

Project Goals

The purpose of this project is to provide a visualisation tool for pasture management. This tool should allow farmers to model their grazing area, providing a realistic simulation pasture grazing. For a complete pasture management tool the application should simulate the following:

- The farmer's landscape with its various properties including:
 - Different soil types and their nutrition levels.
 - Different grass types
 - Rocks
 - Forest
 - Lakes and rivers
 - Field boundaries
- Various effects of the environment including:
 - Weather and Climate
 - Storms, droughts, floods, fires and other extreme environmental conditions.
 - Seasons
- The grazing behaviour and effect of common livestock such as:
 - Sheep
 - Cows
 - Pigs
 - Hens
- The changing numbers of livestock as they are born and die.
- The lifespan of livestock should be realistic and dependent on grazing conditions.
- Different field choice strategies.
- The effect on livestock caused by grazing in different environments.

The tool should also allow suitable interaction with the user so that it is easy to use and understand whilst providing an adequate set of features to monitor and simulate different grazing scenarios. A suitable range of features would include the following:

- Change of viewing angles – possibly allowing an interactive fly over.
- Viewing of statistics in different forms for:
 - Field nutrition levels and state
 - Environmental changes
 - Livestock numbers and nutrition levels.
- Adequate data input strategies. Possibilities include:
 - A graphical editor allowing the farmer to create the layout and properties of the grazing area(s) as he/she sees fit.
 - A tool for importing maps in various formats.
 - Pre generating the farmer's maps before deployment of the application. This would require analysis of the pasture properties and their dimensions.
- Some form of data output. Possibilities include.
 - A conventional windowing GUI with menus and a central view of the grazing environment.
 - A web based gui – with all processing done by a central server – better for customer support.
 - A graphics export tool, allowing images to be printed, saved and transferred to other computers.
 - An export tool for saving the internal representation of the grazing environment to disk. This would be available in conjunction with an import tool.