Animal Disease Spread Model (ADSM)
Text Support Document for Training

The slide-based training was designed to optimize visual interest. This format does not always create a slide bank that is printer friendly. In some sections, there are many images and little text. This text support document is intended to be a printer-friendly version of the slides that can be used as a reference. This document is not intended to take the place of the main training slides.

Training 6 Output Settings and Running Simulation

Slide	Image	Text
1	Laying Hens	Animal Disease Spread Model Output Settings and Running Simulation
2	ADSM Application Sample Scenario with Outputs	Table of Contents Specifying Outputs Supplemental Outputs Running and Monitoring What's Next?
3	No Image	Document Conventions The following conventions are used throughout the training modules: **_TRAINING MODULES_** other than the one you are current in will use all capital letters, bold face, italics and underline. *Rhetorical questions* and *extra notes* will be in orange italics. Conventions applying to the ADSM application are: Navigation tabs on right and Admin panels on left are designated with an underline. Examples are Project Panel or Population tab. Items with an action on click, such as [Apply] Button or [Save As] icon are enclosed in square brackets. *Parameter fields* (inputs) are in blue italics and *Variables (*outputs) are in green italics. Navigation Tabs > *Parameter field* indicates to go to the given navigation tab to find the given field. Hyperlinks appear in bright green type with underline http://navadmc.github.io/ADSM/
4	Gear Section Break	Specifying Outputs
5	Cattle with windmill and ADSM Output Settings Form	The Output Settings parameters customize the details of how the simulation will execute. We will cover each of these parameters.
6	ADSM Output Settings Iteration and Example pdf	The first parameter in the Output Settings allows you to enter the number of iterations you want to run. *Why run multiple iterations?*

		Recall the stochastic nature of ADSM. For every iteration and every probability density function (pdf) parameter in the application, there is a Monte Carlo-style selection of the exact value that is entered into the simulation engine. In the example pdf **Latent period – cattle**, the value for the latent period is a number between 0 and 9, with the most likely value to be 3 and least likely values to be 0 or 9. As a result, every iteration spreads disease in a variable fashion and has a unique outcome, which allows a range of possible outcomes when reviewing multiple iterations. Running a small number of iterations allows a review of the outcome to see if your parameters are acting as expected. The training modules *RESULTS* and *VERIFICATION & VALIDATION* give examples of how to review parameters and results. A complex project could include more iterations. More iterations allow a broader range of possibilities to be exercised in the simulation.
7	ADSM Output Settings Iteration and stop criteria	The next step is to bring the simulation to a logical end. To select the *stop criteria* parameter, use the pull-down list. Enter number of days if you have selected the specific days option.
8	Cows grazing in a sunlit field	Options to stop the simulation: Stop when there are no more latent or infectious units, and all control activities are finished – all destruction activities and vaccination activities are complete Stop when there are no more latent or infectious units – end of disease spread Stop when the first detection occurs – to observe silent spread only Stop after a specified number of days – parameter specifying days is required

9	ADSM Output Settings Cost Tracking	Cost Tracking can be activated on <u>Output Settings</u>:
		    Destruction Costs
		    Vaccination Costs
		    Zone Surveillance Costs

10	ADSM Output Settings Cost Tracking and Control Protocol with cost parameters	The parameters supporting *Destruction and Vaccination Costs* are set in the <u>Control Protocol</u> The parameters supporting *Zone Surveillance Costs* are set in the <u>Zone Effects</u>

11	ADSM Output Settings Cost Tracking and Control	Clarification on Costs
		There are 3 steps to getting cost results in the final outputs:
		   1) Check *Cost Accounting* in <u>Control Protocol</u>
		   2) Enter *Cost values* in *Cost Accounting*
		   3) Check *Cost tracking* on <u>Output Settings</u>

	Protocol with cost parameters	The cost outputs are in the dataset *Results_dailycontrols*. There is code for queries in Example Database Queries that will make a subset of costs.
12	Gear Section Break	Supplemental Output
13	ADSM Output Settings Cost Tracking, Supplemental Outputs	Supplemental Output Files are activated on <u>Output Settings</u> *Why are the Supplemental Files not created automatically?* The daily supplemental files create an output file for each iteration. If you run 10 iterations, you get 10 files of each set. If you run 100 iterations, you get 100 files of each set. The map files create a set of files per week of each iteration, one file for units, and one file for zones. Producing all these files takes time and space, especially while you are experimenting with parameters in your scenario. You can turn on the outputs once you are comfortable that your parameters are in place. The <u>*RESULTS*</u> training covers the contents of supplemental files in detail.
14	Gear Section Break	Running and Monitoring
15	ADSM contextual action button	Starting the simulation In the bottom left corner of the application, you will see a contextual action button. This means that the button takes different actions depending on the form you are on and the state the model is in. Before initial run: When one or more forms appear to be incomplete, the text is [Validate Scenario] and the button color is yellow *You may be able to run the simulation with some yellow parameters* When entering parameters, the text is [Validate Scenario] and the button color is green When the simulation has validated, the text is [Run Simulation] and the button color is green After run when results are present: When the simulation has completed and is on <u>Results Home</u>, the text is [Back to Inputs] and the button color is blue When the simulation has completed and is on <u>Parameter View</u>, the text is [View Results] and the button color is green
16	ADSM while simulation is running	There are visual cues to check the status of a running simulation. The moving bars indicate the simulation engine is engaged. The [Abort] option becomes available after a few seconds when iterations start. [Abort] allows any running iterations to complete, then returns to <u>Results Home </u>showing partial results. The Status bar across the bottom gives a count and visual of completed iterations. The bar progressively changes to green as iterations finish. The Status bar also shows iterations as they process with the time each one took to complete. It takes a few seconds after starting before iterations start appearing.

17	ADSM command window	The command window also reports a status and indicates when iterations complete. The command window can be found in the second application window, usually shown in the Desktop toolbar. (steps shown with arrows) Validation confirmation Starting simulation on all available processors, 4 processors in this example Iterations completed
18		Results Home is the initial screen shown when ADSM iterations have completed. A complete review of all the simulation outputs is covered in the **_RESULTS_** training.
19	Gear Section Break	What's Next?
20	Flock of Sheep	**Join the flock!** **Learn more about ADSM or try an example** **ADSM is currently available** at https://github.com/NAVADMC/ADSM/releases/latest Try the sample scenario https://github.com/NAVADMC/ADSM/wiki/A-Quick-Start-Guide:-Running-the-sample-scenario Read the wiki pages link https://github.com/NAVADMC/ADSM/wiki
21	Goat on with green foliage	What's Next? Training materials are posted at http://navadmc.github.io/ADSM/ Training includes: Overview Populations and Production Types Getting Started Disease Parameters Control Parameters Output Settings and Run Results Detailed Evaluation of Results - Verification and Validation Vaccination Strategy Administration
22	Cows grazing with blue sky and green grass	The outcome of an ADSM simulation (as with any computer simulation model) depends heavily on the quality of the scenario input parameters; the assumptions of the modeler who created the scenario; and the capabilities and limitations of the model framework itself. The utility of disease models like those created with ADSM critically depends on input and interpretation of experts familiar with the behavior of disease within populations, and with the limitations, assumptions, and output of the model. While ADSM is available as a service to animal health communities, the ADSM team does not necessarily endorse results obtained with the ADSM application or any conclusions drawn from such results. Note that the parameters provided in the Sample Scenario are simple examples to clarify concepts in the application. These parameters do not represent any real population or disease event.
23	Cattle image	This work was funded in whole through Cooperative Agreement AP18VSCEAH00C005 with the University of Tennessee Department

		of Animal Science by the Animal and Plant Health Inspection Service, an agency of the United States Department of Agriculture. University of Tennessee Animal Science logo Photo credits Canva.com Pinecroft Farms, Woodstock CT, Mariah Chapman NAHMS Archives – Judy Rodriguez
	Metadata	Last Update: 1/2/2024 By: Schoenbaum Approved: Freifeld