

The definition of a disease spread and the assignment of that spread are fundamentally linked interactions. As such, I have combined the two tasks within a single page (note that within this paradigm the “Assign Disease Spread” heading in the navigation menu can be removed). After the user has completed parameterizing the spread in the center column, she has the opportunity to associate production-type combinations with the selected disease spread.

While this revised assignment interaction allows the user to quickly create associations between Production Type Combinations and disease spread definitions, the overall state of assignments is opaque from this point of view. A secondary “Review” view (see pg. 3) provides the user with a more holistic perspective of assignment completeness.



Assigning Disease Spread |
Creating a Production Type
Combination

- A Source Production Type combo-box - the user selects the source production type from a drop-down list of available options
- B Destination Production Type list select container - when the user focuses this control by clicking within the box or tabbing to the control, the population panel slides open and the “linked” graphic indicates that the control and the panel are paired. Clicking on production types from the population panel add or removes them from the container.

ADSMAnimal Disease Spread Model

SampleScenario

Scenario Description

Population

Disease

Disease Progression

Disease Spread

Assign Disease Spread

Controlson

Vaccination Triggers

Control Protocol

Assign Protocols

Zones

Zone Effects

Output Settings

CreateReview

Direct Spread

Indirect Spread

Cattle > Cattle

Cattle > Swine

Swine > Cattle

Swine > Swine

+ New Indirect Spread

Airborne Spread

by direct or indirect contact.

Use fixed contact rate

Use a fixed contact rate or model contact rate as a mean distribution.

Contact rate*0.3

Fixed baseline contact rate (in outgoing contacts/unit/day) for direct or indirect contact models.

Infection probability*0.05

example: 0.37 = 37%

The probability that a contact will result in disease transmission. Specified for direct or indirect contact models.

Distance distribution*Indirect contact distance

Defines the shipment distances for direct or indirect contact models.

Movement control*Unrestricted movement

Relational function used to define movement control effects for the indicated production types combinations.

Production Type Combinations

Source Production Type

A

Destination Production Types

B

To add production types to the trigger click on a Type or Group from the Population Panel.

+ create new combination

Population Production Types

Cattle 1(12,000 units)

Cattle 2(132,000 units)

Cattle 3(5,000 units)

Cattle 4(21,000 units)

Cattle 5(56,200 units)

Cattle 6(12,000 units)

Swine 1(5,000 units)

Swine 2(300 units)

Swine 3(1000 units)

Swine 4(7,895 units)

Swine 5(1,234 units)

Swine 6(5,672 units)

Other 1(12,000 units)

Other 2(12,000 units)

Other 3(500 units)

Other 4(3 units)

Other 5(567,124 units)

Other 6(12,000 units)

Other 7(1,000 units)

Chickens(12,000 units)

Production Type Groups

Chicken-Swine

+ define new

Validate Scenario

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ADSM

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Define

Review

Source | -----

A

Click on a square in the grid to view spread assignment details for a production type combination. Hold the ctrl/command key while clicking to select multiple production type combinations.

Red

Pink

Orange

Peach

Yellow

Peuse

Green

Cyan

Blue

Lavender

Purple

Black

White

Red

Pink

Orange

Peach

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Lavender

Purple

Black

White

Red

Pink

Orange

Peach

Yellow

Peuse

Green

Cyan

Blue

Lavender

Purple

Black

A When the user hovers over a grid cell, the containing column and column label at the cell and above should be highlighted with # faec9f. The row to the left of the cell and the row label should also be highlighted. The cell itself should be outlined with a 32px by 32px 1px wide # 555555

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Disease Spread Review
Interface | Single Cell
Selection

- A

When the user selects a production type combination by clicking on a cell in the grid, the selection is indicated with a 34px by 34px, 3px wide #555555 border, and the details panel is populated with source and destination information. Clicking on another cell changes the focus. Holding down the ctrl key allows the user to select multiple cells from the same row.
- B

Source Production Type Header
- Each of the three possible disease spread sections contains the following:
- C

Destination Production Type
- D

Name of associated Disease Spread
- E

Change Assignment action link - clicking triggers the change assignment interaction (see pg. 6)
- F

New Spread action link - clicking toggles the view back to the define interface. The “Spread Name” field should be in focus and both the Source Production Type combo-box selector and the Destination Production Type list-select container (see pg. 2) in the Production Type Combinations section should be populated with the presently selected combination.

ADSM

Animal Disease Spread Model

SampleScenario

Scenario Description

Population

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Disease Spread

Assign Disease Spread

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on

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Disease Spreads

DefineReview

Source | Yellow

DIRECT SPREAD

GreenYellow to Green DS

Change AssignmentNew Spread

INDIRECT SPREAD

Green

Change AssignmentNew Spread

AIRBORNE SPREAD

GreenYellow to Green AS

Change AssignmentNew Spread

Red

Pink

Orange

Peach

Yellow

Peuse

Green

Cyan

Blue

Lavender

Purple

Black

White

Red

Pink

Orange

Peach

Yellow

Peuse

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Cyan

Blue

Lavender

Purple

Black

White

Red

Pink

Orange

Peach

Yellow

Peuse

Green

Cyan

Blue

Lavender

P

Show | ☐DIRECT☐INDIRECT☐AIRBORNE☒ALL

clear selection

5

Disease Spread Review
Interface | Changing an
Assignment

Clicking on the “Change Assignment”
action link produces the following
changes/controls:

- A

The currently associated Disease Spread Definition text is replaced with “-----,” corresponding with the content in the combo-box selector
- B

A combo-box selector becomes available for the selection of a new Disease Spread Definition. When the user opens the control and selects a definition from the list - causing the control to close - the name of the newly selected definition should populate the Disease Spread Definition text “A”
- C

Cancel action link - clicking cancels the edit session and reverts any changes that have been made
- D

Apply action link - clicking submits all changes to the spread details, saves the changes, and refreshes the grid to represent those changes. Cell selection should persist after the grid refreshes. Clicking anywhere in the interface outside of the present “Change Assignment” interaction should also cancel the action and revert the data to its initial state. A 1-step undo would be very beneficial in this situation.

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Disease Spreads

DefineReview

Source | Yellow

DIRECT SPREAD

Green-----A

Cancel | Apply

C

D

INDIRECT SPREAD

Green-----

Change Assignment | New Spread

AIRBORNE SPREAD

GreenYellow to Green AS

Change Assignment | New Spread

Red

Pink

Orange

Peach

Yellow

Peuse

Green

Cyan

Blue

Lavender

Purple

Black

White

Red

Pink

Orange

Peach

Yellow

Peuse

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Cyan

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Lavender

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Show |

DIRECT

INDIRECT

AIRBORNE

ALL

clear selection

Disease Spread Review
Interface | Multiple Cell
Selection

Users should be able to select multiple cells in a single Source Production Type row. Not only does this allow for quick comparisons, but it also provides some limited mass-assignment functionality within the visualization. Both the selection indicators and manner of organizing the detail data is shown here

Potential additional functionality:

It might be beneficial to allow users to click on a row label and select an entire row of Destination Production Types.

I have represented here and in the inline assignment interactions shown on pages 1 and 2 the limiting ability to select only a single Source Production Type. Might it be useful to allow the user to select multiple production types in both situations?

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Disease Spreads

DefineReview

Source | Yellow

DIRECT SPREAD

Orange

Yellow to Orange DS

Peach

Yellow to Peach DS

Yellow

Yellow to Yellow DS

Peuse

Yellow to Peuse DS

Green

Yellow to Green DS

Change Assignment

New Spread

INDIRECT SPREAD

Orange

Yellow to Orange IS

Peach

Yellow to Peach IS

Yellow

Peuse

Green

Change Assignment

New Spread

AIRBORNE SPREAD

Orange

Yellow to Orange AS

Peach

Yellow

Peuse

Green

Yellow to Green AS

Change Assignment

New Spread

Red

Pink

Orange

Peach

Yellow

Peuse

Green

Cyan

Blue

Lavender

Purple

Black

White

Red

Pink

Orange

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Show |

DIRECT

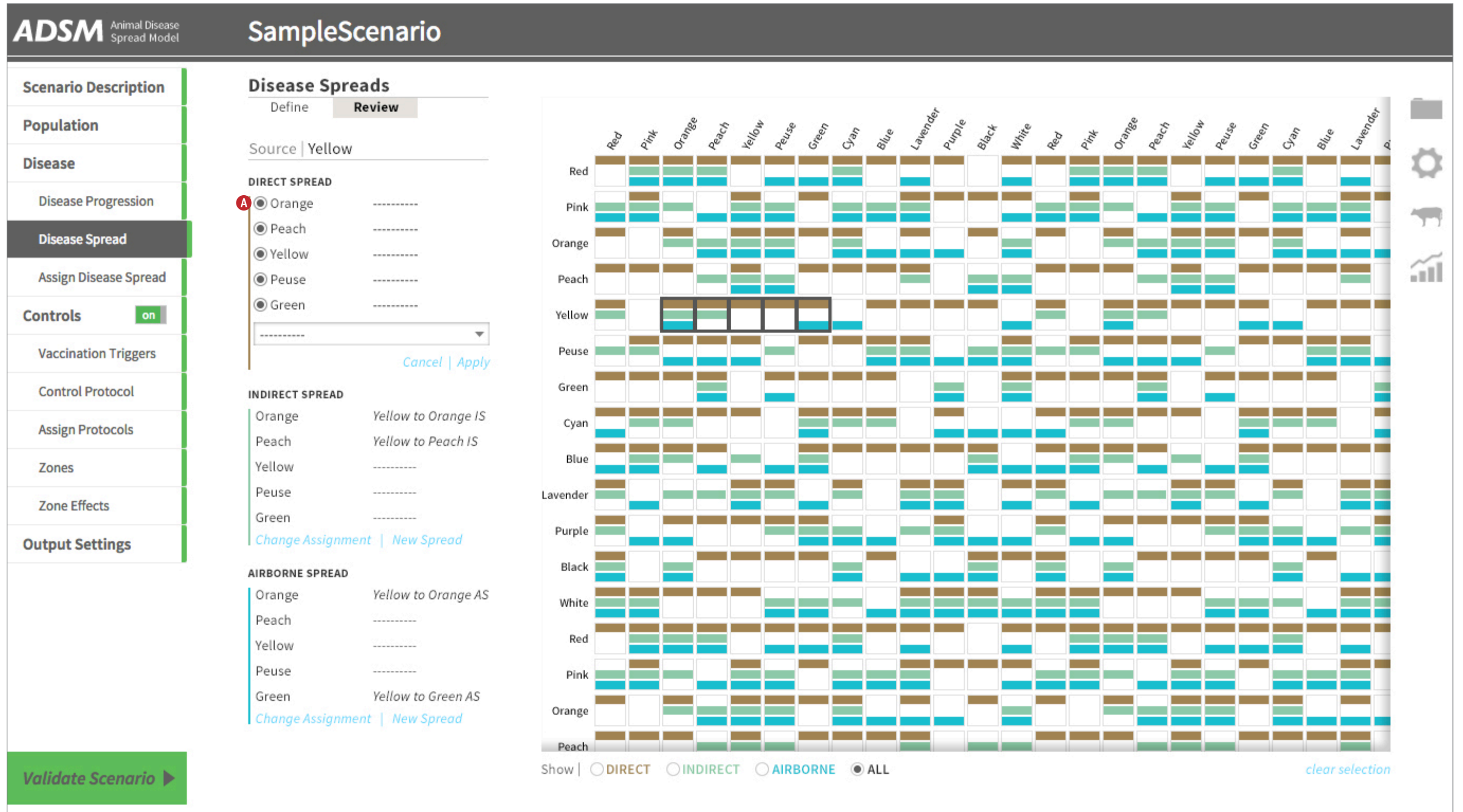
INDIRECT

AIRBORNE

ALL

clear selection

A To the left of each Destination Production Type is a pre-selected radio button. Unselecting the button removes the associated Destination Production Type from the change action being performed.



Disease Spread Review
Interface | Single Spread
View

A Selecting an option other than “All” from the grid key limits the display of the grid to the selected production type. Here, the user has opted to view only airborne spread associations.

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Disease Spreads

DefineReview

Source | Yellow

AIRBORNE SPREAD

Orange

Yellow to Orange AS

Peach

Yellow

Peuse

Green

Yellow to Green AS

Change Assignment

New Spread

Red

Pink

Orange

Peach

Yellow

Peuse

Green

Cyan

Blue

Lavender

Purple

Black

White

Red

Pink

Orange

Peach

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Lavender

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Show |

DIRECT

INDIRECT

AIRBORNE

ALL

clear selection

9