

## PROTEINS OF THE FUTURE STUDENT CHALLENGE

Organized by IFT's Protein Division, this competition is created to bring students closer to the advances and challenges of protein innovation currently occurring in the science of food world. By participating in this competition, students will:

- Work on ideas to solve real-life food global problems
- Enhance their knowledge in food proteins (Functionality, environmental impact, extraction methods, nutritional value, etc.)
- Apply previous acquired knowledge
- Improve teamwork skills
- Improve presentation skills
- Gain exposure and prestige

Launch: Fall Semester 2021

Prize: A monetary prize; Top 3 teams will present at the Protein Division social mixer at FIRST 2022; Social media exposure by the IFT Protein Division.

### Participants

#### Eligibility

- Both undergraduate and graduate students
- Students enrolled in science of food programs
- Must be IFT members

#### Teams

- Teams of 3-5 students
- Undergraduate students or graduate students or both together
- With or without mentor (e.g., professor, industry expert, etc.)

### Topics

Students will select one of the five topics listed below. The students will then choose a specific protein/product example for the essay.

- **Topic 1: Environmental impact:** Consumers are shifting protein consumption from traditional proteins to alternative proteins, therefore alternative proteins are being used more and more to develop new foods made from more suitable sources. What is the environmental impact of that shift? (Including increased production). Calculate/estimate the environmental impact of a specific product or product category made with an alternative

protein(s) replacing a specific product or product category made with a traditional protein(s).

- **Topic 2: Scale up:** Many alternative proteins show promising potential to replace traditional proteins in lab-research. In order to use them as food ingredient in the food industry they will need to be extracted and commercialized in much larger volumes. How can lab-based protein extraction scale up to industrial capacities? Use a specific alternative protein and directly compare to current extraction methods of a traditional protein.
- **Topic 3: Functionality:** To reach certain textures or other sensorial attributes (like flavor), using alternative proteins is a challenge when developing new foods. Use a specific alternative protein(s) to demonstrate how it can have a similar function (e.g., structural function or sensorial attributes) as a specific traditional protein in the same food product or product category?
- **Topic 4: Nutritional value:** Different proteins have different amino acid composition and different values of digestibility and bioavailability. Propose a food product made with alternative proteins and show how it compares to a similar product made with traditional proteins in terms of essential amino acid composition, digestibility, and bioavailability.
- **Topic 5: Commercial / market research.** Commercializing food products made with alternative proteins to the appropriate markets is a challenge. Choose a specific product or product category to show how products made with alternative proteins can impact current and/or future market demands compared to its equivalent or a similar product or product category made with traditional proteins.

## Entry form

The following information needs to be provided in the entry form

- Participant information (including contact person and mentor information)
- A title
- Topic addressed
- Current state of an issue within the selected topic (Define a specific example and show how has the industry/research been working on this area in the past)
- Proposed solution (make sure this is supported by evidence)
- References
- Illustrations like figures and/or diagrams are encouraged

## Guidelines

- Write an idea that is created exclusively for the IFT Protein Innovation Student Challenge, See ENTRY FORM for specific concept content. Only clear and well-organized ideas that cover all the requested fields will be judged. The essay has a max 1,500 words limit, excluding references
- Fill the first page of the entry form with students and team information

- Fill the second page of the entry form with your title, issued addressed, current state of the issue, proposed solution. There is 1,500 words limit to these sections altogether.
- List your references (reference style: APA, not counted in the word limit) and attach any illustrations
- Essays will not only be judged by the scientific approach, but also on creativity, innovation, ability to address the challenge, feasibility, implementation, clarity of the ideas. Specifically:
  - Under 'Topic to be addressed' (Environmental impact, scale-up, functionality, or nutritional value))
    - Why an innovation is necessary
  - Under 'Current state of an issue within the selected topic'
    - Define the specific example/problem to be addressed (Traditional protein and/or food product category)
    - The relevancy of the problem to be addressed will be judged as well as the clarity of its explanation.
    - Scientific background
    - Impact of the current traditional protein/product (Market, environmental, nutritional, etc.)
  - Under 'Proposed solution'
    - Propose a solution, include any market data the support the solution
    - Consider the entire food chain (from farm to fork)
    - Feasibility of the idea (Briefly describe how it relates with the other three topics in this challenge)
    - Specify the originality of the idea, is this a new idea or refinement of an existing idea. (Both are evaluated equally if they cleared defined)
    - Scientific background
    - Possible ways of implementation
    - Potential added valued of the idea
    - Targeted customer/consumers
- Definitions:
  - **Traditional protein:** Food proteins that has been extensively consumed globally in the last decades/centuries. Examples include but not limited to meats, dairy, cereals, eggs, etc.
  - **Alternative protein:** Food proteins with low consumption or with consumption increase in the last decade. Examples include but not limited to plants, pulses, vegetables, insects, algae, etc. (Be creative).
  - **Food product:** Select a specific food product as you would find it in the supermarket, however, do not include specific brands. Examples include but not limited to: Rice krispies, milk (2% fat), mozzarella cheese, cereal bars, chocolate chip cookies, etc.
  - **Food product category:** Select a specific food product category as you would find them in the supermarket, however, do not include specific brands. Examples include but not limited to: Burger patties, milk, yogurt, cereal bars, pasta, or any of the other hundreds of products. (Be creative)

## **Entry process**

Entry forms will be accepted until April 15, 2022.

## **Awards**

Competition participants will be notified of their status prior to FIRST 2022, with a general certificate and monetary award awarded for 1st, 2nd, and 3rd place. Winners will be recognized at the FIRST 2022 Protein Division social event, and they will be invited to present their idea during the event (5 minutes presentation). Winners will also receive recognition through social media and Protein Division communications.

## **Judges**

A panel of experts in food proteins including academic and industry experts from the IFT Protein Division will judge the entries. External international recognized experts in proteins can also be invited to be judges.

## **Judging criteria**

The submission will be evaluated based of 5 aspects: Relevancy of the addressed problem, scientific merit of the proposed solution, innovation of the proposed solution, practical application of the proposed solution, and quality of the submission.