

FASCAT: Food and Ag Sector Criticality Assessment Tool

Guidance Document
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NATIONAL CENTER FOR
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A HOMELAND SECURITY CENTER OF EXCELLENCE

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As outlined in the National Infrastructure Protection Plan, government and the private sector are jointly responsible for protecting the critical components that make up the designated Critical Infrastructures and Key Resources (CIKR). Further, the new FDA Food Safety Modernization Act requires food production, processing and distribution firms to conduct hazards analysis of their supply, processing and production chains, to document these hazards and their analysis as well to document and implement protective controls to protect these critical systems.

Fundamental to that effort is to identify what those critical components are. In some infrastructures, these critical components are physical assets. The Food and Agriculture infrastructure, due to its unique, complex, broad-based, globally distributed and highly integrated nature, is a system of systems. Therefore, prior to implementing vulnerability assessments, developing protective and mitigation strategies or focusing limited resources on preventive, protective or response planning capabilities, it is vital to assess the systems and subsystems that make up the infrastructure. Only then can those which are truly critical in terms of consequences to our population, the economy and the infrastructure's viability be identified.

This guide and the web-based FASCAT tool provided within the FoodSHIELD portal are integral to the CIKR Information Sharing Environment (ISE). They are designed to assist your firm or your state, in partnership with both the private sector and other regional states as appropriate, to share critical sector information with select owner/operators, select state and federal officials via an established analysis process. This process applies a nationally standardized framework for assessing hazards and the criticality of supply chain nodes, systems and sub-systems within your firm or within your state's Food and Agriculture infrastructure.

For our state users, you will also then be able to provide:

1. An effective response to future DHS National Data Calls for information on critical infrastructure components for Food and Agriculture. The assessment tool will aid in identifying those critical systems and sub-systems within the Food and Agriculture infrastructure and sub-sectors that have national significance and may, depending upon current DHS data call guidance, be reportable.
2. A means to identify sector systems/sub-systems that are critical to key state commodity chains or food systems and that should be prioritized for further state or organizational level vulnerability assessment and possible protective measure(s) or mitigation strategy development and for response and recovery planning. These are critical steps in building resilience into your state and local communities.
3. Export your assessment results into the DHS data call system.

For our private sector users, you will be able to:

1. Employ an internal methodology to meet the hazard identification, assessment and documentation requirements of the new FDA Food Safety Modernization Act (FSMA). It also provides examples of supply chain maps that can assist you in developing such maps for your firm to aid in meeting the new FSMA requirements.
2. Determine the information to support additional vulnerability assessments, development and implementation of preventive controls, mitigation and response planning as well as other risk reporting and documentation requirements.

FASCAT 3.0 integrates many of the lessons learned from the previous years' data calls into this web-based application. The terminology and system/sub-system descriptions are now synchronized with the current Department of Homeland Security (DHS) taxonomy to facilitate integration of assessment results with required DHS reporting formats.

This version also integrates IMPLAN economic modeling into queries in order to support justification for economic impacts, essential to the data call system nominations. Additionally, selected scenarios developed by past users have been integrated into the tool as a helpful tool to assessing potential hazards scenarios within selected supply chains.

The FASCAT 3.0 tool includes:

- Data input screens
- Data selection lists
- Radio button selection processes (point and click)
- Automated scoring process
- Data summary worksheets for complete assessments
- Data analysis tools

FASCAT 3.0 includes representative flow charts which are provided for reference to assist the assessment team in identifying which supply chain and system component is being assessed. Interactive supply and commodity flow chart features will be reintroduced in future versions of the tool along with a simplified, user friendly supply chain chart builder. It is critical for users to follow a process that engages the state agencies and private sector. Unlike many critical infrastructures such as nuclear power, energy and dams, states don't generally have the primary data on all the elements of the Food and Agriculture infrastructure. This infrastructure exists primarily within the private sector and, while it is inspected, licensed and regulated by government, it is owned and operated outside of government.

As a result, engaging across state agencies and with the private sector is the only way to successfully fully characterize the Food and Agriculture infrastructure within each state and assess what is most critical.

It is important to recognize that this is not a stand-alone risk assessment or vulnerability assessment tool, but rather this is a hazard and system characteristics based assessment that employs a ranking and comparative analysis of sub-sectors/sub-systems against others in that same system or those in another such system. Indeed, the objective is to facilitate the identification of those Food and Agriculture infrastructure systems and sub-systems that should be considered critical and which, upon consideration of a variety of factors, should be prioritized for further vulnerability assessment, implementation of protective controls, mitigation and response planning within the sector by the owner/operators in coordination with suppliers, customers, and federal and state agencies.

In general, that means that representatives from multiple agencies with direct working knowledge of the infrastructure need to be engaged. This includes agencies responsible for agriculture (e.g., inspection program leads, emergency response leads), animal health (e.g., state veterinarian), environment (e.g., waste permitting), health (e.g., inspection, foodborne illness, epidemiology), transportation, law enforcement, homeland security and others. In addition, representatives from the private sector need to be involved, either as individual lead companies or associations (e.g., farm bureaus, animal agriculture associations, food processing associations). Based on several pilots, the most efficient way to approach this is to have the state lead this effort. However, sector industry organization leaders or senior corporate officials are also well suited to facilitate such assessments. The first step is to conduct a training session with all of the appropriate government and private sector leads to familiarize them with the tool and to review/augment their available data. After updating or adding to their Food and Agriculture system data, the second step is to host a working session to populate FASCAT to determine an initial characterization of the infrastructure and an assessment of what is most critical in the state or, in the case of the private sector, the firm(s) being assessed.

Through the use and further development of this tool, the sector owner/operators, each state, and thus the country, will move toward a greater understanding of what is critical in the Food and Agriculture sector. As a result, precious resources can be focused on increasing the protection of the system from man-made, natural, or accidentally threats. These efforts will assist in reducing the probability of a successful attack, increase our ability to rapidly identify threats, and assist a rapid return to normalcy post-event.

While an early, limited application, PC-based version of the tool is available to the public on the FOODSHIELD portal, this new, more advanced and comprehensive version of the FASCAT tool is only available through the FOODSHIELD portal to those with login credentials. This is because the tool and any data assessed via the web version of the tool is compartmentalized within password protected areas of the portal in order to protect the confidentiality of the information for the information owners.

Signing On to FASCAT

Complete these steps to sign on to FASCAT:

1. Go to www.foodshield.org.
2. Click **Login** in the upper-right corner.
3. Enter your username and password.
4. Click **Login**. The *My Account* homepage is displayed.
5. Click **Programs** tab. Links are displayed below the tab.
6. Click **FASCAT**.
7. Click the **state link** below the FASCAT icon.

The initial screen welcomes the user and offers access to:

- Initiate a new assessment
- Modify a previously completed or incomplete report
- Review and search FASCAT data
- FASCAT tool user's guidance
- *Infrastructure Data Collection Application (IDCA)* integration/output guidance

Signing Off from FASCAT

Complete these steps to sign off from FASCAT:

1. Click **FASCAT Portal Home** in the upper-right corner.
2. Click **Securely Logout** in the upper-right corner.



Figure 1-1. Start Assessment

Starting a New Assessment

To start a new assessment, click **Start Assessment**. (Figure 1-1) The *Overview* worksheet on the *Assessment* tab is displayed.

FASCAT has five main components that utilize separate worksheets within the program:

- The Assessment Participants worksheet
- The System Selection worksheet
- The Threats/Consequences worksheet
- The Subsystem Characteristics worksheet
- The Inputs and Outputs worksheet

Adding Primary Point of Contact

Use the *Overview* worksheet on the *Assessment* tab to record information on the individual who will be the primary point of contact regarding the preparation and submission of the assessment. If the primary point of contact is a registered FoodSHIELD member, you can add them as a contact by clicking on **FoodSHIELD Contact**. Complete this worksheet in full before proceeding to the subsequent worksheets. Be sure to save the information by clicking **Save** in the upper-left corner of the worksheet, and do this often during the assessment. (Figure 2-1)

Figure 2-1. Overview

Figure 2-2. Add Participant

Adding Assessment Participants

Contact information for those who participate in the assessment can be added via the *Contacts* tab. All participants who actively contribute to the assessment should be added. Name, organization and contact information will aid in follow-up after the assessment.

- To add a participant, click **Contacts** tab. Links are displayed below the tab. Click **Add Participants**. Type participant's contact information, then click **Add this Participant**. Repeat, until all participants have been added to the assessment. If a participant is a registered FoodSHIELD member, you can add them as a contact by clicking on **FoodSHIELD Contact**. Be sure to save the information by clicking **Save** in the upper-left corner of the worksheet. (Figure 2-2)

Adding a Subject Matter Expert

For each assessment, someone should be identified as the principal subject matter expert for that assessment.

- To add the principal subject matter expert, click **Critical Contacts/SME's** under the *Contacts* tab. Type SME's contact information, and click **Add Subject Matter Expert**. Save your work by clicking **Save** in the upper-left corner of the worksheet. (Figure 2-4)

[FA-DEMO] Welcome to FAS-CAT Version 3.0
This report is incomplete. Survey is incomplete. Remove this Report

Organization Name:

Contact First Name:

Contact Last Name:

Job Title:

Work Phone:

Address:

City:

State:

Postal Code:

Email:

Emergency Contact:

Affiliation:

Participant Type:

Contact Role:

Add Subject Matter Expert

Figure 2-4. Critical Contacts/SME's

[FA-DEMO] Welcome to FAS-CAT Version 3.0
This report is incomplete. Survey is incomplete. Remove this Report

First Name	Last Name
John	Cowan
Darren	Turley
My	Person

Edit this Participant

Remove this Participant

Figure 2-3. Edit/View Participants

Editing Assessment Participants

If the initial list of participants needs to be edited or reviewed, this may be done under *Edit/View Participants*.

- To edit a participant's contact information, click **Edit/View Participants** under the *Contacts* tab. Select participant from list, and click **Edit this Participant**. Save your work by clicking **Save** in the upper-left corner of the worksheet. (Figure 2-3)
- To remove a participant from your assessment, click **Edit/View Participants** under the *Contacts* tab. Select participant from list, and click **Remove this Participant**. Save your work by clicking **Save** in the upper-left corner of the worksheet. (Figure 2-3)

System Selection Worksheet

The *System Selection* worksheet is used to enter data about the sub-systems/components to be assessed for criticality. Entries are made via the incorporated dropdown lists for each entry block. To assist in selecting the appropriate entry, users may refer to the commodity flow charts.

DHS classifies components into systems, clusters and assets. These components can be defined as the following:

- **System** – Also known as a supply chain. It is a full production system, or the majority of a supply chain. (e.g. fluid milk)
- **Cluster** – Also known as a sub-system. It pertains to facilities that perform the same function, or nearly the same function, within the same system. (e.g. creameries)
- **Asset** – Also known as a node. It pertains to an individual, physically-addressed facility. (e.g. individual creamery)

Figure 3-1 provides an overview of the worksheet tools, and the steps to completing the worksheet. Turn to the next page for a more detailed description of how to complete this worksheet.

Steps to Completing Worksheet:

1. Product Supply Chain
2. View Supply Chain Chart
3. DHS Taxonomy components
4. Asset Definition
5. Total # Assets in Sub-System
6. # of Critical Nodes Assessed
7. Comments

Tools
 Asset Type Lookup
 Commodity/Attributes
 FASCAT 2.0 Values
 IDT Description

The screenshot shows the FASCAT System Selection Worksheet interface. At the top, there are tabs for Save, Assessment, Contacts, Scenario/Reports, Analytics, and a summary of scores. Below these are navigation tabs: Overview, System Selection (active), Threats/Consequences, Subsystem Characteristics, Other Attributes, and FASCAT Portal Home. The main content area is titled 'This Title Will Repopulate Once an Asset is Selected.' and includes a 'Remove this Report' link. The interface is divided into several sections: 'DHS Taxonomy' with dropdowns for Sub-sector (Processing, Packaging, and Product), Segment (Please Select a Segment), Sub-segment (Please Select a Sub-Segment), and Asset (Please Select an Asset Type); 'Asset Definition' with dropdowns for Appendix I (Please Select Appendix I) and Appendix II (Please Select Appendix II); 'Product Supply Chain' with a 'Select' dropdown and a 'View Supply Chain Chart' button; 'Asset Type Lookup' with a text input and a 'Go!' button; 'Commodity/Attributes' and 'FASCAT 2.0 Values' buttons; and an 'IDT Description' box. Numbered callouts 1 through 7 highlight specific steps: 1. Product Supply Chain dropdown, 2. View Supply Chain Chart button, 3. Asset Type Lookup section, 4. Asset Definition section, 5. Total # Assets input field, 6. # of Critical Nodes Assessed input field, and 7. Comments text area. A sidebar on the left lists 'FASCAT Sub-System / DHS Cluster'.

Figure 3-1. System Selection Worksheet

The System Selection Worksheet (Continued)

To complete the *System Selection* worksheet, complete the following steps:

1. Access System Selection Worksheet

Click the **Assessment** tab. Links are displayed below the tab. Click **System Selection**.

2. Select Product Supply Chain

Select the **product supply chain** to be assessed from the *Product Supply Chain* dropdown menu. If you select *Other*, please enter the **name** of the product supply chain in the text box below. (Figure 3-2)

3. Identify Sub-System

Click **View Supply Chain Chart**. (Figure 3-2) Select system from list. Identify the sub-system to be assessed. In the flowchart, a sub-system is represented in a yellow box. Once a sub-system has been selected, click **Back** in the upper-left corner of the chart.

4. Determine DHS Taxonomy

Using the dropdown menus, select the **Sub-Sector**, **Segment**, **Sub-Segment**, and **Asset** components of the Sub-System being assessed. Your selection in each dropdown menu will affect the options that appear in the next dropdown menu. (Figure 3-3)

- **Info?** displays the Infrastructure Data Taxonomy (IDT) description of the item selected from the dropdown menu. (Figure 3-3) The IDT Description is found on the far right of the worksheet. (Figure 3-1)
- **Asset Type Lookup** is a tool that will pre-populate the DHS Taxonomy based on the asset you enter. You may use this tool to help you complete the DHS Taxonomy. (Figure 3-4)
- **FASCAT 2.0 Values** is a tool used to update the DHS Taxonomy components in previous FASCAT assessments. See page ____ for more detail. (Figure 3-4)

5. Determine Asset Definition

Define the asset by using the dropdown menus to select the **Appendix I** and **Appendix II** (when applicable). (Figure 3-5)

Figure 3-2. Supply Chain & Chart

Figure 3-3. DHS Taxonomy

Figure 3-4. Lookup & Values

Figure 3-5. Asset Definition

The System Selection Worksheet (Continued)

6. Quantify Number of Sub-System Assets

Enter the number of assets within this type of sub-system (supply chain) in your state, or within your firm. (Figure 3-6)

What is the total number of assets that make up this subsystem?

Number of Critical Nodes Assessed:

Figure 3-6. # of Assets/Nodes

7. Quantify Number of Critical Nodes Assessed

Enter your estimate of the number of critical assets/nodes within this sub-system that are being assessed. (Figure 3-6)

Note: The assets with a specific DHS Taxonomy Description that have an actual latitude/longitude location identified along with owners/point of contacts. No information on these nodes other than the total number is captured in FASCAT. The Automated Critical Asset Management System (ACAMS) is the primary means of capturing this information for the Food and Agriculture Sector and will be discussed in the later part of this guidance.

8. Record Key Facts

The *Comments* box is where you can place your notes. Provide as much detail as possible to characterize the scale and nature of the sub-system that is being assessed here. Entering detailed notes will help you in the event of a disaster. The IDCA is narrative, so your comments will get placed in the *Narrative Preamble*. You may also use *Comments* to identify further research needed. (Figure 3-7)

Record key facts about the system to be assessed that the assessment team considers important to provide context, unique characteristics and scale information about the assessed system. In this area participants can capture information identifying specific facilities or other assets as critical nodes or dependencies that must be considered when assessing a specific sub-system/component. Where there is a unique designation needed for the supply chain for the system, please use this comment area to record that information.

Comments:

Other things to consider:

- Why is this asset important to your state or firm?
- What are the key components or unusual assets that are comprised in this sub-system?
- Identify key characteristics of this cluster within that supply chain (e.g., scale, inputs, outputs, through-put, etc.)
- Include anything that is not directly reflected in the screen, or recorded on the worksheet
- How many people work in this subsystem?
- What is the economic value?
- Is there anything unusual from a political/historical nature in the state?
- How does this go to market

Click **Save** in the upper-left corner before moving on to the next worksheet.

The System Selection Worksheet (Continued)

Upgrading FASCAT 2.0 Values

The DHS Taxonomy 4.0 built into FASCAT 3.0 generates a certain set of descriptive vocabulary that should accurately define the sub-system being assessed. IDCA calls it a cluster. The number of assessments on a commodity supply chain is dependent on correctly identifying your sub-system at the asset level. Users may also refer to the Asset Definition appendices level of the DHS Taxonomy 4.0 on the *System Selection* worksheet of the FASCAT Assessment tab.

Note for State FASCAT Users: While FASCAT assessments are performed from a systems-based approach, it is still important to capture the number of critical nodes that are associated with assessments that will be used for submission to IDCA as part of the NCIPP Data call.

Critical infrastructure assessed with FASCAT may be important to any given state and may appear to meet these 3 criteria. It is, however, important to build the case (scenario) of why you are nominating a specific sub-system and why you feel it warrants national prioritization. FASCAT helps to prioritize critical infrastructure and key resources (CIKR) with a scoring system to help accomplish this goal. Performing multiple assessments on a given commodity supply chain and comparing FASCAT assessment scores for prioritization is important to this nomination process. Through this process, FASCAT helps each state in determining what is most critical and where investments can be made to buy down the greatest amount of risk. To facilitate this process, FASCAT automatically captures how many other assessments were made on a given commodity supply chain (i.e. “Beef” from farm to retail).

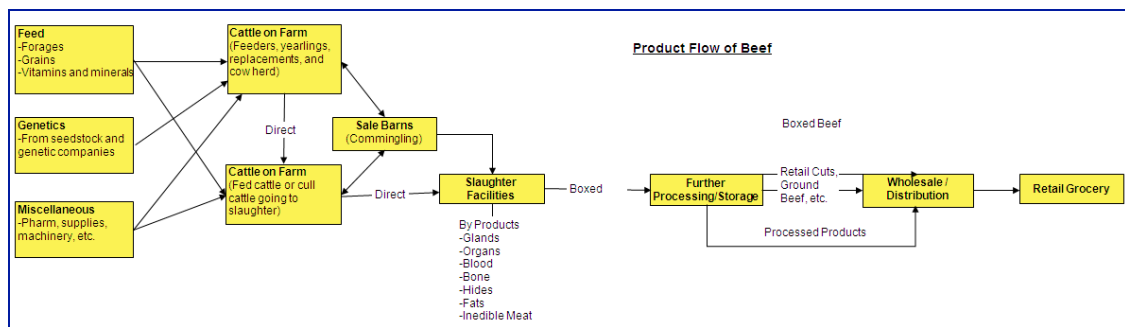


Figure 3-8. Beef Supply Chain

The number of assessments along with the high and low scores is built into a *Narrative Preamble* for justifying the nomination for Level 2 Critical Infrastructure. Answering the question “What is most critical?” for your state, the Nation’s economy, and public health will help build a national picture of criticality for each commodity supply chain. For this process, it is important that earlier assessments performed in FASCAT 2.0 have their naming definitions upgraded to ensure they include the correct DHS Taxonomy 4.0 definitions. It is also important to identify each assessment with an associated commodity supply chain. Upgrading to FASCAT 3.0 retained all prior FASCAT 2.0 entries and values. FASCAT 2.0 assessment identification can be viewed by clicking the **FASCAT 2.0 Values** button on the *System Selection* worksheet of the FASCAT Assessment tab. (Figure 3-1 and 3-4)

Threats/Consequences Worksheet

The Assessment Process

The assessment is conducted via consideration of various potential threats, consequences and outcomes, grouped under specific topical criteria. It is important to remember that this assessment is a comparison of various considerations applicable to a given sub-system/component against others in that same commodity supply chain or those in another commodity supply chain. It is not a risk assessment or vulnerability assessment. Indeed, the objective is to facilitate the identification of those Food & Agriculture infrastructure systems and sub-systems that should be considered critical WITHIN a specific supply chain and which, upon consideration of a variety of factors, should be prioritized for further vulnerability assessment, protection or response planning at the federal, state, local or private sector organization level. It must be remembered that to gain the complete value of the process, all key components within a supply chain should be assessed in order to determine comparative criticality of each component.

When reviewing potentially applicable consequences, or impacts under each topical heading, there are a variety of methods that might be employed in conducting the comparisons, such as considering all that might apply under each topical heading or limiting the comparisons to those considerations unique to a specific potential threat. For the purposes of prioritizing state-level vulnerability assessment, protective and response capability planning, it is suggested that an “all hazards” approach should be employed. Under an all hazards approach, all likely consequences, effects and impacts must also be cumulatively considered. So while the threats help drive identification of the consequences, it is the sum of the total possible threats, consequences, effects and impacts that is more important. For private sector assessments, an initial all hazards assessment may aid in prioritization of effort early in identification and documentation effort required under FSMA.

The concept behind the assessment tool is to capture key considerations for each sub-system/component assessed. A cumulative score is automatically developed during the assessment process to assist in prioritizing the results from a number of assessments. (Figure 4-1)

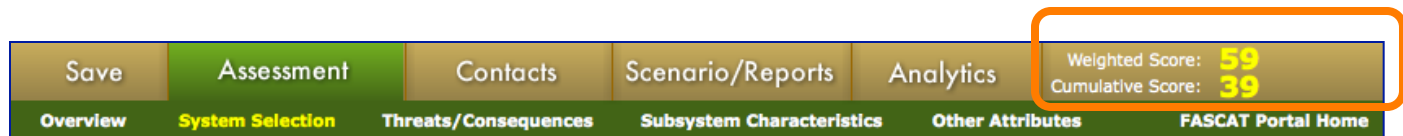


Figure 4-1. Navigation Toolbar

Identifying Potential Threats

This assessment step provides a means to identify those potential threats of concern, using a list and point & click selection, for the sub-system/component being assessed. When states are employing the tool, it is suggested that an ALL HAZARDS approach be taken in which ALL threats that are applicable to the sub-system/component being assessed are selected. However, if a specific threat or hazard is the basis for the assessment, such as determining criticality in the event of an FAD event, then a single threat or hazard might be selected when assessing each component system in that supply chain. When a private organization is conducting the assessment, depending upon the context and intent of the assessment, a single threat or hazard or an all hazards approach might be used for assessing each component within a supply chain in order to determine criticality and prioritize protective, mitigation or response planning efforts. As each threat is selected from the list, a cumulative score is updated. This score will update as each successive worksheet is completed. The final scoring will included in the assessment output and will be reflected in the summary worksheet.

Threats/Consequences Worksheet (Continued)

Potential Threats

This assessment step provides a means to identify those potential threats of concern, using a list and point-and-click selection, for the sub-system/component being assessed.

When states are employing the tool, it is suggested that an ALL HAZARDS approach be taken in which ALL threats that are applicable to the sub-system/component being assessed are selected. However, if a specific threat or hazard is the basis for the assessment, such as determining criticality in the event of an FAD event, then a single threat or hazard might be selected when assessing each component system in that supply chain.

When a private organization is conducting the assessment, depending upon the context and intent of the assessment, a single threat or hazard or an all hazards approach might be used for assessing each component within a supply chain in order to determine criticality and prioritize protective, mitigation or response planning efforts.

As each threat is selected from the list, a cumulative score is updated. This score will update as each successive worksheet is completed. The final scoring will included in the assessment output and will be reflected in the summary worksheet.

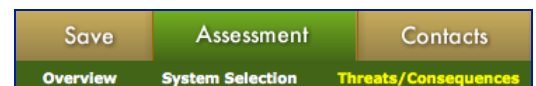


Figure 4-2. Navigation Toolbar

To assess the potential threats, complete the following steps:

1. Click **Threats/Consequences** link displayed below the *Assessment* tab. (Figure 4-2)
2. On the **Threats** tab, select **all threats applicable** to the sub-system/component being assessed. (Figure 4-3)
3. If additional hazards or threats should also be considered or would benefit from additional context or explanation of the nature of the hazard, record that information in the *Comments* box. DHS/IDCA is looking for the following information: For every threat selected, provide an explanation of why it was selected. Identify frequency and consequences for each threat selected. For private sector firms, capturing such assessment considerations will be useful to those who will document hazards identified and for preventive controls development and planning. (Figure 4-3)

Note: To view a definition for a threat, place a checkmark next to the threat and the definition will appear in the tan box bellow. You can also view a definition by hovering over a threat. (Figure 4-3) See pages 25-26 for definition of terms.

4. Click **Save** in the upper-left corner. (Figure 4-2)

Threats	Consequences	2nd & 3rd Order Consequences	Impact of Attack or Disaster
<input checked="" type="checkbox"/> FAD	<input type="checkbox"/> Destruction	<input type="checkbox"/> Chemical/Toxin	<input type="checkbox"/> Intentional Adulteration
<input type="checkbox"/> Lost Access	<input type="checkbox"/> Drought	<input type="checkbox"/> Loss of Operation Rights	<input type="checkbox"/> Theft
<input type="checkbox"/> Food Pathogens Veg.	<input type="checkbox"/> Misinformation/Public Messaging	<input type="checkbox"/> Pathogen Contamination	<input type="checkbox"/> Production/Processing Disruption
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Plant Disease	<input type="checkbox"/> Plant Pests
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Radiological Contamination	<input type="checkbox"/> Exotic Plant Pest/Disease
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Cyber Threat	<input type="checkbox"/> EMA Threat

A foreign animal disease is a disease that if introduced would have significant economic, food security, and trade consequences.

Comments:

Figure 4-3. Threats Tab

Threats/Consequences Worksheet (Continued)

Potential Direct Consequences

This assessment criterion addresses those first order consequences that might be expected if any of the threats identified earlier actually occur. Please note that this is NOT a 1:1 relationship with the threats. All applicable direct consequences should be selected collectively for all of the threats considered. In other words, ALL consequences that are applicable to one, some or all of the listed threats should be selected. As each is selected the cumulative score is updated. This selection has one of the larger selection sets to consider but be sure to account for all that realistically should apply.

To assess the potential direct consequences, complete the following steps:

1. Click the **Consequences** tab.
2. Select **all applicable direct consequences** for all of the threats selected. (Figure 4-3)
3. In the *Comments* box, provide examples or explanation for each consequence selected. Explain the link between a threat and a consequence. Include historical data if available. (Figure 4-3)

Note: To view a definition for a direct consequence, place a checkmark next to the threat and the definition will appear in the tan box below. You can also view a definition by hovering over a threat. (Figure 4-3) See pages 27-28 for definition of terms.

4. Click **Save** in the upper-left corner.

Threats	Consequences	2nd & 3rd Order Consequences	Impact of Attack or Disaster
<input type="checkbox"/> Short Term System Shut Down	<input type="checkbox"/> Long Term System Shut Down	<input type="checkbox"/> Loss of Key Input	
<input checked="" type="checkbox"/> Loss of Key Output	<input type="checkbox"/> Loss of Access to Customer(s)	<input type="checkbox"/> Loss of Plant/Breed Stock	
<input type="checkbox"/> Loss/Contamination of Herd/Flock	<input type="checkbox"/> Mass Casualty - Human	<input type="checkbox"/> Mass Casualty - Animal	
<input type="checkbox"/> Product Shortage	<input type="checkbox"/> Reduced Output	<input type="checkbox"/> Brand Damage	
<input type="checkbox"/> Loss of Tourism	<input type="checkbox"/> Loss of Capital	<input type="checkbox"/> Credit Access	
<input type="checkbox"/> Cost of Response	<input type="checkbox"/> Loss of Seed Source	<input type="checkbox"/> Economic Loss	

Though technically able to re-open, would the threat result in the sub-system/component being unable to produce its primary product?

Comments:

Figure 4-3. Consequences Tab

2nd & 3rd Order Consequences

This assessment criterion focuses upon those second and third order consequences that occur as a result of the listed first order consequences that might be expected on the infrastructure in general, on the state or private sector organization, on the public and on the potential cost to/confidence in government.

Threats/Consequences Worksheet (Continued)

2nd & 3rd Order Consequences (Continued)

To assess the 2nd & 3rd order consequences, complete the following steps:

1. Click the **2nd & 3rd Order Consequences** tab.
2. Select **all applicable 2nd & 3rd order consequences**. (Figure 4-4)
3. If additional consequences should also be considered or would benefit from additional context or explanation of the nature of the consequence, record that information in the *Comments* box. DHS/IDCA is looking for the following information: Provide examples for every consequence selected. Quantify what you think they are going to be. (Figure 4-4)

Note: To view a definition for a 2nd or 3rd order consequence, place a checkmark next to the threat and the definition will appear in the tan box below. You can also view a definition by hovering over a threat. (Figure 4-4) See page 29 for definition of terms.

4. Click **Save** in the upper-left corner.

Figure 4-4. 2nd/3rd Order Consequences Tab

Impact of Attack or Disaster

This assessment criterion focuses upon the impact of the listed first order consequences as considered by state level organizations. This section, including appropriate explanatory notes in the Comments box, will also be useful for private sector assessment as a means to scale the impact of an event as it may regard impact on the organization and customers as a differentiator between sub-system assets.

Users should perform the following:

- Select one of the following: Limited to 1 state, < 5 states, or > 5 states
- Select 10,000 Human Casualties ONLY IF that would apply
- Select one of the remaining: < 1 year to recover, or > 1 year to recover. Regardless of threats from attack or disaster, the selections made should describe the magnitude of the impact on the infrastructure in general and upon the commodity supply chain being assessed.

Threats/Consequences Worksheet (Continued)

Impact of Attack or Disaster (Continued)

To assess the impact of the listed first order consequences, complete the following steps:

1. Click the **Impact of Attack or Disaster** tab.
2. Select **one** of the following: (Figure 4-5)
 - Limited to One State
 - < 5 States Impacted
 - > 5 States Impacted
3. Select **10,000 Human Casualties** ONLY IF applicable (Figure 4-5)
4. Select one of the following: (Figure 4-5)
 - < 1 Year to Recover
 - > 1 Year to Recover
5. Select **Loss of Supply** and/or **Loss of Sub-System/Component** IF applicable (Figure 4-5)

Note: The *Sub-System Category* dropdown will populate automatically based upon selection of impacts.

6. In the *Comments* box, record specific information about the approach employed, any specific focus selected, the process used and/or the specific scenarios applied to the assessment. (Figure 4-5)

Note: To view a definition for an impact, place a checkmark next to the threat and the definition will appear in the tan box bellow. You can also view a definition by hovering over a threat. (Figure 4-5) See page 30-31 for definition of terms.

7. Click **Save** in the upper-left corner.

The screenshot shows the 'Impact of Attack or Disaster' tab with the following elements:

- Threats** tab selected.
- Checkboxes for impact categories:
 - ☐ < 1 Year to Recover
 - ☐ < 5 States Impacted
 - ☐ > 1 Year to Recover
 - ☒ Loss of Supply
 - ☐ Limited to One State
 - ☐ 10,000 Human Casualties
 - ☐ > 5 States Impacted
 - ☐ Loss of Sub-System/Component
- Sub-System Category:** Category 4 (dropdown menu)
- Question box (tan background):** Could the consequences from the perceived attack or disaster on this sub-system/component result in a significant loss of a key commodity/product of the supply chain within the state?
- Comments:** A large text area for user input.

Figure 4-5. Impact of Attack or Disaster Tab

Sub-System Characteristics Worksheet

This section of the assessment process addresses specific characteristics of the system or component being assessed that aid in ranking its significance and criticality. This section also employs selection lists where each selection has a unique score. For each sub-section of this worksheet, select only one choice in each list.

To complete the *Sub-System Characteristics* worksheet, perform the following steps:

1. Click **Subsystem Characteristics** link displayed below the *Assessment* tab. (Figure 5-1)

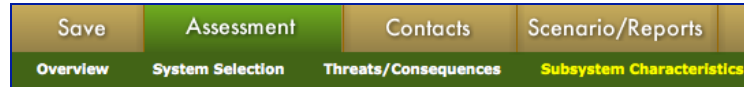


Figure 5-1. Navigational Toolbar

2. Select the **ease of attack** from the dropdown menu. (Figure 5-2) This assessment criterion focuses upon the susceptibility under which an intentional harmful act, intentional economic adulteration, or an attack could be conducted. When considering the ease with which such an intentional attack could be conducted, the probability of such an event, while a consideration, should not be the primary consideration in this step. The focus should be upon the general exposure of the sub-system/component to such an event occurring, the historical precedence of such events in the same geographic area or within that commodity sub-system, and whether the sub-system has been hardened against such attack or protected against the effects of such a disaster. See page 32 for definition of terms.

Note: To view the description for any of the criteria on this worksheet, simply select an option from the applicable dropdown menu. The description will be displayed in the tan box at the bottom of the page, or the white box to the right of the dropdown menus. (Figure 5-2)

3. Select the **probability of disaster** from the dropdown menu. (Figure 5-2) This assessment criterion focuses upon the probability a natural disaster, such as a hurricane, tornado, fire, or major flood, that will affect this sub-system/component directly. See page 33 for definition of terms.

Figure 5-2. Sub-System Characteristics Worksheet

Sub-System Characteristics Worksheet (Continued)

4. Select the **scale/size of component at risk** from the dropdown menu. (Figure 5-2) This assessment criterion focuses upon the magnitude of the sub-system's/component's general footprint that would result from an event. See page 33 for definition of terms.
5. Select the **critical component** from the dropdown menu. (Figure 5-2) This is just a simple "yes" or "no" question. This assessment criterion is provided to enable the users of the assessment tool to specify that the sub-system/component being assessed is designated as critical, based upon its unique characteristics. Critical may reflect a view of the sub-system's/component's impact on state economics, or its importance to the supply chain as a whole. Such a selection will ensure that the sub-system/component involved can be included in any sorting or prioritization of the entries in the "Summary" worksheet.

The following definitions apply to these selections:

- Yes, this is a critical sub-system/component to its commodity chain within our state, or our firm.
 - No, this is not a critical sub-system/component to its commodity chain within our state, or our firm.
6. Select the **return to normalcy** from the dropdown menu. (Figure 5-2) This assessment criterion indicates the maximum amount of time required to recover from an attack or natural disaster. See page 34 for definition of terms.
 7. Select the **concentration** from the dropdown menu. (Figure 5-2) This assessment criterion focuses upon the geographical concentration of the sub-systems/components being assessed, where such concentration would materially add to the impact of any assessed event. See page 34 for definition of terms.
 8. Select the **area** from the dropdown menu. (Figure 5-2) This is an additional descriptive field to help characterize where in the state a sub-system/component is primarily located. If it is dispersed throughout the state, choose statewide. If none of these choices properly capture the primary location of this sub-system/component, such as for a multi-state or intentional firm, please add additional information in the *Comments* field to assist in future FASCAT refinement.
 9. Select the *Comments* box, record specific information about the primary location of the sub-system/component. Describe if there are history of threats or attacks. Provide an explanation for each selection made on this worksheet. (Figure 5-2)
 10. Click **Save** in the upper-left corner. (Figure 5-1)

Other Attributes Worksheet

This worksheet is not required for the assessment, but is being piloted to help understand the product and inputs/ outputs flow of the sub-system being assessed. It captures information about the sources and destinations of food products or ingredients, and the nature of the movement and the time in transit of the food products and/or ingredients into and out of the assessed system.

The selections are self explanatory. These selections do not impact the score or criticality determination, but they do provide proper context for further evaluation of the assessed system(s) to support prioritization decisions, further vulnerability assessments, mitigation and response planning and to aid in DHS evaluations of state data call submissions.

To complete the *Other Attributes* worksheet, perform the following:

- Click **Other Attributes** link displayed below the *Assessment* tab. (Figure 6-1)
- Complete the **Inputs** tab. (Figure 6-2)
- Click **Outputs** to complete that tab. (Figure 6-2)

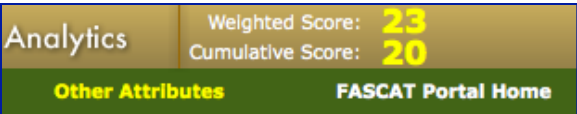


Figure 6-1. Navigational Toolbar

Figure 6-2. Other Attributes Worksheet

- Place any information you would like to share about a product’s input or output flow within the sub-system in the *Comments* field on each tab. At present, any notes placed in the *Comments* field are NOT transferred to the Preamble. Copy and paste comments from these boxes in to the comments box of the *Sub-System Characteristics* worksheet, or in to your IDCA. (Figure 6-2)

Scenario/Reports Tab

Viewing the FASCAT Assessment Detail

This component assembles all of the entries from the FASCAT assessment into a single overview that replicates the final output report of the FASCAT tool. This Assessment detail will enable HITRAC and others reviewing nominations to view all entries made in the FASCAT assessment. It is important to review this data for accuracy to ensure that the assessment final output reflects the intent of the stakeholder subject matter expert contributions to the assessment. For the private sector, this section provides a means to capture key assessment details in an overview useful for planning further vulnerability assessments, mitigation and preventive controls planning, and for documentation purposes.

To view the assessment detail, complete the following steps:

1. Click the **Scenario Reports** tab. (Figure 7-1)

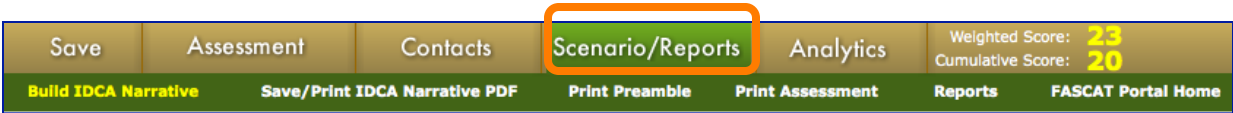


Figure 7-1. Navigational Toolbar

2. Click **View FASCAT Detail**. (Figure 7-2)

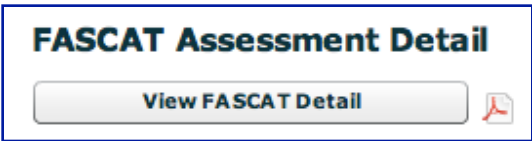


Figure 7-2. FASCAT Assessment Detail

3. An example of a *FASCAT Detail Report* is shown. (Figure 7-3)

Note for State-Level Users: HITRAC staff will be looking at the *Comment* sections closely to ensure that there is narrative support in the FASCAT assessment for all of the Threat, Consequence, Impact, and Characteristic selections that were made in the assessment process. These comments will be included in final reports and in this FASCAT Assessment detail.



Figure 7-3. FASCAT Detail Report

Scenario/Reports Tab (Continued)

Printing the FASCAT Assessment Detail

To print the assessment detail, complete the following steps:

1. Click **Print Assessment** link displayed under the *Scenario Reports* tab. (Figure 7-4)



Figure 7-4. Navigational Toolbar

A Note for State Users on Building the Data Call Report

When the FASCAT process is employed by states, in partnership with private sector representatives, the results can be exported to meet the submission requirements of the US Department of Homeland Security Data Call process.

Analytics Tab

Assessment Analytics

Once the assessment is complete, or after a series of assessments within a supply chain are completed, you may use the *Analytics* tab to access tools to enable review, comparisons, and generation of customized summary reports from the summary results of one or more assessments.

This facilitates evaluation of systems against systems within a supply chain across supply chains. It provides a means to share key assessments results and to aid in prioritizing further system protection efforts, such as vulnerability assessments, development of event mitigation strategies, response and recovery planning, and exercises.

To view *Assessment Summary* reports, complete the following steps:

1. Click the **Analytics** tab. Links are displayed below the tab. (Figure 7-6)
2. Click **Query Tool**. (Figure 7-7)

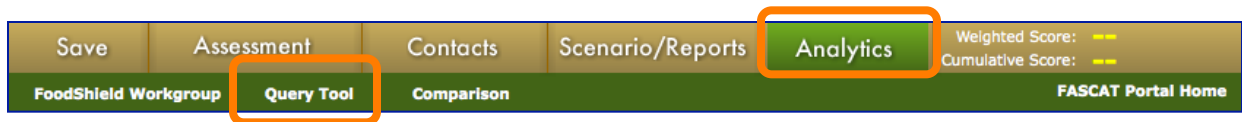


Figure 7-6. Navigational Toolbar

Important Note on the Query Tool

The *Query Tool* and the special analysis/reporting capabilities it offers are still under development for FASCAT 3.0, and will be released in the future. The link to this feature has been disabled until its full deployment. Lack of access to this capability will not effect performance of FASCAT assessments or their formatting for upload into the *IDCA*.

The ability for each state to query the data based on each of the entry fields gives a very granular weigh of viewing, analyzing, comparing and interpreting the data from all assessments. Along with supporting analysis of the data, this information will provide valuable support for modeling a variety of scenarios that can be used in exercises and funding justifications.

Definition of Terms Used

FAD (Foreign Animal Disease)

Is there a potential for the introduction of a foreign animal disease that would impact livestock or poultry associated with this subsystem/component that would pose a significant threat to the commodity supply chain, other animal populations or the human population?

Chemical/Toxin

Is there significant potential for the introduction of a toxin/chemical into the products of or processes within this subsystem/component or any food products stored at this sub-system/component that would pose a significant threat to the commodity supply chain or to a susceptible population?

Intentional Adulteration

Is there potential for the intentional introduction of a dangerous adulterant into the products of or processes within this subsystem/component or any food products stored at this sub-system/component that would pose a significant threat to the commodity supply chain or to a susceptible population?

Destruction

Is there potential for intentional or by natural disaster for the destruction of this sub-system/component or the food products stored at this sub-system/component that would pose a significant threat to the commodity supply chain?

Loss of Operation Rights

Is this sub-system/component of this commodity supply chain susceptible to losing its right to exist due to zoning changes or economics?

Theft

Is there a significant threat for the theft of materials or food products from this sub-system/component which could cause loss of significant nutrient source, morbidity, mortality, or serious economic damages to this commodity supply chain within the state?

Lost Access

Would loss of access to this sub-system/component within the commodity supply chain seriously degrade or cause substantial economic disruption to the operation of the supply chain within the state OR would loss of access to the raw materials or key inputs, as the result, for example, of transportation disruptions, quarantines, etc, render the sub-system/component non-functional and risk either its loss or the disruption of the operation of the supply chain within the state?

Pathogen Contamination

Is there a significant threat for the introduction of pathogens into the products of or processes within sub-system/component or any food products stored at this sub-system/component that would pose a significant threat to the commodity supply chain or to a susceptible population?

Production/Processing Disruption

Could an attack or natural disaster event that disrupted production/processing within this sub-system/component result in an advisory that could severely impact or shut down the industry as a whole or; are the interdependencies and lack of resiliency of this Sub-System such that either up-stream production or downstream processing disruptions would significantly disrupt the ability of this Sub-System to operate.

Drought

While weather related issues are a part of routine operations and not a homeland security focus, certain climate changes in a region or state are forcing significant policy changes relative to use of water and irrigation that will require mitigation strategies to offset threats to the Food and Agriculture critical infrastructure. Is this a significant threat that needs to be accounted for in this evaluation?

Plant Disease

While management of plant disease issues are a part of routine agriculture operations and not a homeland security focus, certain plant diseases may be forcing significant policy changes relative to use of chemicals or other mitigation strategies to offset threats to this sub-system within a state's Food and Agriculture critical infrastructure. Is this a significant threat that needs to be accounted for in this evaluation?

Plant Pest

While management of plant pest issues are a part of routine agriculture operations and not a homeland security focus, certain established pests may be forcing significant policy changes relative to use chemicals or other mitigation strategies to offset threats to the Food and Agriculture critical infrastructure. Is this a significant threat that needs to be accounted for in this evaluation?

Food Pathogens Vegetables

While we have a category for pathogens, the vegetable industry noted that events related to food borne pathogens have been so destructive to their industry that the industry itself has not recovered from events of several years back. They therefore felt the assigned score needed to be higher than the value specified for pathogens that might be encountered in other systems. Other states have shared this view so it was left as a choice. Picking this threat however should be a "one or the other" selection (i.e. pathogen contamination OR food pathogens vegetable). You should not choose both potential threats. Is this a potential threat that needs to be considered?

Radiological Contamination

Some sub-systems are in the 50 mile ingestion pathway of a nuclear power plant and must account for the threat of a disaster occurring because of this unique relationship without statewide resiliency to offset negative impacts. Is this a significant threat for this sub-system/component?

Exotic Plant Pest/Disease

Is there an exotic pest/disease that is on the radar screen that is posing a significant threat to this sub-system/component on the order of the threat level that a FAD poses for the animal industry nationwide?

Misinformation/Public Messaging

Some states felt that the communication and coordination of information during an event had the ability to ruin or greatly impact whole industries and must be viewed as a real threat that must be accounted for and mitigation strategies developed. Management of information relative to the tomato/jalapeno salmonella outbreak is an example of this concern. Should this be considered a significant threat to this sub-system/component?

Cyber Threat

Food and Agriculture Sector asset owners and operators have gained immediate benefits by extending the connectivity of their industrial control systems. However, this connectivity exposes network assets to cyber infiltration and subsequent manipulation of sensitive operations. Furthermore, increasingly sophisticated cyber attack tools can exploit vulnerabilities in commercial industrial control system components, telecommunication methods, and common operating systems found in modern industrial control systems. The threat can take many forms. The two most common are (1) the theft of, obstruction of access to or destruction of data stored on these systems; and (2) The threat to a cyber based control system where a person(s) attempts unauthorized access to a control system device and/or network using a data communications pathway with the intent of influencing the functioning of that control, disabling it or preventing authorized access to it.

Economically Motivated Adulteration (EMA) Threat

EMA is the intentional adulteration of a product for the purpose of criminal financial gain. It is not intended to cause public health harm or create casualties. It is a criminal act designed to evade quality assurance processes and bypass government inspection and surveillance systems to place into commerce an adulterated product that may be consumed by a human or animal population.

Short Term System Shut Down

60-90 day sub-system/component shutdown.

Long Term System Shut Down

A greater than 90 day period of sub-system/component shutdown.

Loss of Key Input

Could these threats result in the sub-system/component being unable to receive essential materials required for production?

Loss of Key Output

Though technically able to re-open, would the threat result in the sub-system/component being unable to produce its primary product?

Loss of Access to Customer(s)

Could these threats result in the sub-system's/component's customers being unable to access the site to conduct normal business operations?

Loss of Plant/Breed Stock

Could these threats result in the death or contamination of livestock or poultry used for breeding purposes OR for plant stock essential for continued operations?

Loss/Contamination of Herd/Flock

Could these threats result in the loss or contamination of herds or flocks of animals residing or housed within the subsystem/component?

Mass Casualty - Human

Could these threats result in the death, injury or sickness of numerous (100's or more) people either within the sub-system/component or who make up customers for the products of this sub-system/component within this system?

Mass Casualty - Animal

Could these threats result in the death, injury or sickness of numerous (100's or more) people either within the sub-system/component or who make up customers for the products of this sub-system/component within this system?

Product Shortage

This choice is different than "loss of key of output" in that it accounts for the significant role this component may have to the industry as a whole that may lead to customer product shortages as a result of loss or compromise of this sub-system/component. Could these threats result in product shortages that would severely compromise this supply chain?

Reduced Output

This choice is also different than "key loss of output" in that it accounts for the significant role this component may have to the industry as a whole. Could these threats result in a consequence of reduced output significant enough to result in severe compromise of the supply chain.

Brand Damage

Could these threats result in the sub-system/component or industry suffering actual brand damage?

Loss of Tourism

Could these threats result in the sub-system/component or industry being impacted in a way that would significantly impact tourism to the state or geographic area being impacted?

Loss of Capital

Could these threats result in the sub-system/component having a loss of operating capital as a whole due to cash flow interruption or other economic circumstances?

Credit Access

Could these threats result in sub-system/component having a loss of credit access?

Cost of Response

Could these threats result in a significant cost of response for the sub-system/component or industry that is impacted?

Loss of Seed Source

Could these threats result in a loss of seed source for the sub-system/component that is impacted?

Economic Loss

Could these threats result in significant economic loss for this sub-system/component or create severe economic consequences for other components or customers for the products of this sub-system/component within this system?

Damage to Customers

Would the first order consequences result in customers not having access to products from this sub-system/component or the sub-system/component being unable to move food products for distribution to consumers?

Disease Spread to Others

Could the first order consequences create the potential for the spread of a disease (for example “Foot and Mouth”) to the areas near or potentially connected to the sub-system/component (by means of the transportation system of via product or animal movements)?

Loss of Market Access

Would there be a loss of market access?

Damage to Tax Base

If this sub-system/component is a major employer and/or a significant source of tax revenue within its area, would jobs and tax revenue be lost as result of the first order consequences resulting in a serious financial hardship for the locality or the state?

Government Costs to Respond

Would government response to first order consequences of an attack or disaster upon this facility require extensive resources?

Loss of Access to Insurance

Would the first order consequences of an attack or disaster impacting this sub-system/component result in a loss of access to continuing business and liability insurance coverage?

Loss of Public Confidence

Would the first order consequences of an attack or disaster upon this sub-system/component cause a decrease in the public’s confidence in the safety and well being of this commodity within the state’s food supply system?

< 1 Year to Recover

The sub-system affected will require less than one year to recover and return to full operation.

Limited to One State

The consequences from the perceived attack or disaster would be limited to just this subsystem/component within the state without major impact on the commodity supply chain or state's economy.

< 5 States Impacted

The consequences from the perceived attack or disaster would impact a geographical area within the state and/three or fewer other states and would have a major impact upon the system, the state's economy or public health.

10,000 Casualties

The consequences of this event will result in 10,000 or more casualties within one year.

>1 Year to Recover

The sub-system affected will require one year or more to recover and return to full operation.

> 5 States Impacted

The consequences from the perceived attack or disaster would impact a large geographical area within the state, and impact four or more other states and produce significant loss of life and/or result in major damage to the system, those state's economies or overall public health.

Loss of Supply

Could the consequences from the perceived attack or disaster on this sub-system/component result in a significant loss of a key commodity/product of the supply chain within the state?

Loss of Sub-System/Component

Could the consequences from the perceived attack or disaster result in the loss of this sub-system/component (render it unrecoverable) within the commodity supply chain in this state?

Sub-System Category

Once the assessments have been completed for each topical area, a *Category* designation will be automatically selected. The tool provides four possible selections: Category 1, Category 2, Category 3 or Category 4.

Category 1

This category is selected if the assessment includes all three of the special criteria established for Food and Agriculture Sub-Systems to qualify as Level Two CIKR. These Criteria are identified as selections in the in the Impact section and identify the following:

- Impact will be in five or more states, and;
- Human casualties will be 10,000 or more, and;
- Recovery will be longer than one year

These special criteria help identify critical sub-systems/components that would, in the judgment of those completing the assessment, have a very significant national impact to include very substantial loss of life or hospitalizations, very substantial impact on the nation's economy, and take a very long period, if even possible, to recover from the event.

Category 2

This category will be selected when at least two of the above criteria were selected in the Impacts section of the assessment. Again this shows an ability to have either and/or significant impacts on public health economic impacts and the ability to recover from the impacting event. A minimum of two of the special criteria for the Food and Agriculture Sector are required for qualifying as a Level 2, Nationally significant Critical Infrastructure.

Category 3

This category will be selected when at least one of the above special criteria were selected in the Impacts section of the assessment. Should be reserved for those sub-systems/components that would, in the judgment of those completing the assessment, have a significant loss of livestock and/or human life and or significant economic impact and time to recovery. While not meeting the minimum of at least 2 of the special criteria for Food and Agriculture, this category still shows a capability of having a significant impact to a region or state and should be addressed in the state's Homeland Security Strategy.

Category 4

This category will be selected when none of the above 3 special criteria were met. This does not imply that these Sub-Systems/Components do not represent a vulnerability but, these components are not as critical to a state, region or the nation in terms of potential risk.

Notes on the Scoring Process that Determines Criticality Ranking

Scoring processes are embedded in the assessment code and are employed in order to assist in sorting and prioritizing the results of the assessments as captured on the *Threats/Consequences* worksheet. There are two types of scores produced during the assessment process. The first score is the raw cumulative score that results from the selections made under each of the topical areas described above.

An additional scoring factor is considered where an assessed sub-system/component is auto-designated as Category 1, 2, 3 or 4. If such a category designation is made, a weighted score is generated so that those entries in the "Summary" worksheet that are so designated can be sorted and prioritized for generating lists by category for reporting under DHS or state level data calls for information on critical infrastructure components. The categories, defined below, are for the users and are not meant to imply a specific set of DHS category criteria.

Ease of Attack

The following guidance should assist in these evaluations:

Hard

Less than 30% chance – meaning there is no history of such an event or indication of threat to this sub-system/component in the last 10 years.

Medium

30-50% chance - meaning there is a history of intentional events impacting the sub-system, such as economically motivated adulteration or insider/disgruntled employee events in the past five years; or there was intelligence indicating that an attack had been contemplated in the last 2 years.

Easy

More than 50% chance - meaning that there is both a history of intentional events impacting the sub-systems and there have been either recent threats of events targeting this sub-system or there have been recent actual intentional events targeting this sub-system or similar sub-systems in the state or in other states. Examples to consider are eco-terrorist attacks, animal rights group attacks, threats received by unknown groups or threats ascertained by national or state level law enforcement or homeland security organizations that suggest this component of the infrastructure might be targeted at some point in the future; or natural disasters have occurred with a frequency of more than twice in the past 2 years or for which there is a strong expectation of an such occurrence in the next 2 years.

Probability of Disaster

The following guidance should assist in these evaluations:

Low

Less than 30% chance – meaning there is no history of such an event or indication of natural disaster or high consequence accidents which might threaten this sub-system/component in the last 10 years.

Medium

30-50% chance - meaning there is a history of natural disasters or accidental events impacting the sub-system in the past five years; or a natural disaster has occurred at least once in the state or to that organization in the last 5 years; or a natural disaster has been forecasted in the last 2 years.

High

More than 50% chance - meaning that there is a recent history of disasters and/or accidents, the sub-system is located in or near an area where disasters, such as hurricanes, tornados, major forest fires, etc., are common, or where natural disasters have occurred with a frequency of more than twice in the past 2 years or for which there is a strong expectation of such an occurrence in the next 2 years.

Scale/Size of Component at Risk

The following guidance should assist in these evaluations:

Small

Products are consumed throughout a county.

Mid-Size

Products are consumed throughout 2-5 counties.

Large

Products are consumed throughout more than 6 counties but not state-wide.

Very Large

Products are consumed state-wide.

Less Than 5 States

Products are consumed in greater than 1 state but less than 5 states.

Greater Than 5 States

Products are consumed in more than 5 states, but less than 50% of the states.

National

Products are consumed throughout the nation (greater than 50% of the states).

International

Products are exported to foreign countries.

Recovery / Return to Normalcy

The following definitions apply to these selections:

< 3 Months

It would take less than 3 months for this sub-system/component to recover from an event.

< 6 Months

It would take less than 6 months for this sub-system/component to recover from an event.

<12 Months

It would take less than 12 months for this sub-system/component to recover from an event.

>12 Months

It would take greater than 12 months for this sub-system/component to recover from an event.

Not Probable

It is not likely that this sub-system/component would recover from an event and would probably be lost to the state and not replaced. This can occur for a variety of reasons but a driving factor in Agriculture is the high value of land. When a sub-system/component reliant on land is out of use for a sufficient period, the land is often converted for other agricultural uses or may, because of zoning changes, be converted for non-agriculture applications such as homes and business properties.

Concentration

The following definitions apply to the selections for concentration:

Highly Concentrated

The sub-system/component is concentrated in one area of the state.

Moderately Concentrated

The sub-system/component is distributed across 1/2 to 1/3 of the state.

Dispersed Within a Region

The sub-system/component is distributed across a cluster of counties in one region of the state.

Widely Dispersed

The sub-system/component is widely distributed across the state.

Common Questions

The following are some commonly asked questions from piloting of the Criticality Tool that may be of use:

Q: Does a state have to enter data on every system, element, and facility in the state?

A: No. It is anticipated that states will initially focus on the areas they believe to be most critical, with additional data added each year. However, it is expected that multiple systems/sub-systems within a commodity supply chain will be assessed.

Q: Is use of the Criticality Tool mandatory?

A: No. However, using it to capture what is critical within a state will simplify and standardized documentation of the Food and Agriculture infrastructure, it will aid in protection, mitigation and response planning, and it will potentially position the critical elements for future funding.

Q: Who should complete the Criticality Assessment?

A: While there needs to be one specific point of contact within a state for the state's submission for the Call and for use in the Assessment Results in infrastructure protection planning, the "owner" for the criticality will be state specific. To provide the most useful input and data, a combination of multiple state agency experts and private sector representatives is suggested.

Q: Will the results from this be used to competitively award DHS funding between states?

A: At this point in time the amount of funding made available to the states via DHS's primary granting mechanisms is determined by legislative action. These results would be useful in assisting a state in justifying expending some portion of those funds for the Food and Agriculture infrastructure.

Threat – Consequence Threads

Based upon the results of the 2009 assessments collected from 26 states, the FASCAT Development Team has produced example “threads” to assist in selections when completing an assessment. These are provided as a guide only and are based upon the averaging of selections made by the states completing the form for past assessments. It is not meant to be the intended selections, only a guide to making selections from the larger lists. Each state, locale and situation will be different and will influence what is actually selected during your assessment.

Threat	Consequence	2nd - 3rd Order Impact
Foreign Animal Disease (FAD)	Long Term System Shut Down	
	Loss of Key Input	
	Loss of Key Output	
	Loss of Access to Customer(s)	
	Loss/Contamination of Breed Stock/Plant Stock	Damage to Customers
	Loss/Contamination of Herd/Flock	Disease Spread to Others
	Mass Casualty - Animal	Loss of Market Access
	Economic Loss	Damage to Tax Base
	Product Shortage	Government Cost to Respond
	Reduced Output	Loss of Access to Insurance
	Loss of Tourism	Loss of Public Confidence
	Loss of Capitol	
	Credit Access	
	Cost of Response	

Threat	Consequence	2nd - 3rd Order Impact
Chemical / Toxin	Short Term System Shut Down	
	Loss of Key Input	
	Loss of Key Output	
	Loss of Access to Customer(s)	Damage to Customers
	Mass Casualty - Human	Loss of Market Access
	Economic Loss	Damage to Tax Base
	Product Shortage	Government Cost to Respond
	Reduced Output	Loss of Access to Insurance
	Brand Damage	Loss of Public Confidence
	Loss of Capitol	
	Credit Access	
	Cost of Response	
Intentional Adulteration	Short Term System Shut Down	
	Loss of Key Input	
	Loss of Key Output	
	Loss of Access to Customer(s)	Damage to Customers
	Mass Casualty	Loss of Market Access
	Economic Loss	Damage to Tax Base
	Product Shortage	Government Cost to Respond
	Reduced Output	Loss of Access to Insurance
	Brand Damage	Loss of Public Confidence
	Loss of Capitol	
	Credit Access	
	Cost of Response	

Threat	Consequence	2nd - 3rd Order Impact
Destruction	<ul style="list-style-type: none"> Long Term System Shut Down Loss of Key Input Loss of Key Output Loss of Access to Customer(s) Economic Loss Product Shortage Reduced Output Brand Damage Loss of Capital Credit Access Cost of Response 	<ul style="list-style-type: none"> Damage to Customers Loss of Market Access Damage to Tax Base Government Cost to Respond Loss of Access to Insurance
Loss of Operation Rights	<ul style="list-style-type: none"> Long Term System Shut Down Loss of Key Input Loss of Key Output Loss of Access to Customer(s) Economic Loss Product Shortage Reduced Output Brand Damage Loss of Capital Credit Access 	<ul style="list-style-type: none"> Damage to Customers Loss of Market Access Damage to Tax Base Government Cost to Respond Loss of Access to Insurance

Threat	Consequence	2nd - 3rd Order Impact
Theft	Short Term System Shut Down Loss of Key Input Loss of Key Output Loss of Access to Customer(s) Economic Loss Product Shortage Reduced Output Loss of Capital Credit Access	Loss of Market Access
Lost Access	Short Term System Shut Down Loss of Key Input Loss of Key Output Loss of Access to Customer(s) Economic Loss Product Shortage Reduced Output Loss of Capital Credit Access Cost Response	Loss of Market Access

Threat	Consequence	2nd - 3rd Order Impact
Pathogen Contamination	Short Term System Shut Down Loss of Key Input Loss of Key Output Loss of Access to Customer(s) Mass Casualty - Human Economic Loss Product Shortage Reduced Output Brand Damage Loss of Capitol Credit Access Cost of Response	Damage to Customers Disease Spread to Others Loss of Market Access Damage to Tax Base Government Cost to Respond Loss of Access to Insurance Loss of Public Confidence
Production/Processing Disruption	Short Term System Shut Down Loss of Key Input Loss of Key Output Loss of Access to Customer(s) Economic Loss Product Shortage Reduced Output Brand Damage Loss of Capitol Credit Access	Loss of Market Access Damage to Tax Base Loss of Access to Insurance

Threat	Consequence	2nd - 3rd Order Impact
Drought	Short Term System Shut Down	Loss of Market Access Damage to Tax Base Government Cost to Respond
	Loss of Key Input	
	Loss of Key Output	
	Loss of Access to Customer(s)	
	Economic Loss	
	Product Shortage	
	Reduced Output	
	Brand Damage	
	Loss of Capitol	
	Credit Access	
Plant Disease	Short Term System Shut Down	Damage to Customers Disease Spread to Others Loss of Market Access Damage to Tax Base Government Cost to Respond Loss of Access to Insurance Loss of Public Confidence
	Loss of Key Input	
	Loss of Key Output	
	Loss of Access to Customer(s)	
	Loss/Contamination of Breed Stock / Plant Stock	
	Mass Casualty - Human	
	Economic Loss	
	Product Shortage	
	Reduced Output	
	Brand Damage	
	Loss of Capitol	
	Credit Access	
	Cost of Response	
	Loss of Seed Source	

Threat	Consequence	2nd - 3rd Order Impact
Plant Pests	Short Term System Shut Down	Damage to Customers Disease Spread to Others Loss of Market Access Damage to Tax Base Government Cost to Respond Loss of Access to Insurance Loss of Public Confidence
	Loss of Key Input	
	Loss of Key Output	
	Loss of Access to Customer(s)	
	Loss/Contamination of Breed Stock / Plant Stock	
	Economic Loss	
	Product Shortage	
	Reduced Output	
	Brand Damage	
	Loss of Capital	
	Credit Access	
	Cost of Response	
	Loss of Seed Source	
Misinformation / Public Messaging	Short Term System Shut Down	Damage to Customers Loss of Market Access Damage to Tax Base Loss of Public Confidence
	Loss of Key Input	
	Loss of Key Output	
	Loss of Access to Customer(s)	
	Economic Loss	
	Brand Damage	
	Loss of Capital	
	Credit Access	
	Cost of Response	

Threat	Consequence	2nd - 3rd Order Impact
Radiological Contamination	Long Term System Shut Down	
	Loss of Key Input	
	Loss of Key Output	
	Loss of Access to Customer(s)	
	Loss/Contamination of Breed Stock / Plant Stock	
	Mass Casualty - Human	Damage to Customers
	Mass Casualty - Animal	Loss of Market Access
	Economic Loss	Damage to Tax Base
	Product Shortage	Government Cost to Respond
	Reduced Output	Loss of Access to Insurance
	Brand Damage	Loss of Public Confidence
	Loss of Tourism	
	Loss of Capitol	
	Credit Access	
	Cost of Response	
	Loss of Seed Source	

Additional Resources

All of this documentation, additional references and links to other resources can be found at <http://www.foodshield.org/criticality>. If you encounter any technical difficulties with the tool itself, please either use the “submit issue” link at the above website, or email your technical issue to ncfpd@umn.edu. All other questions should be directed to federal sector-specific agency contacts for the Food and Agriculture system, element or component. FDA-CFSAN, USDA-FSIS, and USDA-APHIS representatives are leading the outreach efforts on the use of this tool for their regulated items.

Commodity Flow Charts

The Criticality Tool includes a set of Food and Agriculture representative systems flow charts. These are representative of some of the major Food and Agriculture commodity systems, but not an exhaustive list. These can be used to simplify data input by selecting those of interest, serve as the primary evaluation effort for certain commodity systems within a state, or as examples to create other commodity systems, sub-systems or components.