

Agroecology Calculator

A Brief How-To Quick Guide

User Manual

Version: 0.25 beta

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Website: <https://www.wildscript.co.uk>

Overview

Interactive software-game designed to convey and encourage greener sustainability practices in agricultural systems. It has been designed to run both in a web browser and as a native application, **primarily intended for touchscreen** interaction operating on top of the underlying operating system.

Players interacting with the agroecology calculator are encouraged to use various tools to plot out and design their farm. The game indicates several attributes in the UI that are tied to ecological concepts that are grounded in real world scientific data. This communicates all actions taken and conveys the importance of sustainable agricultural systems.

- Getting Started
- Input Instructions
- Landscape Features
- Management Features
- Rotation Features
- Timeline Sustainability Conclusion

• ~~Cheat Sheet~~

Getting Started

You will be presented with the start screen upon initializing the application. You simply want to touch the **'Start Button'**. Once this has been done, you'll be further presented with more buttons to select. 'Manual', **'Default'** and 'Random'. See below.

Agroecology Capital Calculator

beta build v 0.25



ROTHAMSTED
RESEARCH

Start

Pick A Setup

manual

Controlled Field(s) Management

default



Linear Field Management

High Quality

random

Unpredictable Field(s) Management

Mouse

Once the **'Default'** button has been selected the main simulation will begin.

Upon starting, the player is presented with the full farm grid, where one of two characters stands at the center to welcome you. The camera smoothly follows a preset arc until the randomly chosen male or female character faces the camera directly.



You can either opt in to read the dialogue presented to first time players, or you may skip this and jump straight into the action by selecting the '**Skip Button**' located bottom right of the dialogue window.



Once the dialogue section has completed, you'll be free to start making placements and managing your farm. This concludes **Getting Started**.

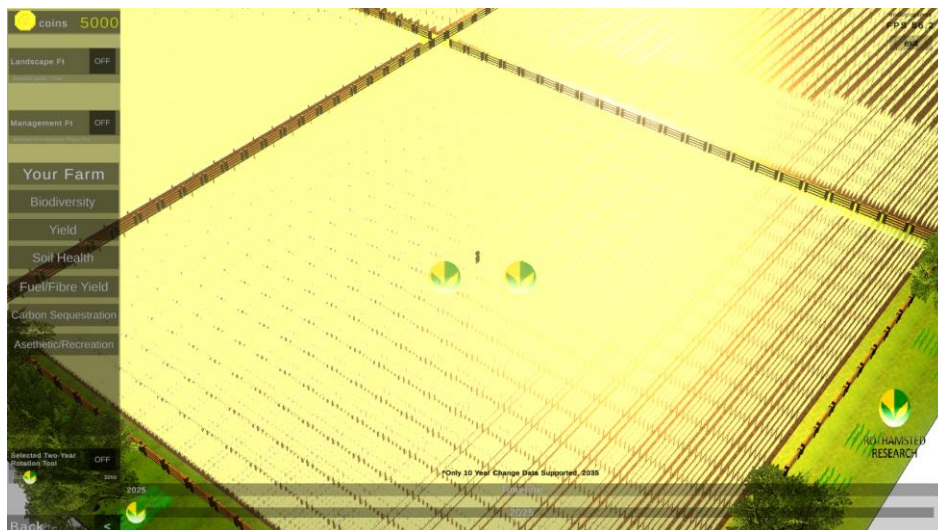
Input Instructions

Interacting with the application can be done one of two ways. Predominately by '**Touch Gestures**' or '**Mouse & Keyboard**'. Here we'll cover the following,

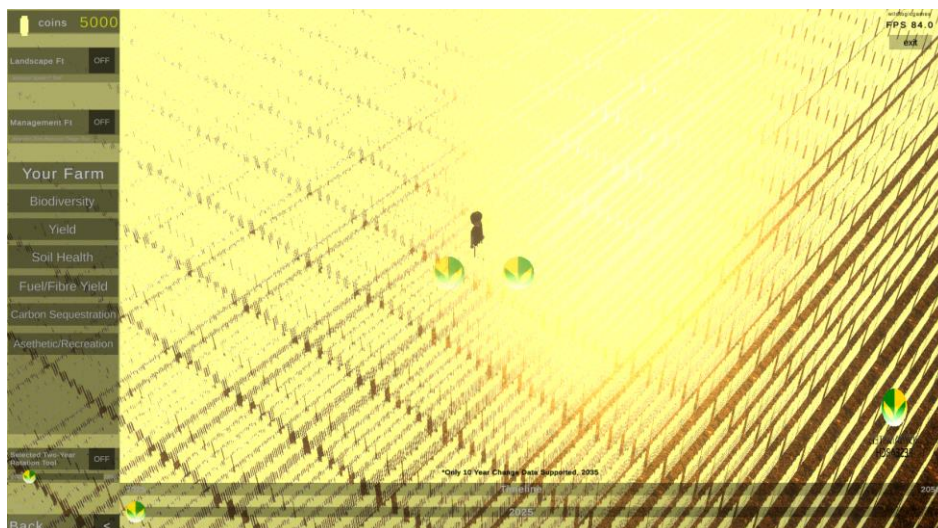
- Zoom
- Rotate
- Pan

Zoom In/Out

Zooming in and out can be done using '**Pinch & Expand Gestures**' much as you'd operate your mobile touchscreen phone device. Two fingers on screen simultaneously, begin close and move each outward expanding, to zoom out, inward to zoom in.

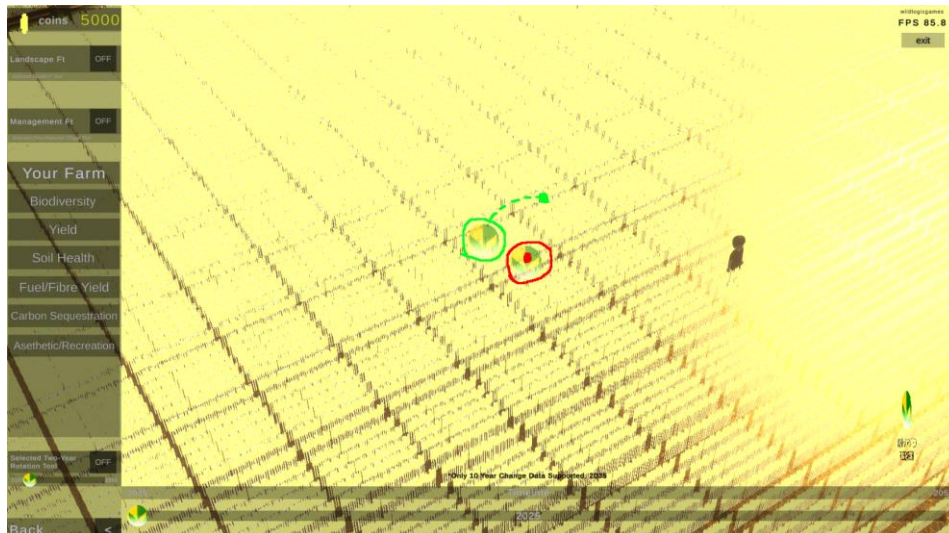


You can achieve the exact same motion/result by holding down the '**Ctrl**' button on keyboard and simultaneously '**Scrolling with Mouse Wheel**'.



Rotation

Rotating the camera view can be done using a two-finger gesture, just like you would rotate images on a touchscreen mobile device. Place two fingers on the screen and twist them slightly in the desired direction, to adjust the viewing angle. Alternatively, one finger static in place and the other placed some distance away (1 to 3 inches) rotating clock-wise or anti clock-wise.

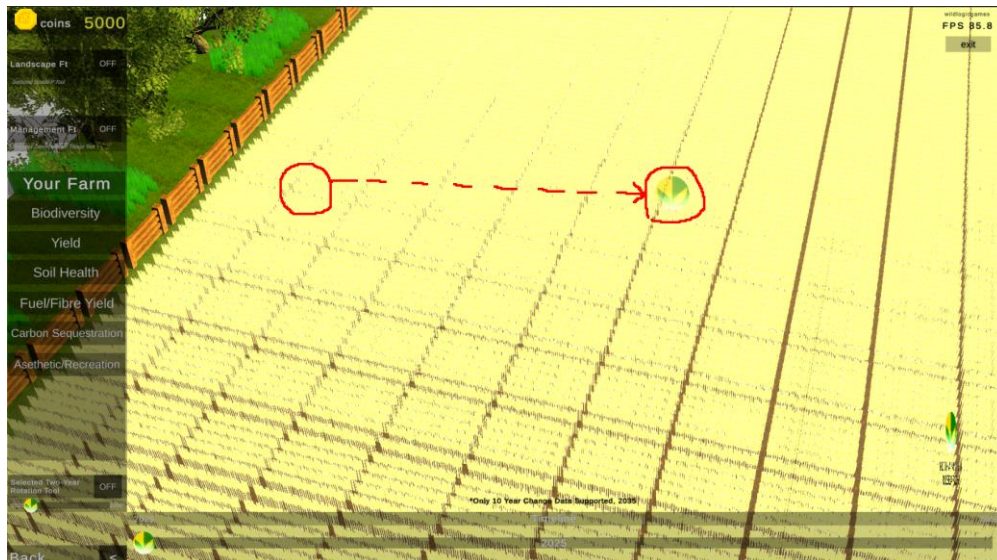


It is possible to zoom in/out whilst rotating at the same time. You can achieve the exact same motion/result by holding down the **'Shift'** button on keyboard and simultaneously **'Scrolling with Mouse Wheel'**.

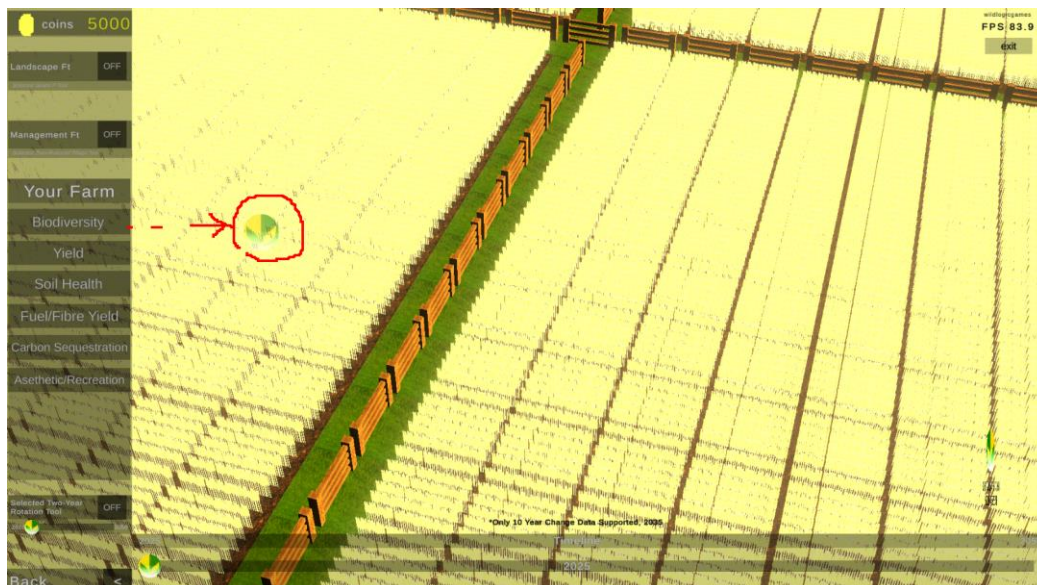


Panning

Panning the camera view is achieved simply by placing one finger onto the touch screen and then moving left to right, right to left, up to down and down to up.



This can also be replicated with just the mouse, no keyboard required for this action. You simply left click mouse button, hold and move the mouse cursor.

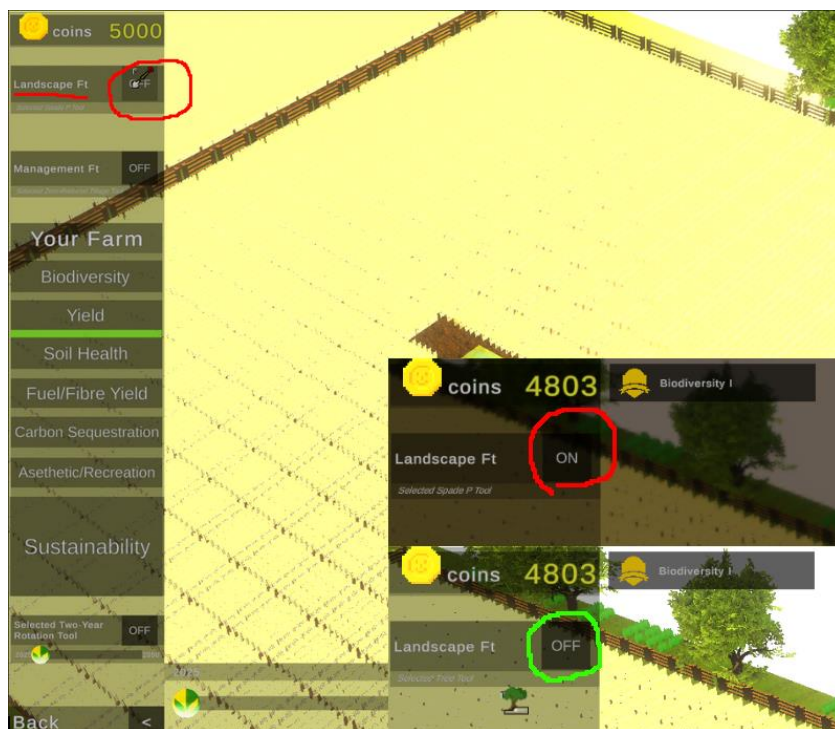


Panning conclusion is just as to be expected of that from using a mobile phone device. You touch a point on screen dragging from Left to Right for example, your view pans in the opposite direction i.e. camera view moves from Right to Left.

This concludes **Input Instructions**.

Landscape Features

Use the available Placement Tools to make detailed changes to your farm. Each tool works on individual grid cells, giving you full control over the layout. You can locate and access these by looking to the top left screen and touching the circled-in-red button, please see below.



This will then open the **User Interface** display for '**Landscape Feature**' tool selection to take place. Touch the Left and Right Arrow buttons (circled red) to cycle through the available tools. When you're happy with the tool of your choice, simply select by touching the button (circled green). This closes the tool selection display.

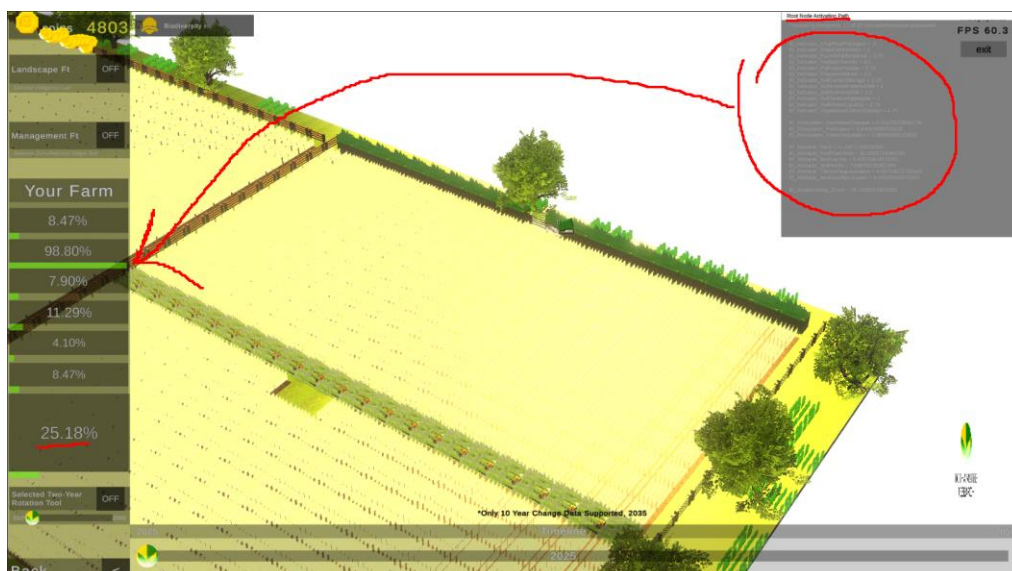


You will then have that specified tool enabled. This means any place you touch upon the grid, a placement will be made at that location. In this case, a '**Field Margin**' placement will be spawned on selected grid cell. Note, the 'Cursor Icon' will visually

display current selected tool. It is important to note, with each placement made, a deduction against your **'Resources/Money/Coins'** is deducted. We also see adjustments made to the **6 main Attributes** regarding the underpinning scientific data model supporting every placement, to the Left of the screen view, where appropriate. See below for a snap shot example of this deduction in resources & display of current attribute scores (listed below 'Your Farm').



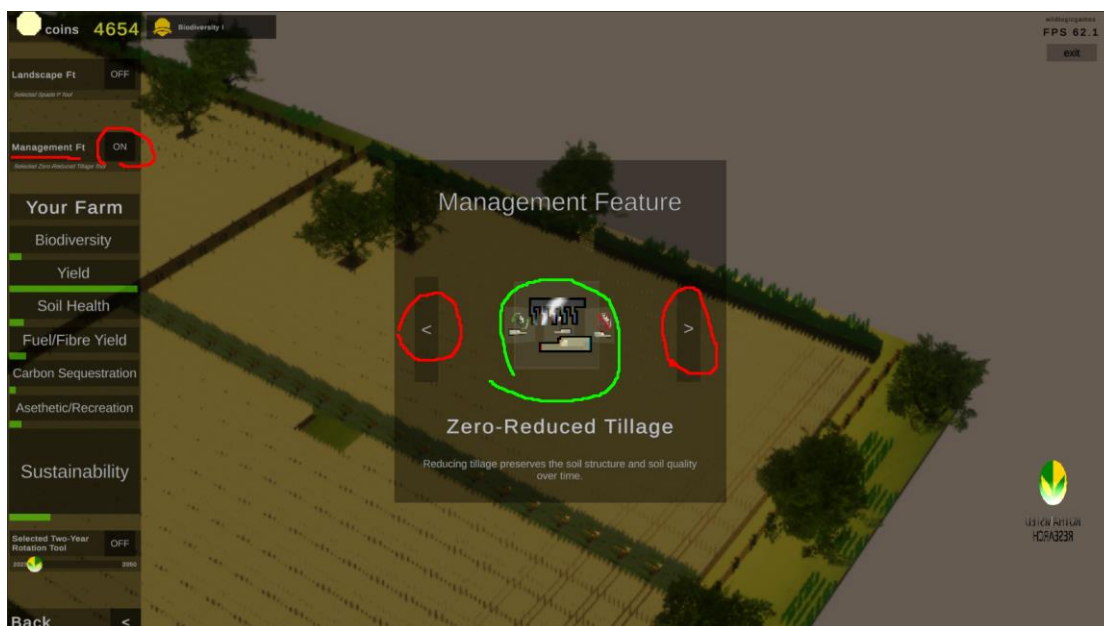
Any placement made on the grid where it is important i.e. effects the farm overall sustainability score, will trigger the **'Root Node Activation'** window top right of screen momentarily. This simply gives you a snap shot of the underpinning score you have currently effected by your action taken.



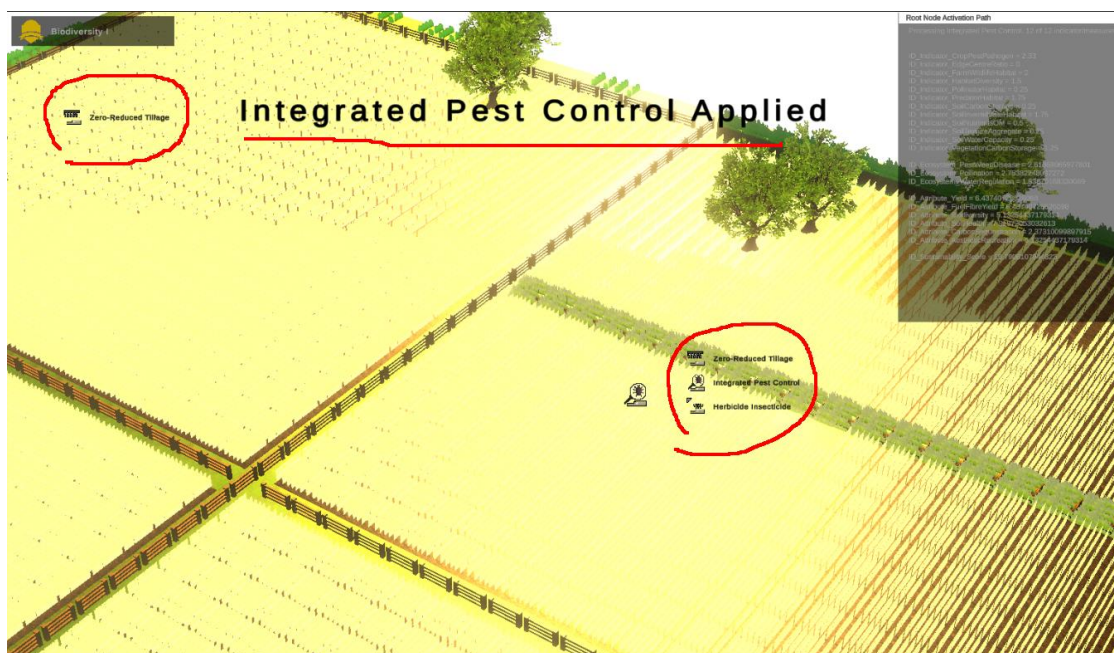
This concludes **Landscape Features**.

Management Features

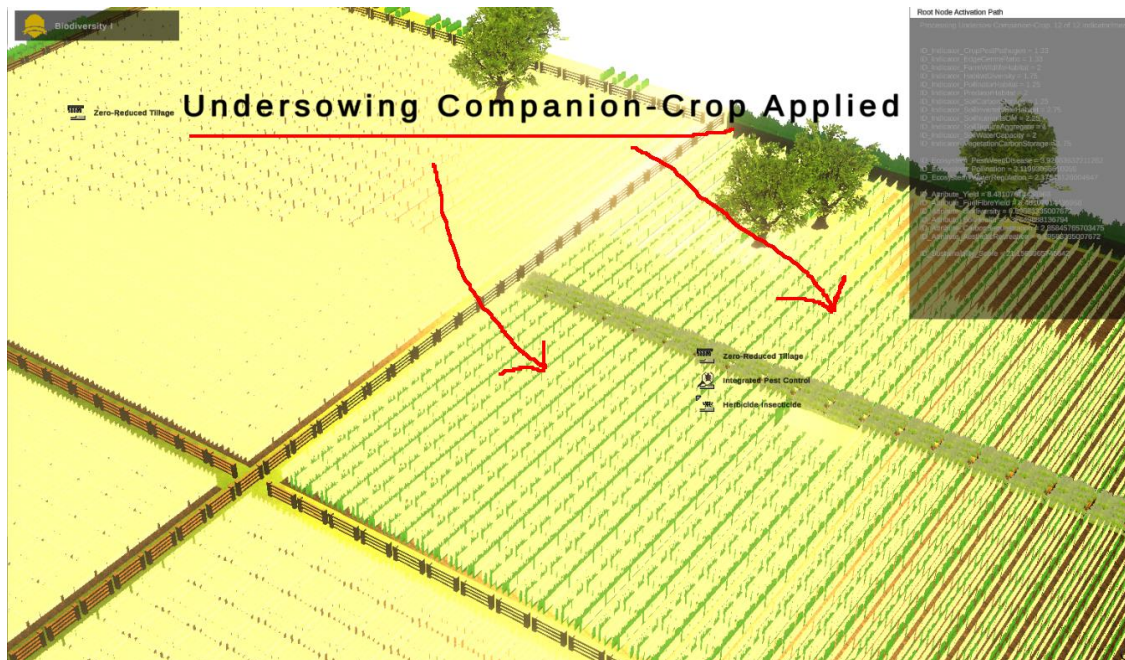
The **'Management Features'** works similarly to that of the **'Landscape Features'** tools. However, when you've selected a management feature and then make your desired placement on the farm with it, you must open the tool selection process again. The application does **not** assume you'd prefer to make several management placements of the same kind in one go.



Whenever you make a **'Management Feature'** placement, you will effect the overall sustainability score, just as you do with making **'Landscape Features'** placements.



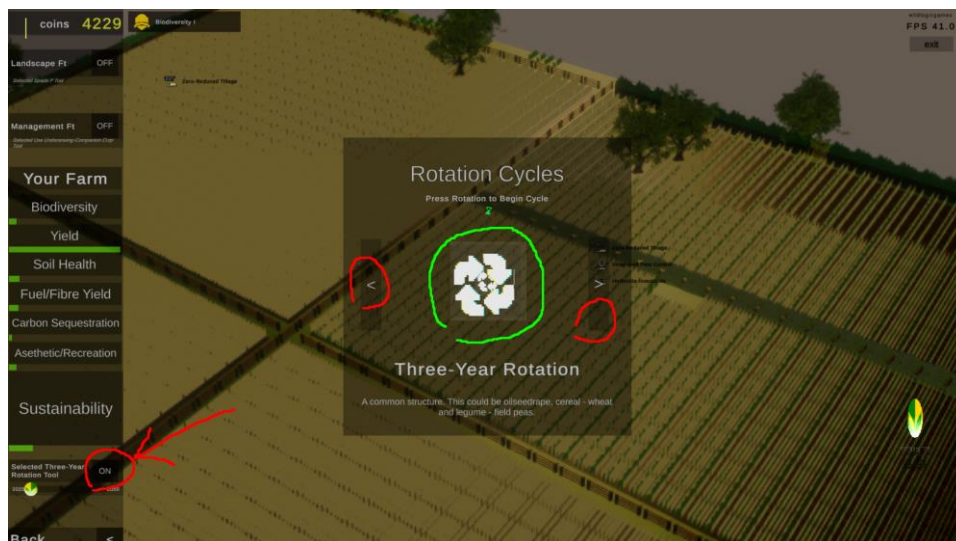
Depending on which feature you select to place, you'll either get a visual **User Interface** indicator to convey your change made, or a direct visual impact on the farm grid itself. Please see above & below for examples of this.



This concludes **Management Features**.

Crop Rotation Features

The crop rotation feature currently supports a '**3-Year Rotation**' and has the foundation set and ready for other variants. It works almost the same way as the aforementioned tools & features. It is located bottom left of the screen view, see below.



Once you've selected the rotation you'd like to activate. The application will lock out any user input and intervention, the follow up with conveying the '**Years Passed**' whilst applying the appropriate underpinning scientific data to our overall sustainability score. This feature also works alongside the '**Timeline Feature**' located bottom center of the screen view. Everything related to the time aspect of our applications experience here, is circled in green. See below.



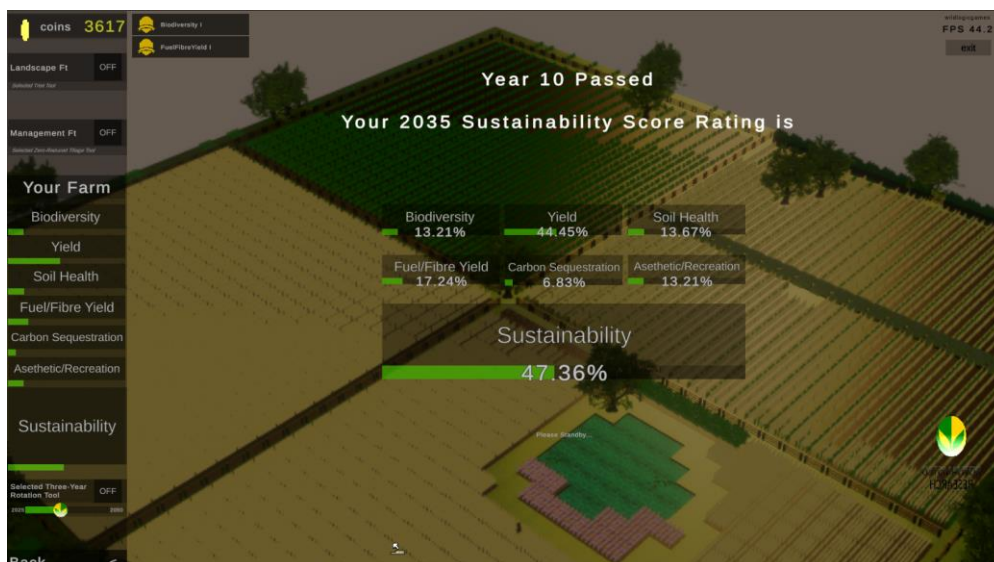
This concludes **Crop-Rotation Features**.

Timeline Sustainability Conclusion

The '**Timeline Feature**' provides a summary of the long-term impact of your in-game decisions. Located at the **bottom center** of the screen, it visualizes changes across a **10-year period**, showing how your choices affect the various attributes that contribute to your overall sustainability score.



We interact with this by simply **touching**, **holding** and then **dragging** the Rothamsted Icon from it's starting point, to its end point. The screen view will indicate the year passed as we follow through with this action. As stated previously, currently a 10 Year Change in the data is supported. We want the player to begin from **2025** and end at **2035**, to trigger our **Sustainability Conclusion** event. See below for example of this.



Note: Try touching just beneath timeline icon if having trouble selecting-activating it.

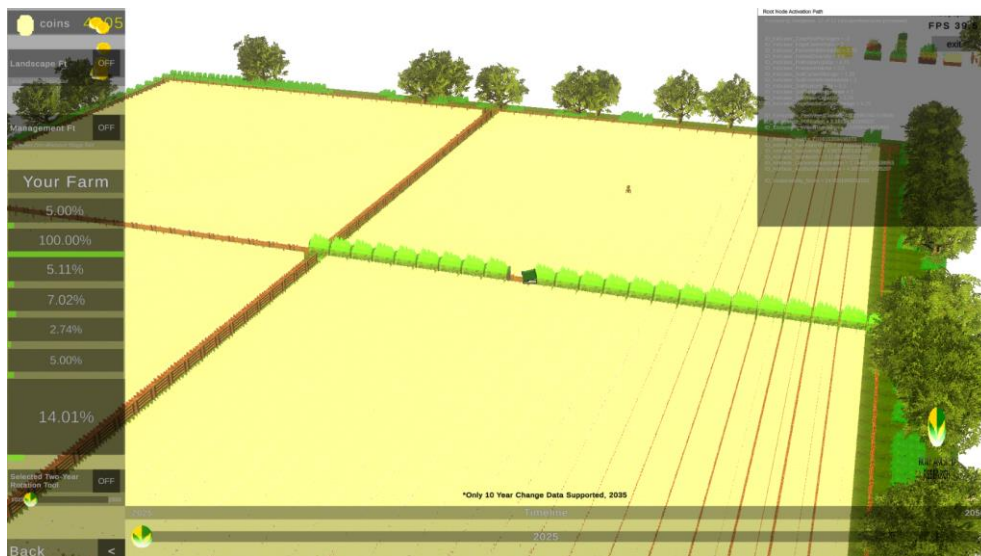
Input is locked out for 1 minute during this event before control is returned to user.

Cheat Sheet

The game can trigger a handful of events, dialogue and badge rewards upon making specific placements on the farm grid with certain Landscape Features. These are as follows,

- Hedgerow Placements
- Field Margin Placements
- Beetlebank Placements
- Note on Badge Reward Events.

Hedgerow Event Trigger

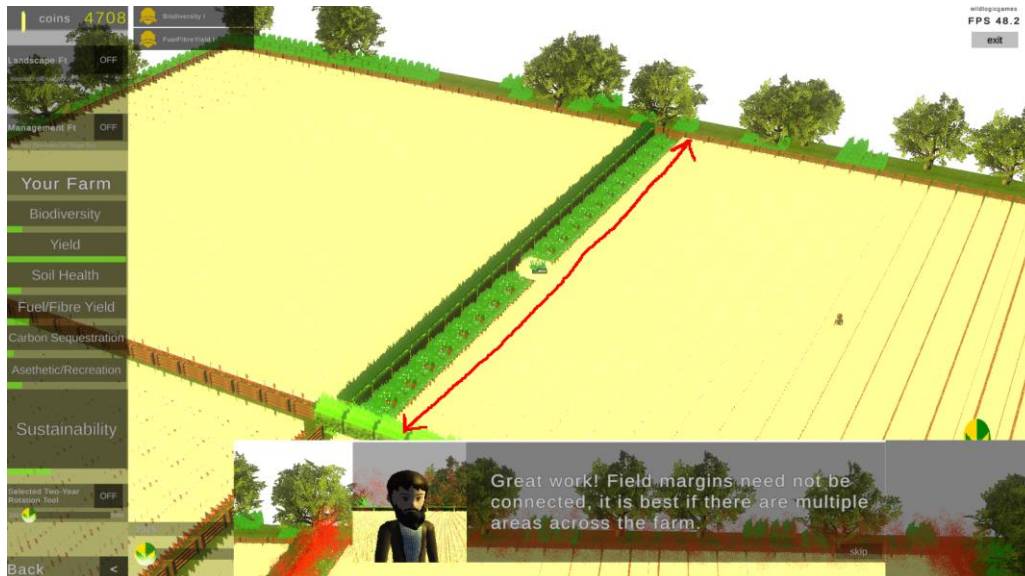


Players must successfully ‘fill’ an **entire border line** that encapsulates one of the four quadrants of the farm field, to trigger the Hedgerow dialogue event.



Field Margin Event Trigger

Field-Margins must be placed in parallel with correct hedgerow placement. When this is carried out, you'll trigger the associated dialogue event regarding said placement.



Beetle Bank Event Trigger

Beetle banks must be placed either **directly in center** of one of the four quadrants in the farm-field, or '**near enough**' to trigger the associated dialogue response event. Please see below.



Note: Near enough is either center, or, one to two off from center quadrant.

Badge Reward Events

Badges are currently hardcoded to activate when each of the 6 Attributes reach a specified number, these hardcoded values all vary, so with enough placements made, one or more of these will trigger the reward event. There are currently 3 badges that are achievable per each attribute ($3 \times 6 = 18$ badges total possible).

The below is an example of placing nearly **'one full line'** of **'Beetle Bank'** placements. Which in this particular case, triggered our second reward badge for Biodiversity.



This concludes Cheat Sheet.