits as a percentage of sales, a royalty on license income in the low double digits as a percentage of license income if we grant sublicenses and minimum royalties creditable against royalties on sales and license income. The minimum royalties payable to the Noble Foundation under these agreements escalate on a yearly basis and range from $2,500 to $20,000 per year, per variety.

In addition, we have an outstanding exclusive option to enter into an exclusive license to two switchgrass varieties, which the Noble Foundation has the exclusive option to license, or to the extent exercised, an exclusive license from UGARF. Such option is exercisable at any time, by Ceres providing written notice to Noble, but no later than twelve months from the respective release date of the subject switchgrass variety. The respective release dates have not been set yet. The royalty rates on such varieties are not yet determined.

Further, pursuant to our Master Research Agreement, the Noble Foundation has agreed to grant us an exclusive world-wide license with the right to grant sublicenses to exploit commercially the results of our joint collaboration program, subject to paying the Noble Foundation a reasonable remuneration to be negotiated in good faith. There are no upfront license fees or milestone payments payable under any of our agreements with the Noble Foundation.

*Miscanthus Institute of Biological, Environmental and Rural Sciences of Aberystwyth University.* In April 2007, we entered into an agreement with the Institute of Biological, Environmental, and Rural Sciences of Aberystwyth University in Wales, U.K., or IBERS, for morphological characterization, genetic evaluation, and the development and commercialization of miscanthus species as an energy crop. This relationship provides us access to an extensive scientific research infrastructure. Pursuant to our collaboration agreement, IBERS has agreed to grant us an exclusive world-wide license with the right to grant sublicenses to exploit commercially the results of our joint collaboration program, subject to paying IBERS a reasonable remuneration to be negotiated in good faith, including exclusive licenses to miscanthus germplasm, breeding lines and varieties produced by IBERS, except that IBERS has a non-exclusive license in the United Kingdom to varieties resulting from the joint program. Unless otherwise agreed, license agreements for released varieties will be based on a model license agreement, the duration of which will be until the expiration of the intellectual property rights covering the variety in a given jurisdiction, or in those jurisdictions in which the licensed variety is sold but no such intellectual property rights are obtained, until the tenth anniversary of the first sale of such variety in such jurisdiction. Pursuant to the model license agreement, we have agreed to pay royalties based on sales that range from low to mid single digits as a percentage of sales and royalties on license income at rate to be negotiated. To date, we have not entered into any specific license agreements with IBERS. There are no upfront license fees, milestone payments or minimum royalties payable under our agreement with IBERS.

**Our Traits**

We are able to further improve the quality of our future product offerings by adding our proprietary traits to our germplasm collections. This can provide additional yield increases, greater water use efficiency, increased nitrogen use efficiency, salt tolerance, enhanced biomass-to-sugar conversion profiles and other improved characteristics. We believe, and our results have confirmed, that our integrated breeding and biotechnology approach allows us to efficiently identify traits, effectively express these traits in crops and more quickly commercialize new and improved seeds and traits for the market. We target traits with the greatest commercial potential in energy crops. We believe these traits will enable the bioenergy industry to scale more rapidly, by improving production and delivery economics, making greater use of marginal land, providing greater yield stability and increasing energy yield per acre.

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We have both genetically engineered traits, or biotech traits, and non-biotech traits. In some instances, a gene introduced through biotechnology may confer more than one beneficial trait, such as salt tolerance and drought tolerance, or increased biomass yields through greater nitrogen use efficiency. Our strategy is to focus on genes and gene stacks that have shown large, step increases in performance, and whose benefits are largely maintained across multiple species.

Biotechnology allows us to precisely add traits not readily feasible through conventional breeding methods. In many cases, the same trait can be added to multiple crops with similar effect. For example, our genomics capabilities and proprietary gene expression system have enabled us to expand from single genes and traits to groups of genes and traits, or stacks. We also have control over how, when and where genes are expressed in plants. This system includes using recombinant DNA, cell culture, and related technology as well as gene transfer systems needed to create plants with biotech traits and optimized gene-trait combinations identified by our trait pipeline.

To develop biotech traits, we have utilized a novel research and development methodology. Similar to other companies, we use test or model plant systems to speed discoveries and reduce risk and technical uncertainty in the development of biotech traits. This includes evaluating gene function, regulation, interaction and potential usefulness. However, we typically utilize two test species, rather than just one, as is more customary in the industry. Our test or model plants represent the two principal evolutionary branches of flowering plants commonly known as dicots and monocots. This two-species approach allows us to more successfully select gene-trait combinations which enhance commercial crops. The small, fast-growing test plant called Arabidopsis is our model dicot, and rice is our model monocot. Rice is a grass species and a close relative of energy grasses. Our evaluations in Arabidopsis are completed at our headquarters in Thousand Oaks, California. Our high-throughput field evaluations of rice are conducted in China by the Institute of Crop Sciences of the Chinese Academy of Agricultural Sciences, or ICS. Pursuant to our Collaboration Agreement for rice, ICS performs transformation of rice with our genes, evaluates the transformed rice plants in the field according to detailed protocols, and reports results and observations to us. We own all results and intellectual property resulting from such activities. We pay ICS for the services pursuant to an agreed upon budget. The program is due to expire on December 31, 2015. We believe, and our results have confirmed, that by selecting genes that perform similarly in both of our model plant species, we can readily identify superior genes among thousands of candidates. We believe that, given the large evolutionary distance between our model species, genes that function similarly in both will likely have application in a broad range of flowering crop plants. We have also identified superior genes by separately utilizing rice or Arabidopsis alone.

We also intend to stack gene-trait combinations, such as those conferring greater nitrogen or water use efficiency, together to amplify the benefits. We describe the combination of such complementary genes as synergistic trait stacks. This differs from many current approaches which produce incremental yield increases through the introduction of a single novel gene.

The commercial development of biotech traits in commercial crops is a multi-year process. Following transformation, when the selected gene is inserted in a target crop, the resulting plants are evaluated in the greenhouse for one to two years, and then in the field to confirm results for two to four years. Following field trials, specific gene-trait combinations are selected and, if required, submitted for regulatory approval, or deregulation, which has historically been a multi-year process in the United States and Brazil. Assuming these averages, we believe that we could introduce our first biotech trait or traits to the market in 2016 at the earliest.

We intend to price our traits based on the added value they create, which can vary by crop and geography. For our biotech traits, we are considering various pricing models, including separate annual trait fees per acre as well as blended seed and trait prices. For our commercial Skyscraper trait, a per-bag trait fee is included in the seed price. In row crops, we have licensed and intend to license our traits to existing market participants. These licensing agreements are expected to vary by crop, geography, the nature and economic benefit of the trait, and how well advanced the trait is within our pipeline. Future payments to us may be based on a percentage of sales or other performance metrics or milestones.

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The following traits have been commercialized or are at various stages of development in our trait development pipeline. Individual commercialization timelines vary based on results of evaluations and the de-regulation or approval process. Skyscraper is a non-biotech trait and the remainder of the traits discussed below are biotech traits.

*Skyscraper*

Skyscraper is a commercial trait that provides a significant increase in biomass yields and is included in our proprietary high biomass hybrids ES 5200 and ES 5201. Developed through our collaboration with Texas A&M, the Skyscraper trait delays flowering and extends the growth phase of the sorghum plant s lifecycle. Plants with the Skyscraper trait put more of their energy into growing rather than reproducing (making seeds). Since Skyscraper was identified and developed using molecular marker technology, we have been able to rapidly incorporate it into our elite breeding lines.

*High Biomass*

We have genes that have been shown to substantially increase biomass growth per plant. We are currently field-trialing a number of these genes in the United States. Results have shown significant yield increases over experimental control plants. We are also creating stacks with some of these genes with the goal of achieving even greater biomass yields per plant. Yield per acre can also be increased through higher plant populations per acre. To this end, we are evaluating genes that make plants grow more upright, allowing greater light capture at higher densities. We anticipate that these genes could allow growers to greatly increase the number of plants they sow per acre.

*Nitrogen Use Efficiency*

We have genes that increase biomass under normal and reduced nitrogen fertilizer conditions. In field trials, we have previously recorded steady yields on significantly less nitrogen fertilizer than normally used. In addition to greater efficiency in terms of tons of biomass per unit of nitrogen, reducing nitrogen fertilizer inputs would reduce greenhouse gas emissions, increase lifecycle energy ratios, reduce run-offs and water pollution, and lower production costs. We are currently field-testing a number of nitrogen use efficiency genes in multiple crops in the United States. In addition, we are developing trait stacks involving these genes with the goal of increasing yields and stress tolerance in general.

*Water Use Efficiency and Drought Tolerance*

We have genes that allow plants to use water more efficiently and/or recover from water deficits more readily. We are currently field-testing water use efficiency and drought tolerance genes in one of our energy crops that have resulted in the production of steady or increased yields on less water in both greenhouse and field tests. In addition to producing more tons of biomass per unit of water, we believe that in seasons of intermittent drought, this trait could provide greater yield stability for rain-fed crops as well as expand the geographic range where economic yields can be obtained.

*Salt Tolerance*

We have genes that have been shown in our greenhouse to provide tolerance and enhanced recovery to both acute and prolonged salt stress. We are currently evaluating our salt tolerance trait in multiple crops. If greenhouse results are confirmed in the field, we believe that this trait could return salt-damaged acres to productivity and open more marginal land to bioenergy production. We also believe that salt tolerance is complementary to drought tolerance since salt stress tends to induce drought symptoms in plants.

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*Aluminum Tolerance*

We are developing a trait that allows plants to withstand toxic levels of aluminum in the soil, a consequence of highly acidic soils, such as those found in Brazil. We believe that this trait could bring high aluminum soils into cultivation and open more marginal land to bioenergy production. We are currently evaluating this trait in multiple crops.

*Enhanced Conversion of Biomass to Fermentable Sugars*

We have a number of genes that have been shown to substantially reduce the cellulase enzyme cocktails required to release fermentable sugars from plant biomass. We are currently field-testing a number of these genes. Reducing the recalcitrance of biomass to conversion could significantly reduce enzyme costs in certain biochemical conversion processes, could increase biofuel yields per ton of biomass, and could further reduce both capital and operating costs for the biorefinery. For instance, a more easily converted feedstock would impact installation costs for biorefineries since smaller holding tanks would be required for a given capacity. We believe therefore that this trait could be a key enabler of the large-scale use of biochemical processes and fermentation to produce biofuels and bio-based chemicals from cellulosic biomass. We are also creating trait stacks with these genes, with the goal of achieving even greater reductions in enzyme requirements.

*Altered Flower Development*

We are pursuing multiple approaches to regulate flower development for the purpose of increasing biomass and sugar accumulation, as well as rendering plants resistant to fungal diseases that infect flowers. Similar to the impact of our Skyscraper trait, preventing flowering or reproduction allows plants to put more of their energy into biomass growth. We have field-tested genes that impact different aspects of flowering, pollen production and seed development. We believe that by creating stacks of these genes we can amplify such effects. In addition, when stacked with genes for our other traits, we believe these flowering genes provide a stewardship advantage. In the unlikely event of an unintended outcross of a biotech trait to a wild plant, for instance, the presence of a stack that included genes that disrupt floral development and reproduction should put the resulting plant at a severe reproductive disadvantage, thereby limiting the spread of unintended progeny plants.

*Enabling Technologies*

We have developed or acquired licenses to certain technologies that we deem necessary or useful for the development of biotech traits, which while under development remain several years away from commercialization. Such licenses include a non-exclusive license from Monsanto to a transformation technology and certain other technologies, pursuant to which we will pay Monsanto a royalty on sales in the low single digits as a percentage of sales of products covered by the licensed patents. This agreement with Monsanto will terminate upon the expiration of the last patent under certain patent rights listed in the agreement. Such licenses further include an exclusive license with Cambridge Enterprise Ltd. (formerly known as Cambridge University Technical Services Ltd.) to a technology developed at the University of Cambridge (United Kingdom) to regulate gene activity, pursuant to which we will pay a royalty on sales in the low single digits as a percentage of sales of products covered by the licensed patents and a royalty in the low single digits as a percentage of license income. Pursuant to the agreement, the maximum milestone payments payable by us are $250,000. All such milestone payments have been made. The agreement with Cambridge Enterprise Ltd. will expire on the date of the expiration of the last-to-expire patent licensed under the agreement. We expect that the presently issued U.S. patent under this agreement will expire in 2023.

**Research and Development Programs**

In order to maintain the lead we have established through our combination of superior germplasm and field-validated traits, we have developed research and development expertise that we believe will allow us to continue to improve our offerings over time. Our research and development investments have been significant, amounting to

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$16.7 million, $19.0 million and $19.2 million in the fiscal years ended August 31, 2010, 2011 and 2012, respectively. To develop higher performing seeds and traits, we deploy a variety of research and development methods and tools, including genomics, conventional and marker-assisted breeding, agronomy and other genomics-based technologies.

*Genomics*

Plant genomics involves the large-scale, simultaneous study of large numbers of genes, their effects and their interactions. One of our strengths in genomics involves our ability to organize the genetic data we amass into actionable information via proprietary relational databases, software and algorithms. In order to capitalize upon our internal catalog of genetic information as well as information in the public realm, we developed our own proprietary software, including our Persephone genome viewer software, which serves as an important tool for locating, mapping and annotating genetic information in plants. This software program has been non-exclusively licensed to Syngenta Biotechnology, Inc., or Syngenta.

We believe that both our technological capabilities and proprietary knowledge base in the field of plant genomics are highly advanced, and their application to both our breeding program, through the development of trait-linked molecular markers, and our trait development program provides us a substantial competitive advantage. In general, we have focused our research efforts on determining gene function, gene regulation and finding which genes enhance desirable traits. In addition to identifying novel gene-trait combinations, our genomics tools allow us to work with large groups of genes and complex biological processes controlled by multiple genes. To date, we have sequenced more than 100,000 full-length copies of DNA, called cDNA, from a variety of plant species. We have also identified and characterized hundreds of promoters that can be important for achieving the optimum expression of traits. We believe we are one of the few companies focused on dedicated energy crops with large portfolios of both germplasm and field-validated traits. Having both germplasm and trait portfolios allows us to leverage the synergies created by combining the two and facilitates innovation in a way that would not be possible with germplasm or traits alone.

*Conventional and Marker-Assisted Breeding*

Plant breeding is the act of bringing together specific parent plants to produce a new offspring plant. This cross, as plant breeders call it, creates a new plant that will contain a mixture of the characteristics of its parents. The offspring are tested under various conditions to determine which has the superior combination of desired attributes. Further improvements are made by mating and continuing selection of superior parents and offspring through succeeding generations. Plant breeding allows researchers to identify plants with the most favorable combination of desired characteristics to serve as both parental lines and products.

In addition to conventional plant breeding, we believe that our genomics expertise makes the identification of proprietary molecular markers more direct and more comprehensive, which allows us to select key crop characteristics more rapidly and accurately than conventional plant breeding alone. Marker-assisted breeding integrates molecular biology and information systems with plant breeding to identify and flag important genetic sequences so that they can be readily found in seeds or plant tissue at any stage of plant development. This platform allows us to track and select the most effective combination of genes, increase the number of progenies and breeding lines created at early stages in the breeding program, and cull them using marker-based selection and thereby making greater gains per breeding cycle. Markers are especially useful when seeking to combine multiple non-biotech traits into elite commercial lines.

We have developed thousands of SNP-based (single nucleotide polymorphism) molecular markers, which allow us to differentiate individual plants based on variations detected at the level of a single nucleotide base in the genome. SNPs allow us to automate many processes and are especially useful for hybrid breeding systems. Most importantly, we precisely map these SNPs onto the chromosomes of switchgrass, sorghum and miscanthus, and then link them to important traits by genetic analyses and then deploy them in our breeding programs using proprietary computational biology software systems.

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Furthermore, when an important gene is developed in one crop, we can often find the equivalent gene in another related crop using our genomics and molecular marker platforms to gain breeding advantages across crops. Our platform has also been shown to provide breeding advantages in food crops. For example, we have applied our proprietary technology to improve the quality and yield of food products under a development and license agreement with Campbell Soup Company.

*Agronomy*

The performance of plant varieties and traits is influenced by the growing environment, which includes climate, day length, soil quality, pests, length of the growing season and crop management practices. We have established what we believe is one of the industry s largest network of field trials for energy grasses, based on the number of trials and geographic diversity. Extending across numerous hardiness zones and regions, including Europe, the Americas and Asia, this network provides regional performance data and market fit information to support our research and commercialization efforts.

**Our Current Products and Product Pipeline**

We believe that a portfolio of energy crops will be required to produce biofuel, biopower and bio-based chemicals at greater scale than today. The mix of crops will be heavily dependent upon geographic and climatic considerations, soil quality, storage characteristics and harvest timing, among other considerations.

The following table summarizes our product pipeline:

| Crop | Status | Initial Markets | Key Advantages |
|---|---|---|---|
| Sweet Sorghum | Commercial (2011) | Brazil | |