

FOOD SCIENCE AND TECHNOLOGY

Sponsored by:
Department of Animal Science
Oklahoma State University
Division of Agricultural Sciences and Natural Resources

Contest Superintendent

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Contest Details

Date: Saturday, April 25, 2009
Time: 8:00 a.m.
Location: 107 Ag Hall

Pre-registration by 8am Monday, April 20, 2009 is required to participate in this event. See Food Science CDE events page at www.cde.okstate.edu for online pre-registration.

Students will cell phones or PDA's will be disqualified.

Contest Purpose, Objectives, Rules and Guidelines

I. Purpose of the Contest

To stimulate learning activities in food science and technology related to the food industry and to assist students in developing a good working knowledge of sound principles used in a team decision-making process.

II. Objectives

- I. To encourage FFA members to gain an awareness of vocational and professional opportunities in the field of food science and technology, marketing and management occupations.
- II. To give FFA members the opportunity to experience group participation and leadership responsibilities in a competitive food science and technology program.
- III. To help FFA members develop technical competence and personal initiative in a food science and technology occupation.
- IV. To provide opportunities for FFA members to participate in activities where they gain an appreciation for cooperative effort in the food industry.

III. Event Rules

- I. **Team make-up** - The team will consist of four team members with all four team member scores being totaled. *In order to be eligible for the Team Awards, Teams MUST consist of 4 members. The top 4 member Team will represent the State in the National contest. Teams of 2 or 3 members will be allowed to participate, but their Team scores will not be calculated. This is a team event. No individual awards will be given.*
- II. It is highly recommended that all participants be in official dress.

IV. Event Format

The food science and technology career development event will consist of four activities, 1) an objective test, 2) a team product development project, 3) a practicum in food safety and quality, and 4) a practicum in sensory evaluation. This career development event will be a four-person team activity. All team members will participate in all of the activities. This career development event will involve 2,600 total points per team. The team product development project will be worth 400 points, the objective test will be worth 1,200 total points and the practicums (combined 3 and 4) are worth 1,000 total points.

A. Equipment

Required: Materials student must provide: Each participant must have a clean, free of notes clipboard, two sharpened No. 2 pencils, and an electronic calculator. Calculators used in this event should be battery operated, non-programmable, silent with large keys and large displays. Calculators should have only these functions- addition, subtraction, multiplication, division, equals, percent, square root, +/- key, and one memory register. No other calculators will be allowed during the event.

Optional Materials for Presentations: It is permissible to bring markers and other artistic materials. **No** textbooks or magazines allowed. **No** pre-made material will be allowed. A 18" x 24" sketch pad will be provided to aid with presentations. Judges will be instructed to not grade on artistic ability but solely on the presentation and content.

B. Team Activity

Team Product Development Project

This year, we will follow the National FFA format regarding the product development contest. At the contest, each team will receive a marketing scenario describing a need for a new or redesigned product that would appeal to a potential market. The scenario will contain a description of the existing market situation, competition and potential target market segment to be served by the new product. It is the task of the team to design a new or reformulated food product or reformulate an existing product.

The team will be responsible for understanding and using the following concepts:

- Formulation of product to meet specified market requirements

- New package design to reflect the developed product
- Nutritional label development and adjustments
- Equipment used to produce and package the product
- Provide quality control programs, i.e., good manufacturing practices (GMP) and hazard analysis critical control point analysis (HACCP)

Possible Products:

- Ready-to-Eat Cereal
- Breakfast Bars
- Candy
- Beverages (Sports Drinks)
- Pizza
- Processed Fruit Snacks
- Stir-Fried Vegetables
- Sandwich (RTE)

Each team will be provided with packaging materials, ingredients, and information necessary on each ingredient in order to develop a final product label. Teams will also be provided with a 24” x 18” sketch tablet and black sharpies to aid their presentation.

The team will have sixty minutes to respond to the marketing scenario and reformulate or develop a new product, calculate a nutritional label, develop ingredient statement and educational panel and develop the front or principal display panel to reflect the new product and its market. After this time period, each team member will contribute in a ten (10) minute oral product development proposal. Thereafter, there will be a ten (10) minute question period from the judges in which each team member will be expected to answer questions about the development of their particular product.

Total time involved for each team will be 80 minutes. Total number of points possible for this activity will be 400 points.

Evaluation Criteria for Product Development Presentation

Product Development..... 200 points

How does the product meet target market needs?

Is the product idea novel and original?

The presentation should address at least 4 of the following product concerns:

- Economics Equipment
- Nutrition Distribution
- Quality Control Formulation
- Product Safety

Package Design..... 100 points

Use, development and adaptation of nutritional label

Use and development of the ingredient statement on educational panel
Use of principal display panel to convey information

Response to judges' questions..... 100 points

Total400 points/team

C. Individual Activities

1. Test

The objective questions administered during the Food Science and Technology examination will be designed to determine each team member's understanding of the basic principles of food science and technology. It will encompass the knowledge required of the team event and the two practicums, i.e. food safety and quality and sensory evaluation, as well as material in the list of references.

Team members will work individually to answer each of the 50 questions. Each person will have fifty minutes to complete the examination. Each question will be worth 2 points for a correct answer. The test will be based on the list of references.

**Total300 points/individual
or 1200 points/team**

2. Practicums

Each team member will compete in both practicums. The practicums will each be worth 150 points.

a. Food Safety and Quality Practicum

1. Customer Complaint Letter – *This will not be a part of this years State contest.*

2. Food Safety/Sanitation

Each participant will be given ten (10) photos of potential food safety and/or sanitation problems. A numbered list of problems will also be provided at the beginning of this practicum segment. The list will contain more potential problems than the number of photographs. The list will contain such standards as good manufacturing practices (GMP) and hazard analysis critical control point analysis (HACCP). Identify the type of problem in the photo sheet by recording the number from the list on a scantron sheet provided to each participant. Each participant will start at a station to view a photograph and record an answer. After one minute, the participants will be told to move to the next station. This will continue until each participant returns to his or her original station.

Food Safety & Quality Practicum Scorecard

Food Safety & Sanitation Problem Identification..... 100 points/individual

Total Points.....400 points/team

b. Sensory Evaluation

Aroma Testing

Each participant will be asked to identify four different aromas from vials provided at each station and record the answer on the sheet provided. A list of potential aromas will be provided to each person. Each station is worth 5 points.

Difference Testing

Three different triangle tests will be conducted. Participants are expected to identify the different sample through aroma, visual cues or texture differences. Answers will be given on the sheet provided. No list will be provided for this segment of the practicum. Each test is worth 5 points.

Taste Testing

Three samples will be tasted. Participants will be expected to compare each sample to a control and identify whether or not it is the same or different. Each station is worth 5 points.

Each participant will be given one minute at each station before being told to move to a new station. When each person returns to his or her original station this practicum is completed.

Sensory Evaluation - Aromas

- | | |
|--------------------|----------------------|
| 1. Cinnamon | 17. Menthol |
| 2. Peanut Butter | 18. Grape |
| 3. Chocolate | 19. Garlic |
| 4. Maple | 20. Peppermint |
| 5. Oregano | 21. Clove |
| 6. Basil | 22. Nutmeg |
| 7. Lemon | 23. Ginger |
| 8. Lime | 24. Molasses |
| 9. Orange | 25. Licorice (anise) |
| 10. Vanilla | 26. Raspberry |
| 11. Almond | 27. Strawberry |
| 12. Smoke (liquid) | 28. Coconut |
| 13. Cherry | 29. Wintergreen |
| 14. Pine | 30. Banana |
| 15. Onion | 31. Lilac |
| 16. Butter | |
| 17. Menthol | |
| 18. Grape | |
| 19. Garlic | |
| 20. Peppermint | |
| 21. Clove | |
| 22. Nutmeg | |
| 23. Ginger | |
| 24. Molasses | |

Sensory Evaluation Scorecard

Aroma Identification.....60 points
Difference Testing45 points
Taste Testing.....45 points
Total Points.....150 points/ member

Total Points.....600 points/team

V. Tiebreakers

Should a tie occur in the overall team placing, the highest team product development project score will break the tie. If this score does not break the tie, then the highest number of total points earned from the objective test (adding all four team member scores) will break the tie. If a third tiebreaker is needed the judges' response to the Team Question period from the Team Product Development project will be used.

VI. Awards

Awards will be presented at the State FFA Convention. This is a team contest so only team awards will be presented. The members of the top team will also receive individual medals.

VII. References

This list of references is not intended to be inclusive. Other sources may be utilized and teachers are encouraged to make use of the very best instructional materials available. The following list contains references that may prove helpful during event preparation.

Food Science, Safety and Nutrition - a special project from the National Council of Agricultural Education.

Food Science and Safety, 1998, Seperich, Interstate Publishers, Inc.

Institute of Food Technology, www.ift.org, click on Education and Careers, click on Introduction to the Food Industry.

Food Science and Technology

Name: _____ Chapter: _____

School: _____ Team No. _____

PRODUCT DEVELOPMENT PRESENTATION SCORECARD

	Possible Points	Team Points
Package design	100	
<ul style="list-style-type: none"> • Use, development and adaptation of nutritional label • Use and development of the ingredient statement on educational panel • Use of principle display panel to convey information 		
Sub Total (A)		
Oral Proposal	200	
<ul style="list-style-type: none"> • How does the produce meet market needs? • Is the idea novel and/or original • How does the product address target audience? • The presentation should address at least four of the following product concerns: <ul style="list-style-type: none"> ✓ Nutrition ✓ Quality Control ✓ Health ✓ Ethnicity ✓ Processing Equipment ✓ Formulation 		
Sub Total (B)		
Response to Judges' Questions	100	
<ul style="list-style-type: none"> • Time management in question response • Organizational ability 		
Sub Total (C)		
Penalties	-20	
<ul style="list-style-type: none"> • Presentation time over 10 minutes (-10 pts) • Participation of each team member (-10 pts) 		
Sub Total (D)		
Total A+B+C+D		

