Training session example – livestock

This document is a guide to set up a learning session. It is an example of detailed instructions for navigating the game. Students should have a pen and paper at hand, to record scores, outcomes or questions they would like to discuss with the group as they go.

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## Connect

Open a web browser on a computer (not a mobile phone, as the screen would be too small).

Go to <http://rebrand.ly/SEGAE>

Type the login and the code provided by your teacher, for this lesson

Choose your language

Choose the farm as indicated by your teacher

## Scenario 1: “Sandbox” - Discover the farm and the game

### Discover the farm

You can start the game.

* Click on the “My game” icon (Tractor icon on the bottom left of the screen) to have a look at your farm.

How many people work on the farm? How many weekly working hours does that mean (estimate)?

Which proportion of the farm’s surface is permanent grassland? Describe the 2 cropping systems that occupy the remaining surface, in your own words.

How many animals live on this farm? Can you calculate the annual milk production per cow?

* Click on the “Report” icon (Graph icon on the bottom left, next to the tractor).

Look at your current (“initial”) agricultural practices. They are common in conventional farming. What do the adult cows eat? (i.e. what is their feeding system?). Are all of their feedstuff produced on the farm? Why? In your opinion, which among these practices are not allowed in organic farming?

* Click on the “Strategic decisions” icon (white icon with a farmer, near the farmhouse) to see strategic choices of the farmer that will condition how the farm functions.

In the “Type of farming” tab, you see indeed that the option that is dark blue(active) is “Conventional farming” and that you can’t choose to declare “Organic farming” for the moment (locked).

* Click on the Info (i) icon, to see what “Organic farming” means, and how it affects gains and costs.
* Click on the Padlock icon, to see which practices are not allowed in organic farming. On the right-hand panel, you see the operational indicators that are influenced by either choice of conventional vs. organic farming.
* Click on the tab “Distribution of farm profits”. The current choice is to keep a part of the profit as the farmer’s income and to invest the rest in the farm.

In the right-hand panel, what is the weekly workload of the farmer? Which proportion of the annual workload is devoted to the routine work demand of animal production?

* Click on the sustainability dashboard - it splits into 3.

Note the position of the three gauges.

* Click on each gauge to see the sustainability indicators that influence the gauge.

Where is animal welfare? Where is the farmer’s workload? Which of the environmental sub-indicators will be affected by soil erosion? What do you think about the economic sustainability?

### Change one practice and see the effects

* Click on the strategic domain (white button) “Soil management” and see the 3 categories of practices in this domain.
* Click on the tab of the category “Residues management”.

Look at the indicators affected by this practice (right panel). How much more straw will you have to buy for bedding and feed of the animals, if you change the practice and leave the straw on the field?

* Click on the tab “Tillage management”.

Read the information for the three practices available for tillage management, by clicking on each (i) button. Write down the current values of the indicators in the right panel.

* Change the Tillage management from “Conventional tillage” to “No tillage”, by clicking on “No tillage”, close the “Soil management” window (or click outside the window) and validate your choice by clicking “Next Year”.

You are now in Year 2. The “Report” window pops up. The right-hand panel shows which gauges and sustainability sub-indicators have changed (green is better, black is neutral, red is worse).

Try to explain why the sustainability has changed, by looking in detail into the trends (click on the “+” to unfold each sub-indicator).

* Close the report window and go back to the “Tillage management” category in the “Soil management” domain.

Compare the values of the indicators in the right panel with those you wrote down the previous year. The little graph icon beneath each indicator (e.g. the earthworm abundance) shows how it has changed since last year. What is the influence of no tillage on earthworm abundance?

### Make your farm more sustainable

* Change 4 more practices of your choice (one per year) in any domain and try to improve the sustainability of your farm

You have now made 5 changes in 5 years. Note the position of the three gauges.

Have you improved your overall sustainability?

* Open the report window (Graph icon on the bottom left of the screen).

View the trend of your “Biodiversity conservation” indicator over the 5 years, by clicking on the small eye next to “Biodiversity conservation”: a specific line will appear on the graph.

Has the biodiversity conservation improved in your farm?

### High scores

What is your final score? (Bottom left of the screen, you can click on it to see how it changes each year).

If you had one of the best scores: Congratulations! Describe your 5 choices to your class and discuss your results.

If you obtained lower scores: Don’t despair! Which gauge was limiting? Can you explain why?

## 2. Scenario 2: Basic system thinking – link the feeding and the cropping systems

* Restart the game and erase all your changes, by clicking on the “refresh” button of your browser, by right-clicking on the screen and choosing the refresh icon, or by typing F5.

You are in the initial situation of a conventional farm again.

* Click on the “Warehouse” icon (in the center of the screen) and click on the “Feed Balance” tab.

Which feeds do you need to buy because you don’t grow enough of them on the farm to feed your animals?

### Change the feeding system of the cows

You would like to rely more on grazing for your adult cows and use locally grown rapeseed meal instead of soybean meal.

* Click on the “Feeding system” icon, and click on the “Feeding system for cows” tab.

Write down the milk production per dairy cow that is allowed by your current feeding system.

* Change the feeding system to more grass (7 months of grazing instead of 4) and a local resource for protein (rapeseed meal instead of soybean meal).
* Click “Next year”. What happened to your economic sustainability?
* Go back to the “Feed balance” tab in the “Warehouse”.

Which feed is insufficient on the farm? Which is in excess?

* Go to the “Gains and costs” tab.
* Go to the feed costs in the right-hand panel and click on the graph beneath.

By how much have they increased?

### Balance your feed production and the needs of your herd

* Click on the “My farm” icon (tractor button on the bottom left of the screen).

Starting from your cropping systems, your grazing surfaces and your herd, what are your general options to adjust your feed production with the needs of your cows? (They will continue to be grass-fed 7 months, with rapeseed supplement, and you don’t change the feeding system of the heifers.). Think about two different ways to achieve this.

### to adjust your feed production with the needs of your cows.

* Make 4 more changes of your choice in 4 years (one per year), to adjust your feed production with the needs of your cows.
* Go back to the “Feed balance” tab in the “Warehouse”.

Did you succeed adjusting your feed production with the needs of your cows?

What is your score?

* Click on the “Report” icon,

How are your sustainability gauges?

What are the impacts on the economic indicators? On the workload indicator?

Have you improved animal welfare?

* In the “Feeding system” domain, click on the “Cow feeding system” tab (you can also find this tab in the “Cows” domain)

How has the milk production per cow changed over 5 years?

* Go to the “Warehouse” and choose the “Animal production” tab,

How has the total milk production changed?

* In the “Warehouse”, choose the “Workload” tab

How many hours do you work each month? Do you need to hire someone to help you or do you have time to start another part-time activity, to study or to look after a family member?

## 3. Scenario 3: Advanced system thinking: Improve an indicator - animal welfare

* Restart the game and erase all your changes, by clicking on the “refresh” button of your browser, by right-clicking on the screen and choosing the refresh icon, or by typing F5.

You are in the initial situation of a conventional farm again.

### Try out practices to see how they influence the “Animal Welfare” indicator

* Click on the “Report” icon (bottom left of the screen, next to the tractor icon)
* In the right-hand panel with the indicator trends, unfold the “Social sustainability”/ ”Societal expectations” by clicking on the “+” sign, and make the trend of the “Animal welfare” indicator visible on the graph by clicking on the eye next to it.

Which changes of practices do you think will influence the welfare of your animals?

* Try changing each of your practices one year at time, for as many years as practices you want to test

If your farm is not sustainable (“game over”), write down what happened, start again and test only one practice.

* Open the “Report” window again

Note which practices have improved the welfare indicator and which haven’t.

What is your final score? How are your sustainability gauges?

Discuss your results with the class.

### Improve the “Animal Welfare” indicator, while achieving maximal sustainability of the farm

* Change between 1 and 5 practices per year, for 5 years, to maximize the “Animal Welfare” indicator, as well as the three sustainability gauges.

If your farm is not sustainable (“game over”), write down what happened and start over.

If you change to practices that unlock the “Organic Farming” strategic decision (in the “Strategic Decisions” domain), feel free to switch to organic farming. Inputs and Outputs have higher prices in this case.

* Open the “Report” window again

Note which years have improved the “Animal welfare” indicator. Have also a look at the “Water quality” indicator.

Is your farm economically sustainable?

### High scores!

What is your final score? (Bottom left of the screen, you can click on it to see how it changes each year).

If you had one of the best scores: Congratulations! Describe your 5 choices to your class and discuss your results.

If you obtained lower scores: Don’t despair! Which gauge was limiting? Can you explain why?