

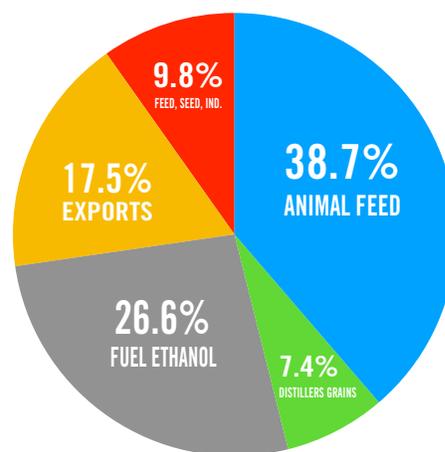
NCGA's Role is Supporting Renewable Plastic Development through Innovation and Policy



The National Corn Growers Association (NCGA) is looking beyond the bin, exploring future new uses of corn. Thanks to technology advancements, farmers continue to produce more per acre on less land, in fact, in 1930 the average harvested bushels per acre was 20.5, but in 2020 the average bushels harvested per acre was 172 – an increase of 739%!

According to January 2021 USDA Economic Research Service (ERS) Feed Outlook data, 38.7% of corn is used for animal feed with 7.4% of demand in the form of distillers grains products, 26.6% for fuel ethanol, 17.5% for exports, and 9.8% for FSI (feed, seed, industrial). With ending corn stocks for 2020 hovering around 1,552 million bushels, NCGA works hard to develop [new uses](#) for corn through various integrated programs.

These integrated programs seek to support each step of R, D & C (Research, Development and Commercialization). Research and Development are essential, but there is a great deal of attrition at these steps. NCGA is working to increase the research pipeline and increase successes in Development. Commercialization is essential for creating significant corn grind, in addition to economic growth, and NCGA continues to work in this space to increase the market launch of new products.



Corn as an Industrial Feedstock-Positioning Corn as the Clear Economic and Sustainable Choice

The confluence of available corn-based feedstocks and consumer demand represents an opportunity for stakeholders in the sustainable biomaterials industry and will help drive demand for corn. NCGA is working to establish new uses of corn and demonstrating corn as the clear feedstock of choice.

That's why NCGA developed the [Corn as an Industrial Feedstock booklet](#).



Corn Grain as a Biomass Feedstock – Filling the Research Pipeline

NCGA and state staff, along with grower leaders, continue discussions with the Department of Energy's (DOE) Office of Energy Efficiency & Renewable Energy (EERE) and Bioenergy Technologies Office (BETO) to talk about corn grain as an acceptable feedstock for agency funding and testing in national laboratories. [BETO](#) works to develop industrially relevant technologies to enable domestically produced biofuels and bioproducts.

In the latest Funding Opportunity Announcements (FOA), BETO lifted the restriction on corn grain as an acceptable feedstock. This means that starch-derived sugars, specifically starches from field/feed corn, were clarified as acceptable. Timing of this is important because it means those looking for funding opportunities through BETO's Plastics Innovations Challenge can use corn as a base for recycling technologies in the manufacture of new plastics.

Industrial Biotechnology: An Industry at an Inflection Point

The use of corn as an industrial feedstock was featured as the cover story of Industrial Biotechnology, a leading industry journal focused on biobased industrial and environmental products and processes. The paper, "Industrial Biotechnology: An Industry at an Inflection Point," was authored by key industry leaders and illustrates the technology evolution in the biobased manufacturing infrastructure and processes. It also highlights new technologies that will continue to advance progress in this space. Diverse leaders from across the value chain collaborated on program and policy recommendations published in the journal on December 1, 2020, can be found in the table below.

Needs Across the Stages of Research, Development and Commercialization for Industrial Biotechnology and Suggestions on Specific and General Policies to Address These Needs

RESEARCH NEEDS	HOW TO ACHIEVE
Expand and increase speed of technology innovation	<ul style="list-style-type: none"> • Expand DOE BETO funding of research using commercially available feedstocks • Increase USDA extramural funding
DEVELOPMENT NEEDS	
Access to scale up facilities	<ul style="list-style-type: none"> • Leverage first generation bioethanol production facilities
Decrease time to market for innovation	<ul style="list-style-type: none"> • Facilitate increased technology transfer from government labs • Increased access to government research labs and pilot facilities
Support for entrepreneur and startups	<ul style="list-style-type: none"> • Ongoing funding for USDA Rural Development of the Intermediary Relending Program
Assist in the development, construction and retrofitting of new and emerging technologies	<ul style="list-style-type: none"> • Section 9003 Biorefinery, Renewable Chemical, and Biobased Product Manufacturing Assistance Program
COMMERCIALIZATION NEEDS	
De-risk and increase speed to market	<ul style="list-style-type: none"> • Support of USDA BioPreferred • Public private partnerships
Reduce barriers to market entry and de-risk capital	<ul style="list-style-type: none"> • National and state incentives
Address circular economy	<ul style="list-style-type: none"> • Developed closed loop processes • Expand material collection, reuse, recycling and composting infrastructure
Standardized lifecycle assessment	<ul style="list-style-type: none"> • Bring stakeholders together to agree on common format, definitions, metrics and scope
Capital for new processes or new plants	<ul style="list-style-type: none"> • Increase EB-5 loan opportunities for rural production facilities • Support for USDA Rural Development Business & Industry Program • Expand 9007 (REA) Program
Human capital development	<ul style="list-style-type: none"> • Support for training of employees
Increase market pull	<ul style="list-style-type: none"> • Plant-based product labeling initiative

Consider Corn Challenge- Encouraging Innovation Focused on New Uses:

NCGA has held two [Consider Corn Challenge](#) competitions with the third iteration launched in early February of 2021. Each of the winners of this open innovation contest has unique technologies that would improve a product or process by using field corn to produce biobased materials. Many of the winners have gone on to secure additional funding to help get their products to the market. The winners have developed biosourced materials from corn, starting materials for various biobased plastics, nylons, polyester resins, and more.

If all nine of the Consider Corn Challenge winners reached full commercialization with products available in the marketplace, the potential for additional corn demand would be approximately 2.9 billion bushels.

An example of a product that could now be developed to use corn grain as a feedstock is single-use plastics such as water bottles and plastic bags. If corn were to displace all petro-based ethylene with corn sugar-based ethylene, the market potential would be an estimated additional 10 billion bushels. Further, these bottles could either be recycled--or if they were properly disposed of--would sequester atmospheric carbon dioxide.

DigestData – Making Development Easier:

In a first-of-its-kind partnership, NCGA joined with Biofuels Digest to support the creation and launch of DigestData, an online database designed to help facilitate networking and the transfer of information between interested parties working in the biobased industry. NCGA's sponsorship provides DigestData users with free access to search research and pilot-scale facilities along with facility details such as certifications, available equipment and primary contact information.

DigestData includes a messaging platform, allowing outreach to occur directly between interested parties within the online platform. The database will continue to evolve as new facilities and projects are added or existing entries are updated in real-time at the respective owners' request. This database is a useful source of information for not only investors and research and development partners but policymakers, analysts and supply-chain partners, too.

To find out more about DigestData, go to biofuelsdigest.com/digestdata/.

