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Survey for FSIS Vulnerability Assessment Project 04/18/2018

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[M] Background and Survey Purpose

The Food Protection and Defense Institute (FPDI) is collaborating with the USDA Food Safety and Inspection Service (FSIS) to better understand vulnerabilities and research activities in the area of food defense for FSIS-regulated food products. Food defense is the protection of food products from intentional contamination intended to cause public health harm or economic disruption. FSIS works with government agencies at all levels, industry, and other organizations to develop and implement strategies to prevent, protect against, mitigate, respond to, and recover from intentional contamination of the food supply. FSIS food defense activities are guided by national policies and directives, including Homeland Security Presidential Directive 9, which requires USDA to perform one or more vulnerability assessments of the food system every 2 years.

The purpose of this survey is to inform FSIS food defense efforts, including future vulnerability assessments. These assessments help FSIS assist industry in mitigating vulnerabilities that may lead to an intentional attack on the food supply. Vulnerabilities are often food product characteristics and processing activities that may make a product more susceptible to intentional contamination. Examples of vulnerabilities include short shelf-life, large batch sizes, and accessibility to the product. We recognize that you may not have expertise in food defense. However, your feedback based on experience in your field will be invaluable to assessing current food defense vulnerabilities, identifying new food defense vulnerabilities, and identifying current food defense research and new food defense research needs.

Please note that the focus of this survey is **food defense** which is the *intentional contamination* whereas food safety focuses on *unintentional* contamination.

[M] Instructions

Please keep the following in mind while answering the questions below:

- **Products covered:** FSIS-regulated products including meat, poultry, and processed egg products.
- **Time frame covered:** 2013 - 2017
- **Geographic area covered:** United States and products imported into the United States

At the end of the survey, you will be asked to select the level at which we may identify you when sharing survey responses with FSIS. Choices will include:

- You may share my name, title, and organization associated with my survey responses.
- You may share my name, title, and organization as a respondent to the survey separated from my survey responses. Your responses will not be attributed to you.
- I wish my identity to remain completely confidential. Do not report information about my identity to FSIS. Your survey responses will be shared.

[M] Participant Demographic Questions

Please provide the following information.

[m] Q1: Name [Open Text Field]

[m] Q2: Title [Open Text Field]

[m] Q3: Organization [Open Text Field]

[m] Q4: Email Address [Open Text Field]

[m] Q5: Primary Sector [Single Selection Checkbox]

- Industry
- Academia

[m] Q6: Do you have **specific knowledge of** or **significant experience in** any of the following areas? Please select all that apply. [Multi-selection Checkbox]

Production

- Primary Production of Meat, Poultry, and Processed Egg Products

Harvest of Meat, Poultry, Processed Egg Products

- Food Safety
- Operations
- Production Line Supervision
- R&D

Food Manufacture and Processing

- Food Safety
- Operations
- Production Line Supervision
- R&D
- FDA/USDA Dual Jurisdiction

Food Distribution and Human Resources

- Packing and Packaging
- Warehousing
- Procurement
- Logistics
- Supply Chain
- Port Consignee

- Human Resources

Storage

- Raw Product
- Bulk Product
- Finished Product
- Cold Storage

Transportation

- Raw Product
- Bulk Product
- Finished Product
- Cold Chain Transportation

Consumer Facing Products

- Ready-to-Eat Foods
- Grocery and Retail
- Wholesale
- Online
- Meal Delivery Service

Food Service Products

- Institutional
- Restaurant
- Meals Ready-to-Eat (MRE)
- National School Lunch Program

Affiliated Services

- Sanitation
- Pest Control

Focus Areas

- Risk Assessment
- Biological Agents
- Chemical Agents
- Anti-microbial Resistance
- Animal Feed
- Animal Disease
- Animal Health Treatments
- Physical Security
- Cybersecurity
- Food Fraud

Food Commodities

- Beef
- Pork
- Poultry
- Processed Egg Products
- Siluriformes fish (e.g., catfish)
- Finished Food Products containing meat or poultry

Other

- Other _____

[M] Existing Vulnerability Topics

FSIS has performed vulnerability assessments for ten topics which are listed below. FSIS would like your feedback on the current state of food defense vulnerabilities related to these topics. This portion of the survey will ask respondents a series of questions about each topic.

QX: Please review the topic descriptions below and indicate whether you have specific knowledge or significant experience related to that topic. You will only be asked to answer questions related to topics for which you select “Yes”.

Vulnerability Assessment Topic	Description	I have specific knowledge of this topic
Ground Beef [m]	<p>Ground beef is widely produced across the United States and widely consumed as a primary and secondary ingredient in many food products. Given the level of production and consumption of ground beef in the United States, it is a potential target for intentional contamination.</p> <p>Do you have specific knowledge of or significant experience with the production, distribution, or use of ground beef or other ground meat products?</p>	<p>[Yes/No Checkbox]</p>
Processed Egg Products [m]	<p>Processed egg products are a potential target for intentional contamination given the widespread consumption of the products. Liquid and dried egg products are both a primary and secondary ingredient in many food products consumed in the United States.</p> <p>Do you have specific knowledge of or significant experience with the production, distribution, or use of processed egg products?</p>	<p>[Yes/No Checkbox]</p>
Ready-to-Eat Products [m]	<p>Ready-to-eat (RTE) products regulated by FSIS are meat and poultry products in a form that is edible without additional preparation to achieve food safety. Examples include cooked products, fermented products, salt-cured products, dried products, and thermally processed products. RTE products are a potential target for intentional contamination given the wide consumption of the products and the likelihood that the products will not be cooked by the consumer after purchase.</p> <p>Do you have specific knowledge of or significant experience with the production, distribution, or use of RTE products?</p>	<p>[Yes/No Checkbox]</p>
National School Lunch Program	<p>The National School Lunch Program (NSLP) is a federally assisted meal program that provides nutritionally balanced, low-cost or free lunches to children each school day. The NSLP</p>	<p>[Yes/No Checkbox]</p>

<p>[m]</p>	<p>may be a potential target for intentional contamination based on the population served.</p> <p>Do you have specific knowledge of or significant experience with the National School Lunch Program, including supplying food products used by the Program?</p>	
<p>Meals Ready-to-Eat</p> <p>[m]</p>	<p>Meals Ready-to-Eat (MREs) are self-contained meals intended for consumption where food preparation is not possible. MREs are typically used by specialized populations including military personnel during deployment and displaced civilians during national emergencies. Given the use of MREs by these populations, MREs may be a potential target for intentional contamination.</p> <p>Do you have specific knowledge of or significant experience with the production, distribution, or use of MREs?</p>	<p>[Yes/No Checkbox]</p>
<p>Domestic and International Catfish</p> <p>[m]</p>	<p>As of March 2016, FSIS has jurisdiction over all Siluriformes fish (e.g., catfish) that are harvested and sold for human food in the United States. Potential food defense vulnerabilities exist related to catfish, particularly during production and processing.</p> <p>Do you have specific knowledge of or significant experience with the production, distribution, or use of Siluriformes fish (e.g., catfish)?</p>	<p>[Yes/No Checkbox]</p>
<p>Threat Agents</p> <p>[m]</p>	<p>The intentional release of a biological, chemical, or radiological threat agent through the food supply is a food defense risk that affects many food products. Additionally, intentional release of threat agents is a concern at multiple points during the life cycle of a food product.</p> <p>Do you have specific knowledge of or significant experience with working to prevent and/or evaluate the risk of threat agent release?</p>	<p>[Yes/No Checkbox]</p>
<p>Domestic and International Transportation</p> <p>[m]</p>	<p>The movement of food products from farm-to-table often involves a complex transportation network including movement of product internationally and domestically within the United States. Intentional contamination of a product during transport is a potential food defense vulnerability.</p> <p>Do you have specific knowledge of or significant experience with domestic and/or international transportation of food products?</p>	<p>[Yes/No Checkbox]</p>
<p>Imported Products</p> <p>[m]</p>	<p>A number of food defense vulnerabilities exist related to imported food products, particularly products that are used as ingredients for further processing. This may include counterfeit or smuggled food products into the United States or products</p>	<p>[Yes/No Checkbox]</p>

	<p>that are legally imported but are not properly inspected.</p> <p>Do you have specific knowledge of or significant experience with imported food products?</p>	
<p>Cybersecurity [m]</p>	<p>Cyber systems are becoming intimately involved in food production from farm to fork as they are implemented to control animal production, food manufacturing, storage, and transportation processes within the food system. As such, the potential exists for an attack to exploit cybersecurity vulnerabilities to intentionally contaminate or otherwise harm or disrupt the food supply.</p> <p>Do you have specific knowledge of or significant experience with the use of cyber systems or cybersecurity at any stage from farm to fork?</p>	<p>[Yes/No Checkbox]</p>

[M] Intentional Contamination Incidents

The possibility of intentional contamination of the food supply with pathogens, toxic substances, or foreign materials is a constant threat.

QX: Are you aware of any intentional contamination incidents, or threats, related to any of the following areas in the past 5 years (2013-2017)? If yes, please provide any details you can.

- | | |
|--|--|
| [m] Ground Beef | Yes or No [<i>Single Selection Checkbox</i>] |
| [m] Processed Egg Products | Yes or No [<i>Single Selection Checkbox</i>] |
| [m] Domestic and International Siluriformes fish (e.g., catfish) | Yes or No [<i>Single Selection Checkbox</i>] |
| [m] Imported Products | Yes or No [<i>Single Selection Checkbox</i>] |
| [m] Ready-to-Eat Products | Yes or No [<i>Single Selection Checkbox</i>] |
| [m] Meals Ready-to-Eat | Yes or No [<i>Single Selection Checkbox</i>] |
| [m] National School Lunch Program | Yes or No [<i>Single Selection Checkbox</i>] |
| [m] Domestic and International Transportation | Yes or No [<i>Single Selection Checkbox</i>] |
| [m] Cybersecurity | Yes or No [<i>Single Selection Checkbox</i>] |
| [m] Other | Yes or No [<i>Single Selection Checkbox</i>] |

[o - logic] QX: [If yes to any] Please describe the incident(s) indicated above. [*Open Text Field*]

[O] Ground Beef

Ground beef is widely produced across the United States and widely consumed as a primary and secondary ingredient in many food products. Given the level of production and consumption of ground beef in the United States, it is a potential target for intentional contamination.

QX: Are you aware of any **operational changes** (e.g., processing, distribution, technology) occurring in the past 5 years related to **ground beef** that may increase, decrease, or present new vulnerabilities to intentional contamination?

[m] Yes or No [*Single Selection*]

[m - logic] [If yes] Please select the type of impact **operational changes** from the past 5 years will have on vulnerabilities to intentional contamination of **ground beef**. Select all that apply.

[*Multiple Checkbox with Open Text Field for Checked Selections*]

- Increase existing vulnerabilities
[o - logic] *If selected, please describe why or how.*
- Decrease existing vulnerabilities
[o - logic] *If selected, please describe why or how.*
- Present new vulnerabilities
[o - logic] *If selected, please describe why or how.*

QX: Are you aware of any **industry policy changes** occurring in the past 5 years related to **ground beef** that may increase, decrease or present new vulnerabilities to intentional contamination?

[m] Yes or No [*Single Selection*]

[m - logic] [If yes] Please select the type of impact **industry policy changes** from the past 5 years will have on vulnerabilities to intentional contamination of **ground beef**. Select all that apply.

[*Multiple Checkbox with Open Text Field for Checked Selections*]

- Increase existing vulnerabilities
[o - logic] *If selected, please describe why or how.*
- Decrease existing vulnerabilities
[o - logic] *If selected, please describe why or how.*
- Present new vulnerabilities
[o - logic] *If selected, please describe why or how.*

QX: Using a scale of 1 to 10 where 1 is a not at all well and 10 is very well, please indicate how well federal resources, policies, and practices provide you with the means to adequately address food defense vulnerabilities related to **ground beef**.

[m] *[Scale]*

[o] Please describe. *[Open Text Field]*

QX: Are you aware of any current or planned research that aims to reduce existing vulnerabilities for **ground beef**?

[m] Yes or No *[Single Selection Checkbox]*

[o - logic] *[If yes]* Please describe the research that aims to reduce existing vulnerabilities for **ground beef**. *[Open Text Field]*

[o] If possible, please provide a citation, or any project contact, author, or other information that may help us identify the research. *[Open Text Field]*

[o] Using a scale of 1 to 10 where 1 is a very low potential and 10 is a very high potential, please indicate the potential for this research to **unintentionally** increase existing vulnerabilities or present new vulnerabilities (e.g., research related to automation leading to increased cybersecurity risks). *[Scale]*

[o] Please describe *[Open Text Field]*

[o - logic] **QX₁:** *[If research is described]* Would you like to describe additional current or planned research that aims to reduce existing vulnerabilities for **ground beef**? Yes or No *[Single Selection Checkbox]*

[o - logic] *[If yes]* Please describe the research that aims to reduce existing vulnerabilities for **ground beef**. *[Open Text Field]*

[o] If possible, please provide a citation, or any project contact, author, or other information that may help us identify the research. *[Open Text Field]*

[o] Using a scale of 1 to 10 where 1 is a very low potential and 10 is a very high potential, please indicate the potential for this research to **unintentionally** increase existing vulnerabilities or present new vulnerabilities (e.g., research related to automation leading to increased cybersecurity risks). *[Scale]*

[o] Please describe *[Open Text Field]*

[o - logic] **QX₂:** *[If research is described]* Would you like to describe additional current or planned research that aims to reduce existing vulnerabilities for **ground beef**? Yes or No *[Single Selection Checkbox]*

[o - logic] [If yes] For each additional research that aims to reduce existing vulnerabilities for **ground beef** please provide:

- Description of research
- Citation or any project contact, author, or other information that may help us identify the research
- Indicate if research will have the potential to unintentionally increase existing vulnerabilities or present new vulnerabilities (e.g., research related to automation leading to increased cybersecurity risks)
- Description of unintentional effects [*Open Text Field*]

[o] QX: Within the production process, what are the vulnerable points that may lead to intentional contamination of **ground beef**, if any? [*Open Text Field*]

[o] QX: Within the transportation process, what are the vulnerable points that may lead to intentional contamination of **ground beef**, if any? [*Open Text Field*]

[o] QX: Please provide suggestions for **any improvements** to food defense practices related to **ground beef**. Suggestions could be related to government, industry, or academia. [*Open Text Field*]

QX: Do ground pork or ground poultry products present similar food defense vulnerabilities as ground beef?

[m] Yes or No [*Single Selection Checkbox*]

[o - logic] [If yes] Please describe. [*Open Text Field*]

[m] QX: Using a scale of 1 to 10 where 1 is a very low priority and 10 is a very high priority, please rate the importance of updating the vulnerability assessment for **ground beef** to address new food defense vulnerabilities. [*Scale*]

[o - logic] Please describe your selection above. [*Open Text Field*]

PRODUCTION NOTE: In all following optional sections, mandatory and optional questions will follow Ground Beef section with deviations noted.

[O] Processed Egg Products

Processed egg products are a potential target for intentional contamination given the widespread consumption of the products. Liquid and dried egg products are both a primary and secondary ingredient in many food products consumed in the United States.

QX: Are you aware of any **operational changes** (e.g., processing, distribution, technology) occurring in the past 5 years related to **processed egg products** that may increase, decrease, or present new vulnerabilities to intentional contamination?

Yes or No [*Single Selection*]

[If yes] Please select the type of impact **operational changes** from the past 5 years will have on vulnerabilities to intentional contamination of **processed egg products**. Select all that apply. [*Multiple Checkbox with Open Text Field for Checked Selections*]

- Increase existing vulnerabilities
If selected, please describe why or how.

- Decrease existing vulnerabilities
If selected, please describe why or how.

- Present new vulnerabilities
If selected, please describe why or how.

QX: Are you aware of any **industry policy changes** occurring in the past 5 years related to **processed egg products** that may increase, decrease or present new vulnerabilities to intentional contamination?

Yes or No [*Single Selection*]

[If yes] Please select the type of impact **industry policy changes** from the past 5 years will have on vulnerabilities to intentional contamination of **processed egg products**. Select all that apply. [*Multiple Checkbox with Open Text Field for Checked Selections*]

- Increase existing vulnerabilities
If selected, please describe why or how.

- Decrease existing vulnerabilities
If selected, please describe why or how.

- Present new vulnerabilities
If selected, please describe why or how.

QX: Using a scale of 1 to 10 where 1 is a not at all well and 10 is very well, please indicate how well federal resources, policies, and practices provide you with the means to adequately address food defense vulnerabilities related to **processed egg products**.

[Scale]

Please describe. [Open Text Field]

QX: Are you aware of any current or planned research that aims to reduce existing vulnerabilities for **processed egg products**?

Yes or No [Single Selection Checkbox]

[If yes] Please describe the research that aims to reduce existing vulnerabilities for **processed egg products**. [Open Text Field]

If possible, please provide a citation, or any project contact, author, or other information that may help us identify the research. [Open Text Field]

Using a scale of 1 to 10 where 1 is a very low potential and 10 is a very high potential, please indicate the potential for this research to **unintentionally** increase existing vulnerabilities or present new vulnerabilities (e.g., research related to automation leading to increased cybersecurity risks). [Scale]

Please describe [Open Text Field]

QX₁: [If research is described] Would you like to describe additional current or planned research that aims to reduce existing vulnerabilities for **processed egg products**? Yes or No [Single Selection Checkbox]

[If yes] Please describe the research that aims to reduce existing vulnerabilities for **processed egg products**. [Open Text Field]

If possible, please provide a citation, or any project contact, author, or other information that may help us identify the research. [Open Text Field]

Using a scale of 1 to 10 where 1 is a very low potential and 10 is a very high potential, please indicate the potential for this research to **unintentionally** increase existing vulnerabilities or present new vulnerabilities (e.g., research related to automation leading to increased cybersecurity risks). [Scale]

Please describe [Open Text Field]

QX₂: [If research is described] Would you like to describe additional current or planned research that aims to reduce existing vulnerabilities for **processed egg products**? Yes or No [Single Selection Checkbox]

[If yes] For each additional research that aims to reduce existing vulnerabilities for **processed egg products** please provide:

- Description of research
- Citation or any project contact, author, or other information that may help us identify the research
- Indicate if research will have the potential to unintentionally increase existing vulnerabilities or present new vulnerabilities (e.g., research related to automation leading to increased cybersecurity risks)
- Description of unintentional effects [*Open Text Field*]

QX: Within the production process, what are the vulnerable points that may lead to intentional contamination of **processed egg products**, if any? [*Open Text Field*]

QX: Within the transportation process, what are the vulnerable points that may lead to intentional contamination of **processed egg products**, if any? [*Open Text Field*]

QX: Please provide suggestions for **any improvements** to food defense practices related to **processed egg products**. Suggestions could be related to government, industry, or academia. [*Open Text Field*]

QX: Using a scale of 1 to 10 where 1 is a very low priority and 10 is a very high priority, please rate the importance of updating the vulnerability assessment for **processed egg products** to address new food defense vulnerabilities. [*Scale*]

Please describe your selection above. [*Open Text Field*]

[O] Ready-to-Eat Products

Ready-to-eat (RTE) products regulated by FSIS are meat and poultry products in a form that is edible without additional preparation to achieve food safety. Examples include cooked products, fermented products, salt-cured products, dried products, and thermally processed products. RTE products are a potential target for intentional contamination given the wide consumption of the products and the likelihood that the products will not be cooked by the consumer after purchase.

QX: Are you aware of any **operational changes** (e.g., processing, distribution, technology) occurring in the past 5 years related to **RTE products** that may increase, decrease, or present new vulnerabilities to intentional contamination?

Yes or No [*Single Selection*]

[If yes] Please select the type of impact **operational changes** from the past 5 years will have on vulnerabilities to intentional contamination of **RTE products**. Select all that apply.
[*Multiple Checkbox with Open Text Field for Checked Selections*]

- Increase existing vulnerabilities
If selected, please describe why or how.

- Decrease existing vulnerabilities
If selected, please describe why or how.

- Present new vulnerabilities
If selected, please describe why or how.

QX: Are you aware of any **industry policy changes** occurring in the past 5 years related to **RTE products** that may increase, decrease or present new vulnerabilities to intentional contamination?

Yes or No [*Single Selection*]

[If yes] Please select the type of impact **industry policy changes** from the past 5 years will have on vulnerabilities to intentional contamination of **RTE products**. Select all that apply.
[*Multiple Checkbox with Open Text Field for Checked Selections*]

- Increase existing vulnerabilities
If selected, please describe why or how.

- Decrease existing vulnerabilities
If selected, please describe why or how.

- Present new vulnerabilities
If selected, please describe why or how.

QX: Using a scale of 1 to 10 where 1 is a not at all well and 10 is very well, please indicate how well federal resources, policies, and practices provide you with the means to adequately address food defense vulnerabilities related to **RTE products**.

[Scale]

Please describe. [Open Text Field]

QX: Are you aware of any current or planned research that aims to reduce existing vulnerabilities for **RTE products**?

Yes or No [Single Selection Checkbox]

[If yes] Please describe the research that aims to reduce existing vulnerabilities for **RTE products**. [Open Text Field]

If possible, please provide a citation, or any project contact, author, or other information that may help us identify the research. [Open Text Field]

Using a scale of 1 to 10 where 1 is a very low potential and 10 is a very high potential, please indicate the potential for this research to **unintentionally** increase existing vulnerabilities or present new vulnerabilities (e.g., research related to automation leading to increased cybersecurity risks). [Scale]

Please describe [Open Text Field]

QX₁: [If research is described] Would you like to describe additional current or planned research that aims to reduce existing vulnerabilities for **RTE products**? Yes or No [Single Selection Checkbox]

[If yes] Please describe the research that aims to reduce existing vulnerabilities for **RTE products**. [Open Text Field]

If possible, please provide a citation, or any project contact, author, or other information that may help us identify the research. [Open Text Field]

Using a scale of 1 to 10 where 1 is a very low potential and 10 is a very high potential, please indicate the potential for this research to **unintentionally** increase existing vulnerabilities or present new vulnerabilities (e.g., research related to automation leading to increased cybersecurity risks). [Scale]

Please describe [Open Text Field]

QX₂: [If research is described] Would you like to describe additional current or planned research that aims to reduce existing vulnerabilities for **RTE products**? Yes or No [Single Selection Checkbox]

[If yes] For each additional research that aims to reduce existing vulnerabilities for **RTE products** please provide:

- Description of research
- Citation or any project contact, author, or other information that may help us identify the research
- Indicate if research will have the potential to unintentionally increase existing vulnerabilities or present new vulnerabilities (e.g., research related to automation leading to increased cybersecurity risks)
- Description of unintentional effects [*Open Text Field*]

QX: Within the production process, what are the vulnerable points that may lead to intentional contamination of **RTE products**, if any? [*Open Text Field*]

QX: Within the transportation process, what are the vulnerable points that may lead to intentional contamination of **RTE products**, if any? [*Open Text Field*]

QX: Please provide suggestions for **any improvements** to food defense practices related to **RTE products**. Suggestions could be related to government, industry, or academia. [*Open Text Field*]

QX: Using a scale of 1 to 10 where 1 is a very low priority and 10 is a very high priority, please rate the importance of updating the vulnerability assessment for **RTE products** to address new food defense vulnerabilities. [*Scale*]

Please describe your selection above. [*Open Text Field*]

[O] National School Lunch Program

The National School Lunch Program (NSLP) is a federally assisted meal program that provides nutritionally balanced, low-cost or free lunches to children each school day. The NSLP may be a potential target for intentional contamination based on the population served.

QX: Are you aware of any **operational changes** (e.g., processing, distribution, technology) occurring in the past 5 years related to the **NSLP** that may increase, decrease, or present new vulnerabilities to intentional contamination?

Yes or No [*Single Selection*]

[If yes] Please select the type of impact **operational changes** from the past 5 years will have on vulnerabilities to intentional contamination of the **NSLP**. Select all that apply.

[*Multiple Checkbox with Open Text Field for Checked Selections*]

- Increase existing vulnerabilities
If selected, please describe why or how.

- Decrease existing vulnerabilities
If selected, please describe why or how.

- Present new vulnerabilities
If selected, please describe why or how.

QX: Are you aware of any **industry policy changes** occurring in the past 5 years related to the **NSLP** that may increase, decrease or present new vulnerabilities to intentional contamination?

Yes or No [*Single Selection*]

[If yes] Please select the type of impact **industry policy changes** from the past 5 years will have on vulnerabilities to intentional contamination of the **NSLP**. Select all that apply.

[*Multiple Checkbox with Open Text Field for Checked Selections*]

- Increase existing vulnerabilities
If selected, please describe why or how.

- Decrease existing vulnerabilities
If selected, please describe why or how.

- Present new vulnerabilities
If selected, please describe why or how.

QX: Using a scale of 1 to 10 where 1 is a not at all well and 10 is very well, please indicate how well federal resources, policies, and practices provide you with the means to adequately address food defense vulnerabilities related to the **NSLP**.

[*Scale*]

Please describe. [*Open Text Field*]

QX: Are you aware of any current or planned research that aims to reduce existing vulnerabilities for the **NSLP**?

Yes or No [*Single Selection Checkbox*]

[If yes] Please describe the research that aims to reduce existing vulnerabilities for the **NSLP**. *[Open Text Field]*

If possible, please provide a citation, or any project contact, author, or other information that may help us identify the research. *[Open Text Field]*

Using a scale of 1 to 10 where 1 is a very low potential and 10 is a very high potential, please indicate the potential for this research to **unintentionally** increase existing vulnerabilities or present new vulnerabilities (e.g., research related to automation leading to increased cybersecurity risks). *[Scale]*

Please describe *[Open Text Field]*

QX₁: [If research is described] Would you like to describe additional current or planned research that aims to reduce existing vulnerabilities for the **NSLP**? Yes or No *[Single Selection Checkbox]*

[If yes] Please describe the research that aims to reduce existing vulnerabilities for the **NSLP**. *[Open Text Field]*

If possible, please provide a citation, or any project contact, author, or other information that may help us identify the research. *[Open Text Field]*

Using a scale of 1 to 10 where 1 is a very low potential and 10 is a very high potential, please indicate the potential for this research to **unintentionally** increase existing vulnerabilities or present new vulnerabilities (e.g., research related to automation leading to increased cybersecurity risks). *[Scale]*

Please describe *[Open Text Field]*

QX₂: [If research is described] Would you like to describe additional current or planned research that aims to reduce existing vulnerabilities for the **NSLP**? Yes or No *[Single Selection Checkbox]*

[If yes] For each additional research that aims to reduce existing vulnerabilities for **NSLP** please provide:

- Description of research
- Citation or any project contact, author, or other information that may help us identify the research
- Indicate if research will have the potential to unintentionally increase existing vulnerabilities or present new vulnerabilities (e.g., research related to automation leading to increased cybersecurity risks)
- Description of unintentional effects *[Open Text Field]*

QX: Within the production process, what are the vulnerable points that may lead to intentional contamination of foods served in the **NSLP**, if any? *[Open Text Field]*

QX: Within the transportation, what are the vulnerable points that may lead to intentional contamination of foods served in the **NSLP**, if any? [*Open Text Field*]

QX: Within the preparation and serving process, what are the vulnerable points that may lead to intentional contamination of foods served in the **NSLP**, if any? [*Open Text Field*]

QX: Please provide suggestions for **any improvements** to food defense practices related to the **NSLP**. Suggestions could be related to government, industry, or academia. [*Open Text Field*]

QX: Using a scale of 1 to 10 where 1 is a very low priority and 10 is a very high priority, please rate the importance of updating the vulnerability assessment for the **NSLP** to address new food defense vulnerabilities. [*Scale*]

Please describe your selection above. [*Open Text Field*]

[O] Meals Ready-to-Eat

Meals Ready-to-Eat (MREs) are self-contained meals intended for consumption where food preparation is not possible. MREs are typically used by specialized populations, including military personnel during deployment and displaced civilians during national emergencies. Given the use of MREs by these populations, MREs may be a potential target for intentional contamination.

QX: Are you aware of any **operational changes** (e.g., processing, distribution, technology) occurring in the past 5 years related to **MREs** that may increase, decrease, or present new vulnerabilities to intentional contamination?

Yes or No [*Single Selection*]

[If yes] Please select the type of impact **operational changes** from the past 5 years will have on vulnerabilities to intentional contamination of **MREs**. Select all that apply. [*Multiple Checkbox with Open Text Field for Checked Selections*]

- Increase existing vulnerabilities
If selected, please describe why or how.

- Decrease existing vulnerabilities
If selected, please describe why or how.

- Present new vulnerabilities
If selected, please describe why or how.

QX: Are you aware of any **industry policy changes** occurring in the past 5 years related to **MREs** that may increase, decrease or present new vulnerabilities to intentional contamination?
Yes or No [*Single Selection*]

[If yes] Please select the type of impact **industry policy changes** from the past 5 years will have on vulnerabilities to intentional contamination of **MREs**. Select all that apply. [*Multiple Checkbox with Open Text Field for Checked Selections*]

- Increase existing vulnerabilities
If selected, please describe why or how.

- Decrease existing vulnerabilities
If selected, please describe why or how.

- Present new vulnerabilities
If selected, please describe why or how.

QX: Using a scale of 1 to 10 where 1 is a not at all well and 10 is very well, please indicate how well federal resources, policies, and practices provide you with the means to adequately address food defense vulnerabilities related to **MREs**.

[Scale]

Please describe. [Open Text Field]

QX: Are you aware of any current or planned research that aims to reduce existing vulnerabilities for **MREs**?

Yes or No [Single Selection Checkbox]

[If yes] Please describe the research that aims to reduce existing vulnerabilities for **MREs**. [Open Text Field]

If possible, please provide a citation, or any project contact, author, or other information that may help us identify the research. [Open Text Field]

Using a scale of 1 to 10 where 1 is a very low potential and 10 is a very high potential, please indicate the potential for this research to **unintentionally** increase existing vulnerabilities or present new vulnerabilities (e.g., research related to automation leading to increased cybersecurity risks). [Scale]

Please describe [Open Text Field]

QX₁: [If research is described] Would you like to describe additional current or planned research that aims to reduce existing vulnerabilities for **MREs**? Yes or No [Single Selection Checkbox]

[If yes] Please describe the research that aims to reduce existing vulnerabilities for **MREs**. [Open Text Field]

If possible, please provide a citation, or any project contact, author, or other information that may help us identify the research. [Open Text Field]

Using a scale of 1 to 10 where 1 is a very low potential and 10 is a very high potential, please indicate the potential for this research to **unintentionally** increase existing vulnerabilities or present new vulnerabilities (e.g., research related to automation leading to increased cybersecurity risks). [Scale]

Please describe [Open Text Field]

QX₂: [If research is described] Would you like to describe additional current or planned research that aims to reduce existing vulnerabilities for **MREs**? Yes or No [Single Selection Checkbox]

[If yes] For each additional research that aims to reduce existing vulnerabilities for **MREs** please provide:

- Description of research
- Citation or any project contact, author, or other information that may help us identify the research
- Indicate if research will have the potential to unintentionally increase existing vulnerabilities or present new vulnerabilities (e.g., research related to automation leading to increased cybersecurity risks)
- Description of unintentional effects [*Open Text Field*]

QX: Within the production process, what are the vulnerable points that may lead to intentional contamination of **MREs**, if any? [*Open Text Field*]

QX: Within the transportation process, what are the vulnerable points that may lead to intentional contamination of **MREs**, if any? [*Open Text Field*]

QX: Please provide suggestions for **any improvements** to food defense practices related to **MREs**. Suggestions could be related to government, industry, or academia. [*Open Text Field*]

QX: Using a scale of 1 to 10 where 1 is a very low priority and 10 is a very high priority, please rate the importance of updating the vulnerability assessment for **MREs** to address new food defense vulnerabilities. [*Scale*]

Please describe your selection above. [*Open Text Field*]

[O] Domestic and International Siluriformes fish

As of March 2016, FSIS has jurisdiction over all Siluriformes fish (e.g., catfish) that are harvested and sold for human food in the United States. Potential food defense vulnerabilities exist related to catfish, particularly during production and processing.

QX: Are you aware of any **operational changes** (e.g., processing, distribution, technology) occurring in the past 5 years related to **domestic or international Siluriformes fish (e.g., catfish)** that may increase, decrease, or present new vulnerabilities to intentional contamination?

Yes or No [*Single Selection*]

[If yes] Please select the type of impact **operational changes** from the past 5 years will have on vulnerabilities to intentional contamination of **domestic or international Siluriformes fish (e.g., catfish)**. Select all that apply. [*Multiple Checkbox with Open Text Field for Checked Selections*]

- Increase existing vulnerabilities
If selected, please describe why or how.

- Decrease existing vulnerabilities
If selected, please describe why or how.

- Present new vulnerabilities
If selected, please describe why or how.

QX: Are you aware of any **industry policy changes** occurring in the past 5 years related to **domestic or international Siluriformes fish (e.g., catfish)** that may increase, decrease or present new vulnerabilities to intentional contamination?

Yes or No [*Single Selection*]

[If yes] Please select the type of impact **industry policy changes** from the past 5 years will have on vulnerabilities to intentional contamination of **domestic or international Siluriformes fish (e.g., catfish)**. Select all that apply. [*Multiple Checkbox with Open Text Field for Checked Selections*]

- Increase existing vulnerabilities
If selected, please describe why or how.

- Decrease existing vulnerabilities
If selected, please describe why or how.

- Present new vulnerabilities
If selected, please describe why or how.

QX: Using a scale of 1 to 10 where 1 is a not at all well and 10 is very well, please indicate how well federal resources, policies, and practices provide you with the means to adequately address food defense vulnerabilities related to **domestic or international Siluriformes fish (e.g., catfish)**.

[Scale]

Please describe. [Open Text Field]

QX: Are you aware of any current or planned research that aims to reduce existing vulnerabilities for **domestic or international Siluriformes fish (e.g., catfish)**?

Yes or No [Single Selection Checkbox]

[If yes] Please describe the research that aims to reduce existing vulnerabilities for **domestic or international Siluriformes fish (e.g., catfish)**. [Open Text Field]

If possible, please provide a citation, or any project contact, author, or other information that may help us identify the research. [Open Text Field]

Using a scale of 1 to 10 where 1 is a very low potential and 10 is a very high potential, please indicate the potential for this research to **unintentionally** increase existing vulnerabilities or present new vulnerabilities (e.g., research related to automation leading to increased cybersecurity risks). [Scale]

Please describe [Open Text Field]

QX₁: [If research is described] Would you like to describe additional current or planned research that aims to reduce existing vulnerabilities for **domestic or international Siluriformes fish (e.g., catfish)**? Yes or No [Single Selection Checkbox]

[If yes] Please describe the research that aims to reduce existing vulnerabilities for **domestic or international Siluriformes fish (e.g., catfish)**. [Open Text Field]

If possible, please provide a citation, or any project contact, author, or other information that may help us identify the research. [Open Text Field]

Using a scale of 1 to 10 where 1 is a very low potential and 10 is a very high potential, please indicate the potential for this research to **unintentionally** increase existing vulnerabilities or present new vulnerabilities (e.g., research related to automation leading to increased cybersecurity risks). [Scale]

Please describe [Open Text Field]

QX₂: [If research is described] Would you like to describe additional current or planned research that aims to reduce existing vulnerabilities for **domestic or**

international Siluriformes fish (e.g., catfish)? Yes or No [*Single Selection Checkbox*]

[If yes] For each additional research that aims to reduce existing vulnerabilities for **domestic or international Siluriformes fish (e.g., catfish)** please provide:

- Description of research
- Citation or any project contact, author, or other information that may help us identify the research
- Indicate if research will have the potential to unintentionally increase existing vulnerabilities or present new vulnerabilities (e.g., research related to automation leading to increased cybersecurity risks)
- Description of unintentional effects [*Open Text Field*]

QX: Within the production process, what are the vulnerable points that may lead to intentional contamination of **domestic or international Siluriformes fish (e.g., catfish)**, if any? [*Open Text Field*]

QX: Within the transportation process, what are the vulnerable points that may lead to intentional contamination of **domestic or international Siluriformes fish (e.g., catfish)**, if any? [*Open Text Field*]

QX: How different are the food defense vulnerabilities between **domestic or international Siluriformes fish (e.g., catfish)**?

[m] Very different, moderately different, slightly different, not different [*Single Selection Checkbox*]

[m - logic] [*If any selection except not different*] Please describe the differences. [*Open Text Field*]

QX: Please provide suggestions for **any improvements** to food defense practices related to **domestic or international Siluriformes fish (e.g., catfish)**. Suggestions could be related to government, industry, or academia. [*Open Text Field*]

QX: Using a scale of 1 to 10 where 1 is a very low priority and 10 is a very high priority, please rate the importance of updating the vulnerability assessment for **domestic or international Siluriformes fish (e.g., catfish)** to address new food defense vulnerabilities. [*Scale*]

Please describe your selection above. [*Open Text Field*]

[O] Threat Agents

The intentional release of a biological, chemical, or radiological threat agent through the food supply is a food defense risk that affects many food products. Additionally, intentional release of threat agents is a concern at multiple points during the life cycle of a food product.

QX: Are you aware of any **operational changes** (e.g., processing, distribution, technology) occurring in the past 5 years related to **threat agents** that may increase, decrease, or present new vulnerabilities to intentional contamination?

Yes or No [*Single Selection*]

[If yes] Please select the type of impact **operational changes** from the past 5 years will have on vulnerabilities to intentional contamination by **threat agents**. Select all that apply.
[*Multiple Checkbox with Open Text Field for Checked Selections*]

- Increase existing vulnerabilities
If selected, please describe why or how.
- Decrease existing vulnerabilities
If selected, please describe why or how.
- Present new vulnerabilities
If selected, please describe why or how.

QX: Are you aware of any **industry policy changes** occurring in the past 5 years related to **threat agents** that may increase, decrease or present new vulnerabilities to intentional contamination?

Yes or No [*Single Selection*]

[If yes] Please select the type of impact **industry policy changes** from the past 5 years will have on vulnerabilities to intentional contamination by **threat agents**. Select all that apply.
[*Multiple Checkbox with Open Text Field for Checked Selections*]

- Increase existing vulnerabilities
If selected, please describe why or how.
- Decrease existing vulnerabilities
If selected, please describe why or how.
- Present new vulnerabilities
If selected, please describe why or how.

QX: Using a scale of 1 to 10 where 1 is a not at all well and 10 is very well, please indicate how well federal resources, policies, and practices provide you with the means to adequately address food defense vulnerabilities related to **threat agents**.

[Scale]

Please describe. [Open Text Field]

QX: Are you aware of any current or planned research that aims to reduce existing vulnerabilities related to **threat agents**?

Yes or No [Single Selection Checkbox]

[If yes] Please describe the research that aims to reduce existing vulnerabilities related to **threat agents**. [Open Text Field]

If possible, please provide a citation, or any project contact, author, or other information that may help us identify the research. [Open Text Field]

Using a scale of 1 to 10 where 1 is a very low potential and 10 is a very high potential, please indicate the potential for this research to **unintentionally** increase existing vulnerabilities or present new vulnerabilities (e.g., research related to automation leading to increased cybersecurity risks). [Scale]

Please describe [Open Text Field]

QX₁: [If research is described] Would you like to describe additional current or planned research that aims to reduce existing vulnerabilities related to **threat agents**? Yes or No [Single Selection Checkbox]

[If yes] Please describe the research that aims to reduce existing vulnerabilities related to **threat agents**. [Open Text Field]

If possible, please provide a citation, or any project contact, author, or other information that may help us identify the research. [Open Text Field]

Using a scale of 1 to 10 where 1 is a very low potential and 10 is a very high potential, please indicate the potential for this research to **unintentionally** increase existing vulnerabilities or present new vulnerabilities (e.g., research related to automation leading to increased cybersecurity risks). [Scale]

Please describe [Open Text Field]

QX₂: [If research is described] Would you like to describe additional current or planned research that aims to reduce existing vulnerabilities related to **threat agents**? Yes or No [Single Selection Checkbox]

[If yes] For each additional research that aims to reduce existing vulnerabilities related to **threat agents** please provide:

- Description of research

- Citation or any project contact, author, or other information that may help us identify the research
- Indicate if research will have the potential to unintentionally increase existing vulnerabilities or present new vulnerabilities (e.g., research related to automation leading to increased cybersecurity risks)
- Description of unintentional effects [*Open Text Field*]

[m] QX: What biological agents do you think pose the greatest risk to FSIS-regulated products?
[*Open Text Field*]

[m] QX: What chemical agents do you think pose a significant risk to FSIS-regulated products?
[*Open Text Field*]

QX: Are you concerned about a radiological threat to FSIS-regulated products?
[m] Yes or No [*Single Selection Checkbox*]

[o] Please describe. [*Open Text Field*]

QX: Is the industry prepared to detect a threat agent in FSIS-regulated products?
[m] Yes or No [*Single Selection Checkbox*]

[o] Please describe. [*Open Text Field*]

QX: Does industry have adequate emergency plans in place to respond to the intentional release of a threat agent in FSIS-regulated products?
[m] Yes or No [*Single Selection Checkbox*]

[o] Please describe. [*Open Text Field*]

[m] QX: Where is the greatest vulnerability in the food system to threat agents? Please rank the top three with 1, 2, and 3. [*Rank*]

- Primary Production
- Harvest Processing
- Manufacturing
- Transportation
- Warehouse
- Packaging
- Retail

[o] Please describe your selections above. [*Open Text Field*]

QX: Please provide suggestions for **any improvements** to food defense practices related to **threat agents**. Suggestions could be related to government, industry, or academia. [*Open Text Field*]

QX: Using a scale of 1 to 10 where 1 is a very low priority and 10 is a very high priority, please rate the importance of updating the vulnerability assessment for **threat agents** to address new food defense vulnerabilities. [*Scale*]

Please describe your selection above. [*Open Text Field*]

[O] Domestic and International Transportation

The movement of food products from farm-to-table often involves a complex transportation network including movement of product internationally and domestically within the United States. Intentional contamination of a product during transport is a potential food defense vulnerability.

QX: Are you aware of any **operational changes** (e.g., processing, distribution, technology) occurring in the past 5 years related to **domestic and international transportation** that may increase, decrease, or present new vulnerabilities to intentional contamination?
Yes or No [*Single Selection*]

[If yes] Please select the type of impact **operational changes** from the past 5 years will have on vulnerabilities to intentional contamination of **domestic and international transportation**. Select all that apply. [*Multiple Checkbox with Open Text Field for Checked Selections*]

- Increase existing vulnerabilities
If selected, please describe why or how.

- Decrease existing vulnerabilities
If selected, please describe why or how.

- Present new vulnerabilities
If selected, please describe why or how.

QX: Are you aware of any **industry policy changes** occurring in the past 5 years related to **domestic and international transportation** that may increase, decrease or present new vulnerabilities to intentional contamination?
Yes or No [*Single Selection*]

[If yes] Please select the type of impact **industry policy changes** from the past 5 years will have on vulnerabilities to intentional contamination of **domestic and international transportation**. Select all that apply. [*Multiple Checkbox with Open Text Field for Checked Selections*]

- Increase existing vulnerabilities
If selected, please describe why or how.

- Decrease existing vulnerabilities
If selected, please describe why or how.

- Present new vulnerabilities
If selected, please describe why or how.

QX: Using a scale of 1 to 10 where 1 is a not at all well and 10 is very well, please indicate how well federal resources, policies, and practices provide you with the means to adequately address food defense vulnerabilities related to **domestic and international transportation**.

[Scale]

Please describe. [Open Text Field]

QX: Are you aware of any current or planned research that aims to reduce existing vulnerabilities for **domestic and international transportation**?

Yes or No [Single Selection Checkbox]

[If yes] Please describe the research that aims to reduce existing vulnerabilities for **domestic and international transportation**. [Open Text Field]

If possible, please provide a citation, or any project contact, author, or other information that may help us identify the research. [Open Text Field]

Using a scale of 1 to 10 where 1 is a very low potential and 10 is a very high potential, please indicate the potential for this research to **unintentionally** increase existing vulnerabilities or present new vulnerabilities (e.g., research related to automation leading to increased cybersecurity risks). [Scale]

Please describe [Open Text Field]

QX₁: [If research is described] Would you like to describe additional current or planned research that aims to reduce existing vulnerabilities for **domestic and international transportation**? Yes or No [Single Selection Checkbox]

[If yes] Please describe the research that aims to reduce existing vulnerabilities for **domestic and international transportation**. [Open Text Field]

If possible, please provide a citation, or any project contact, author, or other information that may help us identify the research. [Open Text Field]

Using a scale of 1 to 10 where 1 is a very low potential and 10 is a very high potential, please indicate the potential for this research to **unintentionally** increase existing vulnerabilities or present new vulnerabilities (e.g., research related to automation leading to increased cybersecurity risks). [Scale]

Please describe [Open Text Field]

QX₂: [If research is described] Would you like to describe additional current or planned research that aims to reduce existing vulnerabilities for **domestic and international transportation**? Yes or No [Single Selection Checkbox]

[If yes] For each additional research that aims to reduce existing vulnerabilities for **domestic and international transportation** please provide:

- Description of research
- Citation or any project contact, author, or other information that may help us identify the research
- Indicate if research will have the potential to unintentionally increase existing vulnerabilities or present new vulnerabilities (e.g., research related to automation leading to increased cybersecurity risks)
- Description of unintentional effects [*Open Text Field*]

QX: Does cargo theft of FSIS-regulated products represent a food defense vulnerability?

[m] Yes or No [*Single Selection Checkbox*]

[o] Please describe. [*Open Text Field*]

[m] QX: What are the vulnerable points that may lead to intentional contamination of FSIS-regulated products during **domestic** transport (e.g., loading, checkpoints)? [*Open Text Field*]

[m] QX: What are the vulnerable points that may lead to intentional contamination of FSIS-regulated products during **international** transport (e.g., loading, checkpoints)? [*Open Text Field*]

QX: How different are the food defense vulnerabilities between domestic and international transportation?

[m] Very different, moderately different, slightly different, not different [*Single Selection Checkbox*]

[m - logic] [*If any selection except not different*] Please describe the differences. [*Open Text Field*]

QX: Please provide suggestions for **any improvements** to food defense practices related to **domestic and international transportation**. Suggestions could be related to government, industry, or academia. [*Open Text Field*]

QX: Using a scale of 1 to 10 where 1 is a very low priority and 10 is a very high priority, please rate the importance of updating the vulnerability assessment for **domestic and international transportation** to address new food defense vulnerabilities. [*Scale*]

Please describe your selection above. [*Open Text Field*]

[O] Imported Products

A number of food defense vulnerabilities exist related to imported food products, particularly products that are used as ingredients for further processing. This may include counterfeit or

smuggled food products into the United States or products that are legally imported but are not properly inspected.

QX: Are you aware of any **operational changes** (e.g., processing, distribution, technology) occurring in the past 5 years related to **imported products** that may increase, decrease, or present new vulnerabilities to intentional contamination?

Yes or No [*Single Selection*]

[If yes] Please select the type of impact **operational changes** from the past 5 years will have on vulnerabilities to intentional contamination of **imported products**. Select all that apply. [*Multiple Checkbox with Open Text Field for Checked Selections*]

- Increase existing vulnerabilities
If selected, please describe why or how.

- Decrease existing vulnerabilities
If selected, please describe why or how.

- Present new vulnerabilities
If selected, please describe why or how.

QX: Are you aware of any **industry policy changes** occurring in the past 5 years related to **imported products** that may increase, decrease or present new vulnerabilities to intentional contamination?

Yes or No [*Single Selection*]

[If yes] Please select the type of impact **industry policy changes** from the past 5 years will have on vulnerabilities to intentional contamination of **imported products**. Select all that apply. [*Multiple Checkbox with Open Text Field for Checked Selections*]

- Increase existing vulnerabilities
If selected, please describe why or how.

- Decrease existing vulnerabilities
If selected, please describe why or how.

- Present new vulnerabilities
If selected, please describe why or how.

QX: Using a scale of 1 to 10 where 1 is a not at all well and 10 is very well, please indicate how well federal resources, policies, and practices provide you with the means to adequately address food defense vulnerabilities related to **imported products**.

[*Scale*]

Please describe. [*Open Text Field*]

QX: Are you aware of any current or planned research that aims to reduce existing vulnerabilities for **imported products**?

Yes or No [*Single Selection Checkbox*]

[If yes] Please describe the research that aims to reduce existing vulnerabilities for **imported products**. [*Open Text Field*]

If possible, please provide a citation, or any project contact, author, or other information that may help us identify the research. [*Open Text Field*]

Using a scale of 1 to 10 where 1 is a very low potential and 10 is a very high potential, please indicate the potential for this research to **unintentionally** increase existing vulnerabilities or present new vulnerabilities (e.g., research related to automation leading to increased cybersecurity risks). [*Scale*]

Please describe [*Open Text Field*]

QX₁: [If research is described] Would you like to describe additional current or planned research that aims to reduce existing vulnerabilities for **imported products**? Yes or No [*Single Selection Checkbox*]

[If yes] Please describe the research that aims to reduce existing vulnerabilities for **imported products**. [*Open Text Field*]

If possible, please provide a citation, or any project contact, author, or other information that may help us identify the research. [*Open Text Field*]

Using a scale of 1 to 10 where 1 is a very low potential and 10 is a very high potential, please indicate the potential for this research to **unintentionally** increase existing vulnerabilities or present new vulnerabilities (e.g., research related to automation leading to increased cybersecurity risks). [*Scale*]

Please describe [*Open Text Field*]

QX₂: [If research is described] Would you like to describe additional current or planned research that aims to reduce existing vulnerabilities for **imported products**? Yes or No [*Single Selection Checkbox*]

[If yes] For each additional research that aims to reduce existing vulnerabilities for **imported products** please provide:

- Description of research
- Citation or any project contact, author, or other information that may help us identify the research
- Indicate if research will have the potential to unintentionally increase existing vulnerabilities or present new vulnerabilities (e.g., research related to automation leading to increased cybersecurity risks)
- Description of unintentional effects [*Open Text Field*]

[m] QX: What are the vulnerable points that may lead to intentional contamination of FSIS-regulated **imported finished** products? *[Open Text Field]*

[m] QX: What are the vulnerable points that may lead to intentional contamination of FSIS-regulated **imported** products **used as ingredients**? *[Open Text Field]*

QX: How different are the food defense vulnerabilities between domestically produced and imported products? *[Question specific to this section]*

[m] Very different, moderately different, slightly different, not different *[Single Selection Checkbox]*

[m - logic] *[If any selection except not different]* Please describe the differences. *[Open Text Field]*

QX: Please provide suggestions for **any improvements** to food defense practices related to **imported products**. Suggestions could be related to government, industry, or academia. *[Open Text Field]*

QX: Using a scale of 1 to 10 where 1 is a very low priority and 10 is a very high priority, please rate the importance of updating the vulnerability assessment for **imported products** to address new food defense vulnerabilities. *[Scale]*

Please describe your selection above. *[Open Text Field]*

[O] Cybersecurity

Cyber systems, which may include ICS, SCADA, etc., are becoming intimately involved in food production from farm to fork as they are implemented to control animal production, food manufacturing, storage, and transportation processes within the food system. As such, the potential exists for an attack to exploit cybersecurity vulnerabilities to intentionally contaminate or otherwise harm or disrupt the food supply.

QX: Are you aware of any **operational changes** (e.g., processing, distribution, technology) occurring in the past 5 years related to **cybersecurity** that may increase, decrease, or present new vulnerabilities to intentional contamination?

Yes or No *[Single Selection]*

[If yes] Please select the type of impact **operational changes** from the past 5 years will have on vulnerabilities to intentional contamination related to **cybersecurity**. Select all that apply. *[Multiple Checkbox with Open Text Field for Checked Selections]*

- Increase existing vulnerabilities
If selected, please describe why or how.
- Decrease existing vulnerabilities
If selected, please describe why or how.
- Present new vulnerabilities
If selected, please describe why or how.

QX: Are you aware of any **industry policy changes** occurring in the past 5 years related to **cybersecurity** that may increase, decrease or present new vulnerabilities to intentional contamination?

Yes or No [*Single Selection*]

[If yes] Please select the type of impact **industry policy changes** from the past 5 years will have on vulnerabilities to intentional contamination related to **cybersecurity**. Select all that apply. [*Multiple Checkbox with Open Text Field for Checked Selections*]

- Increase existing vulnerabilities
If selected, please describe why or how.
- Decrease existing vulnerabilities
If selected, please describe why or how.
- Present new vulnerabilities
If selected, please describe why or how.

QX: Using a scale of 1 to 10 where 1 is a not at all well and 10 is very well, please indicate how well federal resources, policies, and practices provide you with the means to adequately address food defense vulnerabilities related to **cybersecurity**.

[*Scale*]

Please describe. [*Open Text Field*]

QX: Are you aware of any current or planned research that aims to reduce existing vulnerabilities related to **cybersecurity**?

Yes or No [*Single Selection Checkbox*]

[If yes] Please describe the research that aims to reduce existing vulnerabilities related to **cybersecurity**. [*Open Text Field*]

If possible, please provide a citation, or any project contact, author, or other information that may help us identify the research. [*Open Text Field*]

Using a scale of 1 to 10 where 1 is a very low potential and 10 is a very high potential, please indicate the potential for this research to **unintentionally** increase existing vulnerabilities or present new vulnerabilities (e.g., research related to automation leading to increased cybersecurity risks). [Scale]

Please describe [Open Text Field]

QX₁: [If research is described] Would you like to describe additional current or planned research that aims to reduce existing vulnerabilities related to **cybersecurity**? Yes or No [Single Selection Checkbox]

[If yes] Please describe the research that aims to reduce existing vulnerabilities related to **cybersecurity**. [Open Text Field]

If possible, please provide a citation, or any project contact, author, or other information that may help us identify the research. [Open Text Field]

Using a scale of 1 to 10 where 1 is a very low potential and 10 is a very high potential, please indicate the potential for this research to **unintentionally** increase existing vulnerabilities or present new vulnerabilities (e.g., research related to automation leading to increased cybersecurity risks). [Scale]

Please describe [Open Text Field]

QX₂: [If research is described] Would you like to describe additional current or planned research that aims to reduce existing vulnerabilities related to **cybersecurity**? Yes or No [Single Selection Checkbox]

[If yes] For each additional research that aims to reduce existing vulnerabilities related to **cybersecurity** please provide:

- Description of research
- Citation or any project contact, author, or other information that may help us identify the research
- Indicate if research will have the potential to unintentionally increase existing vulnerabilities or present new vulnerabilities (e.g., research related to automation leading to increased cybersecurity risks)
- Description of unintentional effects [Open Text Field]

QX: How could **cyber systems** within the food system contribute to vulnerable points that may lead to intentional contamination of FSIS-regulated products? [Open Text Field]

QX: Please provide suggestions for **any improvements** to food defense practices related to **cybersecurity**. Suggestions could be related to government, industry, or academia. [Open Text Field]

QX: Using a scale of 1 to 10 where 1 is a very low priority and 10 is a very high priority, please rate the importance of updating the vulnerability assessment for **cybersecurity** to address new food defense vulnerabilities. [*Scale*]

Please describe your selection above. [*Open Text Field*]

[M] New Vulnerabilities

The evolving nature of the global food supply and the food industry means that food defense vulnerabilities are also evolving. In addition to the ten vulnerability topics addressed in the past sections and listed below, there may be additional topics and vulnerabilities to consider.

- Ground Beef
- Processed Egg Products
- Domestic and International Siluriformes fish (e.g., catfish)
- Imported Products
- Ready-to-Eat Products
- Meals Ready-to-Eat
- National School Lunch Program
- Domestic and International Transportation
- Cybersecurity
- Threat Agents

[o] QX: Please suggest any additional food defense vulnerabilities or topics in the area of FSIS regulatory authority. FSIS-regulated products include beef, pork, poultry, eggs, fish of the order Siluriformes (e.g., catfish), and products that contain more than 2% meat. [Open Text Field]

[M] Research Needs

Previous vulnerability assessments performed by FSIS have identified gaps in existing research related to food defense vulnerabilities that impact FSIS-regulated food products. FSIS would like your feedback on the current state of food defense research needs.

[o] QX: What are the most significant research gaps related to food defense of FSIS-regulated products, if any? *[Open Text Field]*

[o - logic] *[If research gap entered]* Please suggest how to address these research gaps. *[Open Text Field]*

[o] QX: Through past vulnerability assessments, FSIS has identified areas for future food defense research, including:

- o Threat agents (e.g., detection methods, toxicity doses),
- o Technologies (e.g., inspection technologies, tamper-evident packaging),
- o Communication (e.g., risk communication, rapid alerting, cross-sector communication),
and
- o Research broadly related to policies and procedures or any other areas.

Please provide your insight on progress currently underway or made during the past 5 years on any of these topics to address these research areas. Citations are appreciated when available. *[Open Text Field]*

[M] Additional Questions

QX: Is there any other feedback that you would like to provide related to food defense and/or vulnerabilities of FSIS-regulated products?

[o] Yes or No [*Single Selection Checkbox*]

[o - logic] [If yes] Please describe. [*Open Text Field*]

QX: Are you aware of other individuals that we should contact for input (at a minimum, name and affiliation)?

[m] Yes or No [*Single Selection Checkbox*]

[o - logic] [If yes] Please provide contact information. [*Open Text Field*]

[M] Closing / Thank You

Your time and thoughtful responses are appreciated. FPGI will analyze and aggregate them with other survey responses to provide FSIS with valuable data and insight from you to assess and mitigate current food defense vulnerabilities, identify new food defense vulnerabilities, and prioritize areas for future food defense activities.

[m] QX: As mentioned during survey instructions, please select the level at which we may identify you when sharing survey responses with FSIS. We hope that by having completed the survey you will be willing to share your identity with FSIS. [*Single Selection Checkbox*]

- You may share my name, title, and organization associated with my survey responses.
- You may share my name, title, and organization as a respondent to the survey separated from my survey responses. Your responses will not be attributed to you.
- I wish my identity to remain completely confidential. Do not report information about my identity to FSIS. Your survey responses will be shared.

In the event FSIS requests clarification on a survey response, FPGI may reach out to you for more information.

Thank you,
Food Protection and Defense Institute