

Sustainable Benefits of Corn Wet Milling





The Corn Refiners Association (CRA) is the national trade association representing the corn refining (wet milling) industry of the United States. CRA and its predecessors have served this important segment of American agribusiness since 1913. Corn refiners manufacture sweeteners, ethanol, starch, bioproducts, corn oil and feed products from corn components such as starch, oil, protein and fiber.

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The Corn Refiners Association (CRA) member companies are committed to the continuous improvement of the production of ingredients from the corn wet milling process. From corn production to processing, sustainable practices are an important part of the ingredients and products we supply.

The CRA recognizes the following definition of “sustainability” as stated by the Sustainable Agriculture Initiative (SAI). The SAI Platform is the primary food industry initiative supporting the development of sustainable agriculture worldwide (see <http://www.saiplatform.org/sustainable-agriculture/definition>).

“Sustainable agriculture is a productive, competitive and efficient way to produce safe agricultural products, while at the same time protecting and improving the natural environment and social/economic conditions of local communities.”

Upstream Corn Production

Sustainable production of row crop commodities, including corn, is receiving increased focus from stakeholders. Positioned in the middle of the corn supply chain between grower and ingredient purchaser, CRA members are increasingly asked to evaluate and provide information and metrics on the impact of the production of corn used in the wet milling process. Stakeholders are increasingly examining many aspects of corn production.

Working with various stakeholder groups, the CRA members are engaging in efforts to assess sustainable corn production and to

establish a manageable and efficient system to collect sustainability data.

Corn grower engagement is a vital component for building on the accomplishments growers have already made in sustainable corn production. CRA is working closely with members of the National Corn Growers Association (NCGA) to promote technologies and practices that allow for greater stewardship of the land while increasing productivity.

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CRA members support science-based research projects and models, such as Field to Market, the Alliance for Sustainable Agriculture. Field to Market is a diverse initiative that joins producers, agribusinesses, food companies, conservation organizations, and university and agency partners seeking to create sustainable outcomes for agriculture. Field to Market issues bi-annual National Indicator Reports for corn and other commodities that demonstrate continual improvement in such factors as energy, carbon emissions and water use. Field to Market also provides a “Fieldprint Calculator” to growers for tracking sustainability performance and comparing themselves to other growers locally and nationally.

Sustainable Corn Milling Operations

Corn refiners have been long-time proponents of environmental responsibility through use of energy efficient technologies, compliance with environmental regulations and product development. We meet rigorous quality and safety standards and operate safe work environments as evidenced by the industry's stellar injury and illness reports to the Occupational Safety & Health Administration (OSHA).

Corn refiners are leaders in waste minimization and are currently able to use approximately 99 percent of the corn kernel in their products.

CRA and its member companies participate in EPA's ENERGY STAR program with the objective of improving energy efficiency within the U.S. manufacturing sector. With full CRA member company participation, ENERGY STAR developed a tool, called the Energy Performance Indicator (EPI), for Wet Corn Mills, to enable the corn refining industry to determine individual plant energy performance and set goals for improving energy efficiency.

Corn refiners are leaders in waste minimization and are currently able to use approximately 99 percent of the corn kernel in their products. Cogeneration energy production systems provide electricity and heat for process operations at many locations and are more efficient than separate generation of electricity and heat, resulting in reductions in emissions and energy required to run the plant. Many of the facilities generate biogas from

the treatment of wastewater that is often captured and used to displace natural gas.

For more than a century, CRA members have refined, improved, and optimized ways to use the water necessary for the corn refining process. From a processing aid used to separate corn into its components to a cooling mechanism, water serves a vital role in the manufacture of the many ingredients derived from the corn refining process. As a result, re-use of water for multiple purposes is essential and is the primary means the industry uses to protect this valuable resource.

Corn refiners are also committed to providing a safe work environment. Following OSHA regulations, other industry standards and engaging employees to design and implement outstanding safety programs that "go the extra mile" are examples of how corn refiners demonstrate their responsibility to employees' safety. The CRA has always recognized the vital importance of safety in its plants, products, and manufacturing processes. In recognition of our industry's commitment to safety, an awards program was implemented by the CRA in 2009 to further underscore its importance. We are pleased to recognize and honor the award recipients for their dedication and commitment to a safe working environment.

Sustainable Attributes of Corn Wet Mill Products

As a rich carbohydrate source, corn provides the backbone to a number of food and industrial products that allow an abundance of products on our grocery shelves and reduce our use of petrochemicals and non-renewable resources. Corn-based chemicals, solvents and fuels not only have a positive impact by reducing our dependence on

fossil fuels, but they are also better for the environment. The versatility of carbohydrate chemistry ensures that we will continue to find new ways for corn to benefit the environment while we feed the world.

Starch is one of the paper industry's most important ingredients and more than 85% of starch used in the U.S. papermaking process is corn starch, acting to replace the natural binding agents the wood pulp loses during the processing of recycled paper. Starch also provides environmentally superior alternatives to synthetic agents in terms of wastewater treatment.

Corn-based polymers are used in biodegradable and energy efficient caps, cups, paper coatings, fabrics, carpeting and agricultural mulch films. These products are often compostable and play a critical role in diversion of food scraps from landfills to composting facilities and further reduce greenhouse gas production. Production of these polymers uses up to 68% less fossil fuel compared to traditional plastics and generates 55% less greenhouse gas emissions.

Most are familiar with ethanol as an alternative fuel made from corn, but there is another alternative fuel that can be made from corn. Corn oil can be used as a feedstock to produce biodiesel, a clean burning alternative fuel that contains no petroleum.

These are only a few examples of how refined corn products support a sustainable environment. With greater interest in reducing our use of non-renewable resources, research into carbohydrate-based alternatives to petroleum-based products is gaining momentum. Refined corn products have already demonstrated their value toward creating a sustainable environment and are key candidates for further growth in this area.

Conclusion

Corn refined products play a key role in a sustainable environment. The corn refining industry is always searching for new and creative ways to satisfy food and feed demands while meeting the nation's increasing energy needs with renewable sources.

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1701 Pennsylvania Ave., N.W.
Suite 950
Washington, DC 20006-5806
tel (202) 331-1634
fax (202) 331-2054

www.corn.org

