



## INNOVATION CONTEST # IC\_2018\_0171 More New Uses for Field Corn as Feedstock for Making Sustainable Chemicals

### THE OPPORTUNITY:

Propose a method to convert corn as a feedstock to create sustainable chemicals with quantifiable market demand. A total prize pool of US\$150,000 will be split equally between 3 to 6 winners, based on the strength of competing submissions. Additionally, NCGA, or its state or other partners, may explore funding or other support of an Entry for further development and/or commercialization, even if the Entry is not a prize winner.

### THE TIMELINE:

Submission Deadline: March 20, 2019 at 5:00 PM EDT  
Announcement of Winners: July 2019

Visit the [Contest Website](#) to see Contest [Terms & Conditions](#) and submit an entry

**PROGRAM MANAGER:** Kevin Andrews, Ph.D.

**QUESTIONS:** Contact the Solution Provider Help Desk

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### CONTEST DESCRIPTION

NineSigma, on behalf of **The National Corn Growers Association**, invites **proposals for new uses of field corn as a feedstock for producing sustainable chemicals with quantifiable market demand.**

### BACKGROUND

U.S. corn represents a sustainably produced, economically competitive, and extremely flexible feedstock for bioproducts. U.S. corn farmers continue to adopt new innovative production practices, as a result their production efficiency continues to improve year-over-year, producing more with less. However, these advances now support production that greatly exceeds annual U.S. corn demand. In fact, production this year is forecasted to exceed demand by nearly 50 million metric tons. Additionally, new technologies are being deployed that will provide clean product streams (sugar, lipid, proteins) as feedstocks for processes. At the same time, consumers worldwide continue to demand additional bio-based products. This confluence of available corn-based feedstocks and consumer demand represents an extremely exciting opportunity for stakeholders in the sustainable bio-materials industry.

The National Corn Growers Association (NCGA) continues to strive for new uses for feed corn that will utilize at least 75 million bushels by 2020. In the previous challenge, NCGA selected six winners focused on developing biosourced materials from corn such as malonic acid, furandicarboxylic acid, monoethylene glycol, aromatic chemicals (benzene, toluene, xylene), and unsaturated polyester resins. These chemicals offer great potential as starting materials for biobased plastics, coolants, adhesives, etc. used in a wide variety of products.

This new challenge is about finding game-changing new uses for field corn, utilizing any of the components in Figure 1.

Learn more about NCGA online at <http://www.ncga.com/home>.

## KEY SUCCESS CRITERIA

The successful proposal will:

- Use components of the corn kernel as primary feedstock (see Figure 1)
- Have a clear path for scale-up to commercial scale which, ideally utilizes existing capital where possible
- Enable a new market for corn
  - Should not detract from an existing corn market
  - Should lead to products with significant market demand
- Involve a team with experience taking a process or plan from lab scale to commercial scale

## Assumptions for Proposed Approach

- Your approach should use one of the corn components, either the corn kernel or any of the coproducts listed in Figure 1, as a feedstock.

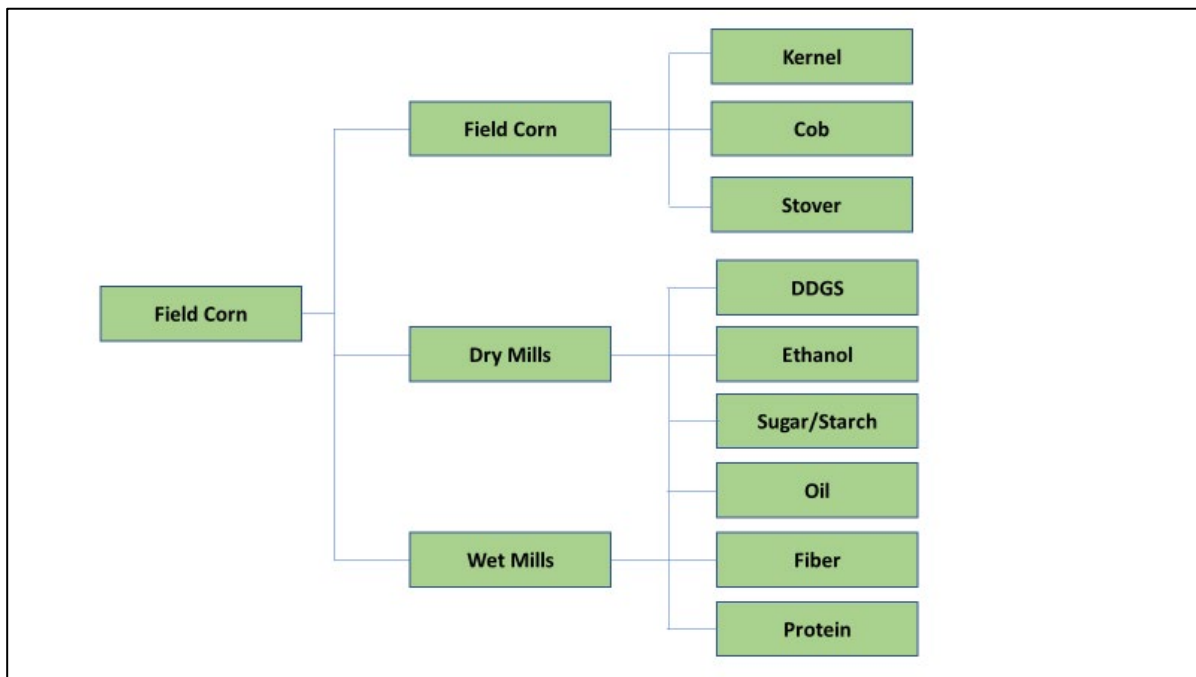


Figure 1. Eligible components of corn as feedstock.

- You have already demonstrated the proposed technology at laboratory scale, producing at least milligram quantities.

## Scoring

Your proposal will receive better scores for:

- Potential for rapid commercialization
- Largest volume of corn used
- Empowering technology that provides access to a new market
- Demonstrable team history of success developing a path to commercial (or industrial) scale for other projects
- Team's identification of matching funds support or potential commercialization partners
- Concise but impactful description of the above

## ELIGIBILITY

The following types of approaches are ineligible:

- Proposals which provide only incremental improvements for established commercial processes
- Approaches that displace corn in a 1:1 fashion, for example a technology for converting corn to fuel ethanol that doesn't dramatically improve economics
- Proposals for new foods derived from corn
- Proposals for sweet corn

## HOW TO SUBMIT

You must complete and submit the online response form by March 20, 2019 5:00 PM EDT. You will be able to upload supplemental documents with your response.

In your non-confidential response, you should:

- Describe the target chemical, production approach, and benefit of new technology
- Estimate the following at current scale and at commercial scale:
  - Production rate and yield of target chemical
  - Quantity of corn (component) required
  - Utilization and/or processing of co-products, by-products, and/or waste generated
  - Economics of your approach
- Describe steps, activity, estimated budget, and timeline to reach commercial scale
- Discuss the intellectual property (IP) related to your approach:
  - Who owns the related IP
  - Your assessment of freedom to practice
- Provide letter/s of support and prospects for matching funds to support commercialization, if available
- Disclose any prior support you have received from NCGA or other state corn associations
- Describe your (or your team's) background and related experience in commercializing new technology
- Optionally, provide a private link to a short (2-5 minute) video presentation in which you pitch your approach and capabilities

If you require assistance to submit your response, please contact the Solution Provider Help Desk ([phd@ninesigma.com](mailto:phd@ninesigma.com)).

## TERMS & CONDITIONS

By submitting a response, you agree to the [Terms & Conditions](#), which includes the following requirements:

- You agree to the submission terms described in the response form.
- You agree that your submission does not contain any confidential information.
- You acknowledge that sponsor reserves the sole and absolute right and discretion to award prizes as stated in the contest.

- Submissions from individuals who do not own the represented intellectual property (IP) or who have not been authorized by the IP owner(s) to submit on their behalf are ineligible.
- A previous winner of the [Consider Corn Challenge](#) may not submit a proposal that represents substantially the same approach that NCGA already recognized as a winner. A previous submitter who did not win may submit again if they have made substantial improvements and progress towards commercialization or have identified new markets which may offer greater volumes of corn utilization.