NAADSM

Spread Model Application

Experience Design Brief

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Design Goals
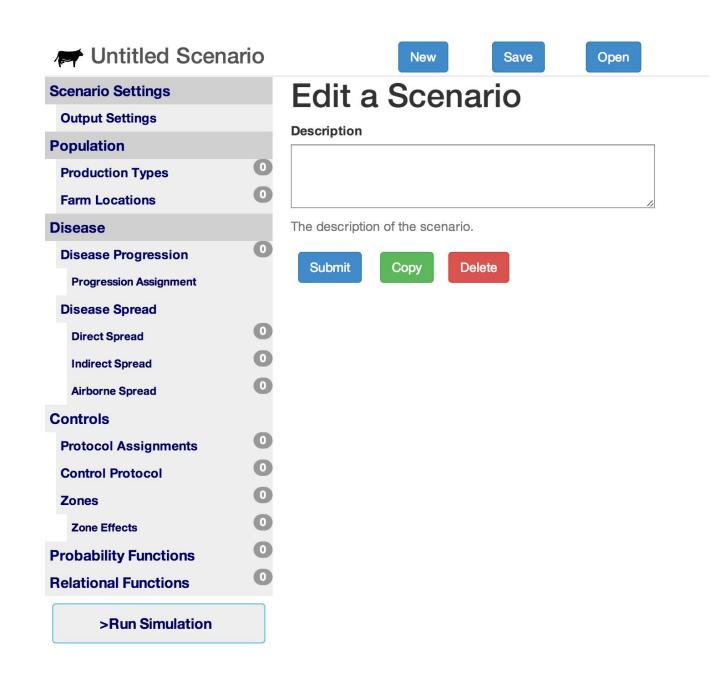
Minimize the amount of states a user has to navigate through for each section. (minimal pop-ups, etc)

Establish a basic user interface consistent with modern application and website navigation themes.

Structure visual elements for intuitive use among new, existing, and out of country users.

Target Audience: Veterinarians and Epidemiologists. (Educated in this field)

Cleaning up the user interface will allow for quick, intuitive navigation throughout the program. Goals would include the following:
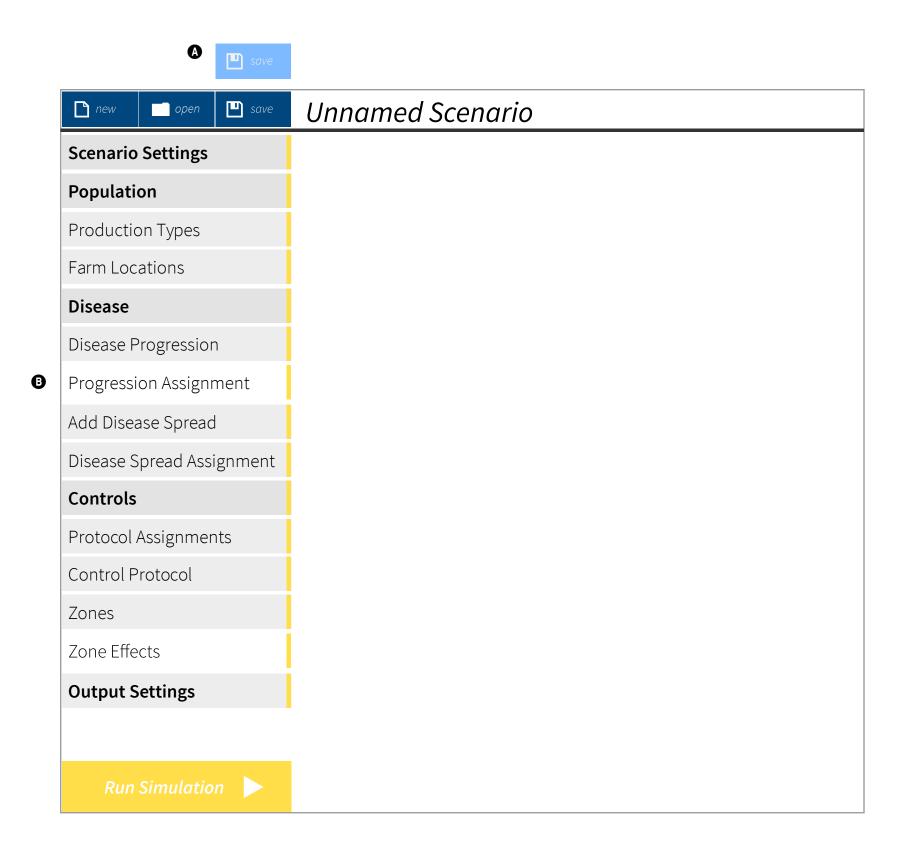
- Adding a visual system for progress tracking
- Arranging elements within the application for unobtrusive, yet intuitive placement.
- Introducing simple icons where needed to introduce a familiar visual for new, foreign, and existing users.

User Interface // Elements and Icons
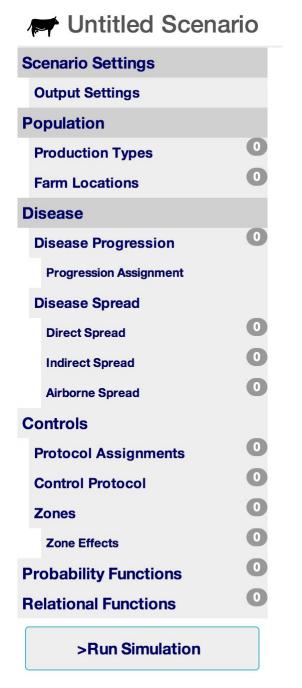
A Save button would appear with lighter background, indicating unsaved changes to the scenario

A 💾 *save*

🗋 *new*	🗀 *open*	💾 *save*	*Unnamed Scenario*

Scenario Settings

Population

Production Types

Farm Locations

Disease

Disease Progression

B Progression Assignment

Add Disease Spread

Disease Spread Assignment

Controls

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Run Simulation ▶

B Rearrangement of header elements allows for tabbed browsing in the future, in addition to visually organizing the space.

White elements on the left navigation bar would normally be accordioned in, showing when the user clicks the button above it. (ie, Disease Progression and Zones)

Untitled Scenario

Scenario Settings
Output Settings
Population
Production Types — 0
Farm Locations — 0
Disease
Disease Progression — 0
Progression Assignment
Disease Spread
Direct Spread — 0
Indirect Spread — 0
Airborne Spread — 0
Controls
Protocol Assignments — 0
Control Protocol — 0
Zones — 0
Zone Effects — 0
Probability Functions — 0
Relational Functions — 0

> Run Simulation

Scenario Settings
Population
Production Types
Farm Locations
Disease
Disease Progression
Progression Assignment
Add Disease Spread
Disease Spread Assignment
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Disease Spread Assignment
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Zone Effects
Output Settings

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Experience Design // Progress Tracking

Untitled Scenario

Scenario Settings	
Output Settings	
Population	
Production Types	0
Farm Locations	0
Disease	
Disease Progression	0
Progression Assignment	
Disease Spread	
Direct Spread	0
Indirect Spread	0
Airborne Spread	0
Controls	
Protocol Assignments	0
Control Protocol	0
Zones	0
Zone Effects	0
Probability Functions	0
Relational Functions	0

>Run Simulation

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Farm Locations

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Progression Assignment

Add Disease Spread

Disease Spread Assignment

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Control Protocol

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Zone Effects

Output Settings

Run Simulation ▶

Ⓐ

Controls Ⓑ

Protocol Assignments

Control Protocol

Zones

Zone Effects

Output Settings Ⓒ

Run Simulation ▶

Ⓐ "all green" lets the user Run Simulation

Having a visual representaiton for accomplishment adds another layer of reason for the task at hand. Simply put "I must make all the task bars green" eases the user into the many steps she will need to take to actually get a simulation running.

Conversely, it must be easy for the user to validate exceptions to avoid frustrations. (Ex: Disable all controls, which should mark the "Controls" section as green.)
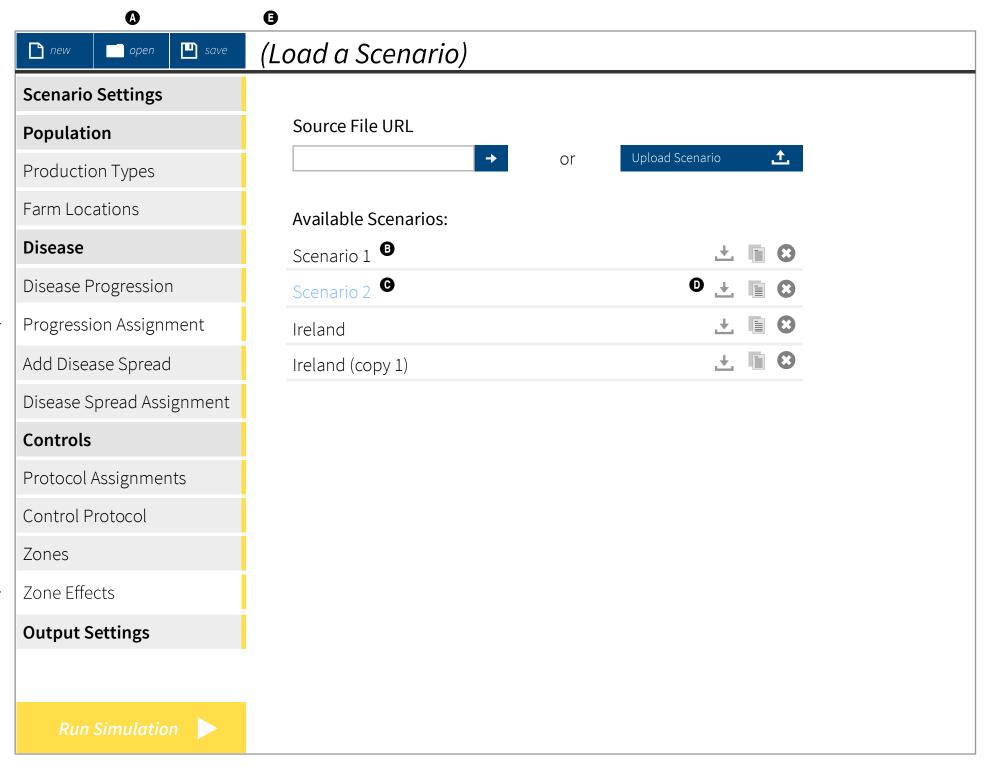
Ⓑ User selection is indicated by a darker button color

Ⓒ Output Settings is now the last thing users will interact with before reaching the "all green" status.

Ⓐ **Ⓔ**

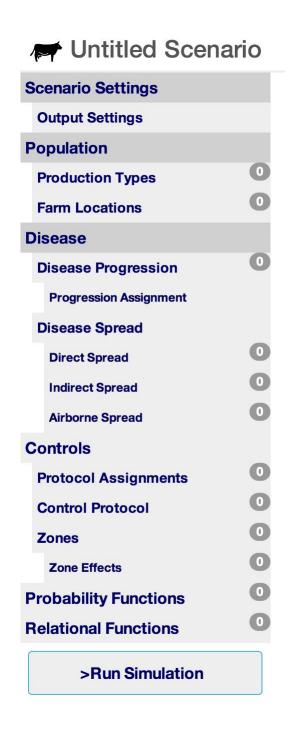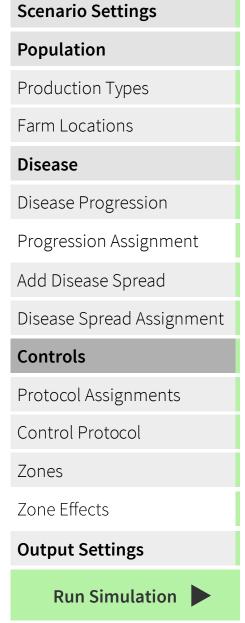| 🗎 new | 🗀 open | 💾 save | *(Load a Scenario)* |

Scenario Settings

Population

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Farm Locations

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Add Disease Spread

Disease Spread Assignment

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Output Settings

Run Simulation ▶

Source File URL

[ ] **→**   or   Upload Scenario ⬆

Available Scenarios:

Scenario 1 **Ⓑ**   ⬇ 🗐 ⊗

Scenario 2 **Ⓒ**   **Ⓓ** ⬇ 🗐 ⊗

Ireland   ⬇ 🗐 ⊗

Ireland (copy 1)   ⬇ 🗐 ⊗

Ⓐ User has selected "open" at top left.
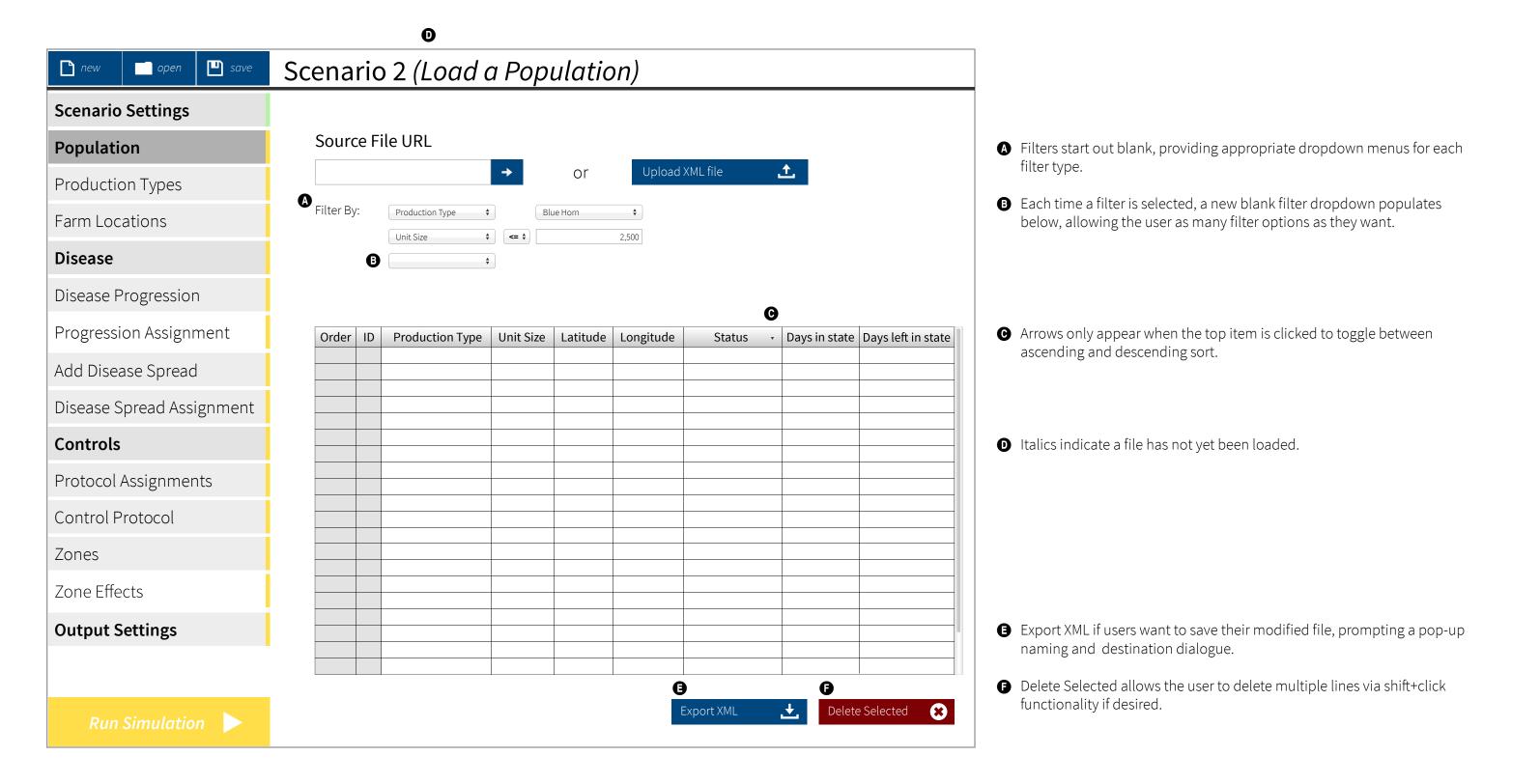
Ⓑ Confirming a source file URL or uploading ascenario file will place the hyperlink in the "Available Scenarios" table.

Ⓒ Hyperlink will appear in light blue whenhovered over. Following that, the user has access to three options:
- download file (.csv format, etc)
Ⓓ - duplicate file (adding # after name)
- delete file, prompting a confirm

Ⓔ Italicized title indicates a file has not been loaded yet

D

new	open	save	Scenario 2 *(Load a Population)*

Scenario Settings

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Progression Assignment

Add Disease Spread

Disease Spread Assignment

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Output Settings

Run Simulation ▶

Source File URL

| | ➡ | or | Upload XML file ⬆ |

A Filter By:

| Production Type | | Blue Horn |
| Unit Size | <= | 2,500 |

B [ ]

C

Order	ID	Production Type	Unit Size	Latitude	Longitude	Status ▾	Days in state	Days left in state

E Export XML ⬇   **F** Delete Selected ✖

A Filters start out blank, providing appropriate dropdown menus for each filter type.

B Each time a filter is selected, a new blank filter dropdown populates below, allowing the user as many filter options as they want.

C Arrows only appear when the top item is clicked to toggle between ascending and descending sort.

D Italics indicate a file has not yet been loaded.

E Export XML if users want to save their modified file, prompting a pop-up naming and destination dialogue.

F Delete Selected allows the user to delete multiple lines via shift+click functionality if desired.

Experience Design // Disease Spread

new	open	save	Scenario 2

Scenario Settings

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Disease

Disease Progression

Progression Assignment

Add Disease Spread

Disease Spread Assignment

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Run Simulation ▶

Create and Edit Disease Spreads

Foot and Mouth Disease Spread

Direct Spread ⌃ **D**

+ *New Direct Spread* **C**

Dairy Cattle Large **A**   **B**

Dairy Cattle Large (Copy 1)

Dairy Cattle Small

Indirect Spread ⌃ **D**

+ *New Indirect Spread*

Airborne Spread ⌄ **D**

A Hyperlink will appear in light blue when hovered over. Following that, the user has access to two options:

B
- duplicate the file for small changes, (adding # after name)
- delete spread, prompting a confirm

C Clicking on "+ New Direct Spread" or any hyperlinked text in the dropdown bars will open the Spread Creator window that currently exists.

D Spreads can be collapsed and hidden or revealed by clicking on the bar.

How does Disease spread from one Production Type to another?

Source production type	Destination production type	Direct contact spread	Indirect contact spread	Airborne spread
Select All Deselect All	Select All Deselect All	**C** Bulk contact spread ⇕ Apply	Bulk Indirect spread ⇕ Apply	Bulk Airborne spread ⇕ Apply
A Free Range Cows	**B** Free Range Cows	Direct Spread 1 ⇕	Indirect Spread 1 ⇕	Airborne Spread 1 ⇕
Dairy Cows	Dairy Cows	Direct Spread 1 ⇕	Indirect Spread 1 ⇕	Airborne Spread 1 ⇕
Angus Cattle	Angus Cattle	Direct Spread 1 ⇕	Indirect Spread 1 ⇕	Airborne Spread 1 ⇕
Blue Horn	Blue Horn	Direct Spread 1 ⇕	Indirect Spread 1 ⇕	Airborne Spread 1 ⇕

Cows ⇕	Cows ⇕	--------- ⇕ ➕ Add	--------- ⇕ ➕ Add	--------- ⇕ ➕ Add
Cow2 ⇕	Cow2 ⇕	--------- ⇕ ➕ Add	--------- ⇕ ➕ Add	--------- ⇕ ➕ Add

Submit

Old Method

A Click Source Production type(s) to toggle selection of multiple types

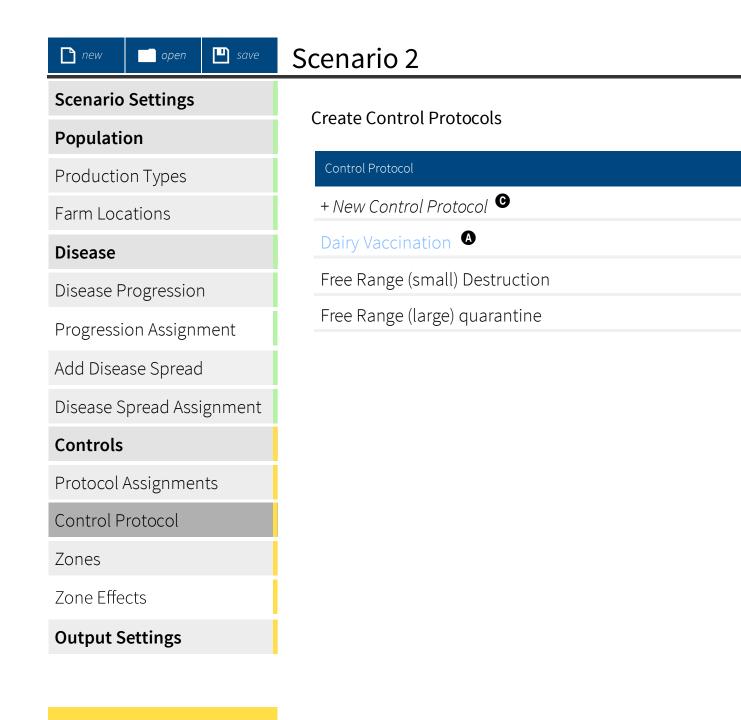**B** Click Destination Production type(s) to toggle selection of multiple types

This method controls the amount of information shown, serving as a filter and a transaction point.

C Bulk apply will have a dropdown for a new contact rate, but will otherwise assign the contact rate to the selected production types.

Users will still be able to create a new Disease Spread from the dropdown.
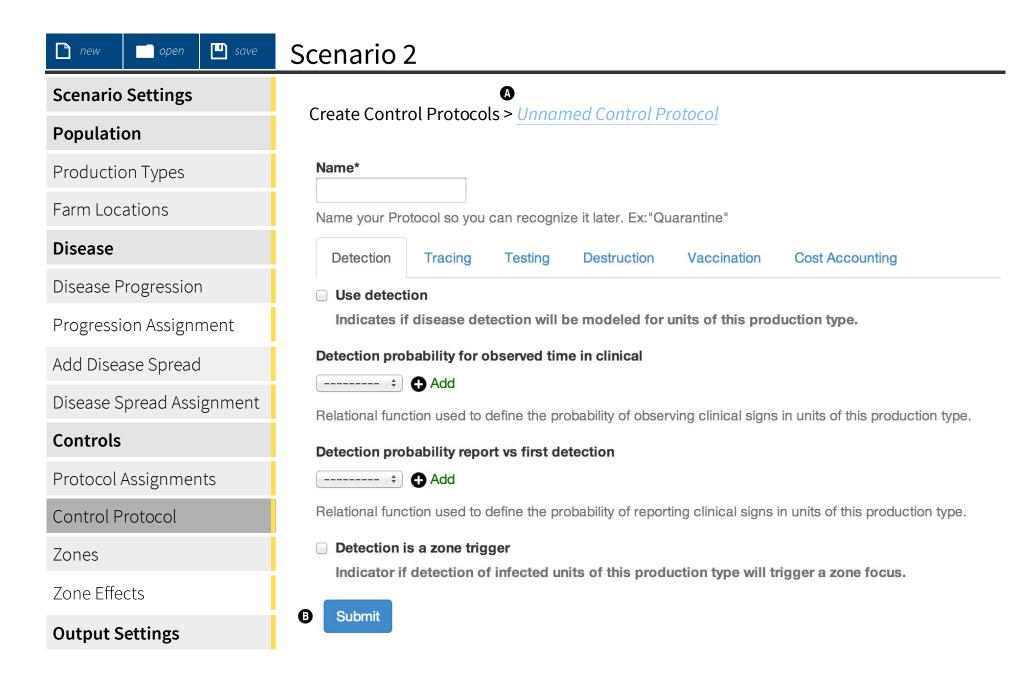
Experience Design // Add Control Protocols

new	open	save	Scenario 2

Scenario Settings

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Farm Locations

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Disease Progression

Progression Assignment

Add Disease Spread

Disease Spread Assignment

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Run Simulation ▶

Create Control Protocols

Control Protocol	⌃

+ *New Control Protocol* **C**

Dairy Vaccination **A**   **B** 🗐 ✖

Free Range (small) Destruction   🗐 ✖

Free Range (large) quarantine   🗐 ✖

A Hyperlink will appear in light blue when hovered over. Following that, the user has access to two options:

B
- duplicate the file for small changes, (adding # after name)
- delete control, prompting a confirm

C Clicking on "+ New Control Protocol" or any hyperlinked text in the dropdown bars will open the Spread Creator window that currently exists.

See pg. 13 for an alternative method.

Experience Design // Add Control Protocols

new	open	save	Scenario 2

Scenario Settings

Population

Production Types

Farm Locations

Disease

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Disease Spread Assignment

Controls

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Control Protocol

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Run Simulation ▶

Ⓐ

Create Control Protocols > *Unnamed Control Protocol*

Name*

[   ]

Name your Protocol so you can recognize it later. Ex:"Quarantine"

| Detection | Tracing | Testing | Destruction | Vaccination | Cost Accounting |

☐ **Use detection**

 Indicates if disease detection will be modeled for units of this production type.

Detection probability for observed time in clinical

[--------- ‡] ➕ Add

Relational function used to define the probability of observing clinical signs in units of this production type.

Detection probability report vs first detection

[--------- ‡] ➕ Add

Relational function used to define the probability of reporting clinical signs in units of this production type.

☐ **Detection is a zone trigger**

 Indicator if detection of infected units of this production type will trigger a zone focus.
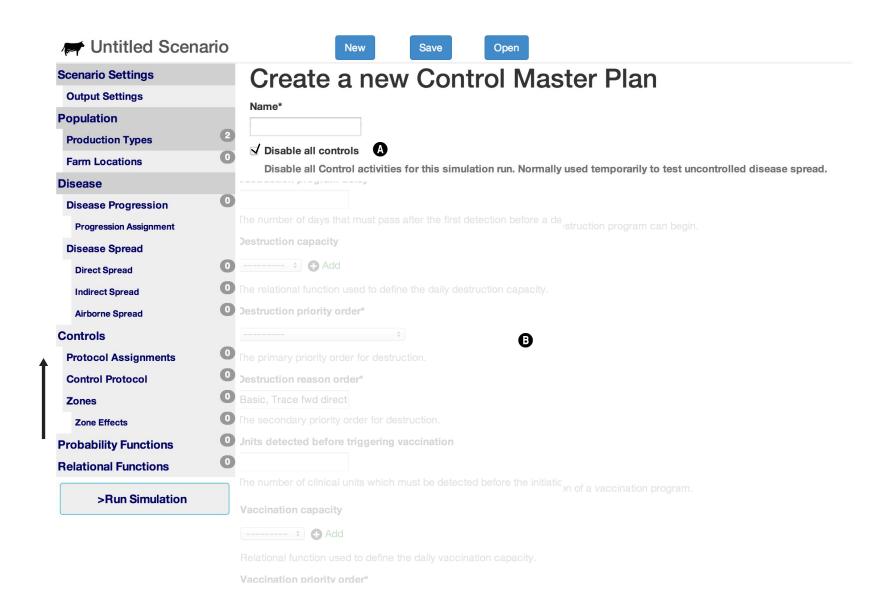
Ⓑ [Submit]

With this method, hyperlinks are nested withinthe main screen. Clicking on "new" or existing control protocols will slide or fade out the list screen and the user will be able to edit or create the protocol without encountering a pop-up.

Ⓐ Hyperlinks can still navigate the user back to the original screen, prompting a warning if the user has unsaved changes.

Ⓑ Clicking on the "Submit" button will bring the user back to the Control Protocol main screen, where they can select their newly created protocol, or create a new one.

Experience Design // Quality of Life Improvements

🐄 **Untitled Scenario**

[New] [Save] [Open]

Create a new Control Master Plan

Name*

☑ **Disable all controls** Ⓐ

Disable all Control activities for this simulation run. Normally used temporarily to test uncontrolled disease spread.

Scenario Settings

Output Settings

Population

Production Types   ②

Farm Locations   ⓪

Disease

Disease Progression   ⓪

Progression Assignment

Disease Spread

Direct Spread   ⓪

Indirect Spread   ⓪

Airborne Spread   ⓪

Controls

Protocol Assignments   ⓪

Control Protocol   ⓪

Zones   ⓪

Zone Effects   ⓪

Probability Functions   ⓪

Relational Functions   ⓪

[>Run Simulation]

Destruction program delay

The number of days that must pass after the first detection before a de...struction program can begin.

Destruction capacity

---------- [ ] ⊕ Add

The relational function used to define the daily destruction capacity.

Destruction priority order*

The primary priority order for destruction.

Destruction reason order*

Basic, Trace fwd direct

The secondary priority order for destruction.

Units detected before triggering vaccination

The number of clinical units which must be detected before the initiatic...on of a vaccination program.

Vaccination capacity

---------- [ ] ⊕ Add

Relational function used to define the daily vaccination capacity.

Vaccination priority order* Ⓑ

Collapse controls when disabled above

Ⓐ **Disabling all controls should inhibit the user**

Ⓑ Grey out everything underneath and prevent interaction with any elements below.

This element can be repeated for any section that gets disabled.