

# ACHIEVING SUSTAINABLE AGRICULTURAL SYSTEMS (ASSIST)

The plots you see here are known as “The Rowden Experiment”, which was established in 1982 on old unimproved pasture on poorly drained sloping land (5–10%) and comprises a series of hydrologically isolated fields (lysimeters) of 1 ha, half of which have subsurface drainage (85 cm). All plots have V-notch weirs for measuring surface run-off and interflow (30 cm), and from the drained plots, subsurface drainage (85 cm). The site is typical of much of the permanent grassland in the south-west of England and has provided unique information on nutrient and gaseous transfers in grasslands.

Funded by BBSRC and NERC, the aim of the ASSIST Institute Strategic Programme is to develop and test innovative farming systems that aim to maintain or increase crop productivity and resilience to future perturbations, while reducing the environmental and ecological footprint of agriculture.

In these plots, the grassland component of ASSIST is testing different sward types under two grazing strategies, to assess the effect on system productivity and resilience and environmental impact.

## Sward types:

**Agri-tech** re-seed with a mix of highly digestible fibre cultivars of *Festulolium* and *Perennial ryegrass* plus inorganic N application

**Nature-based** re-seed with grasses, legumes and forbs (22 species) with no inorganic N application

**Permanent pasture** an old permanent pasture improved with *Perennial ryegrass* cultivars plus inorganic N application

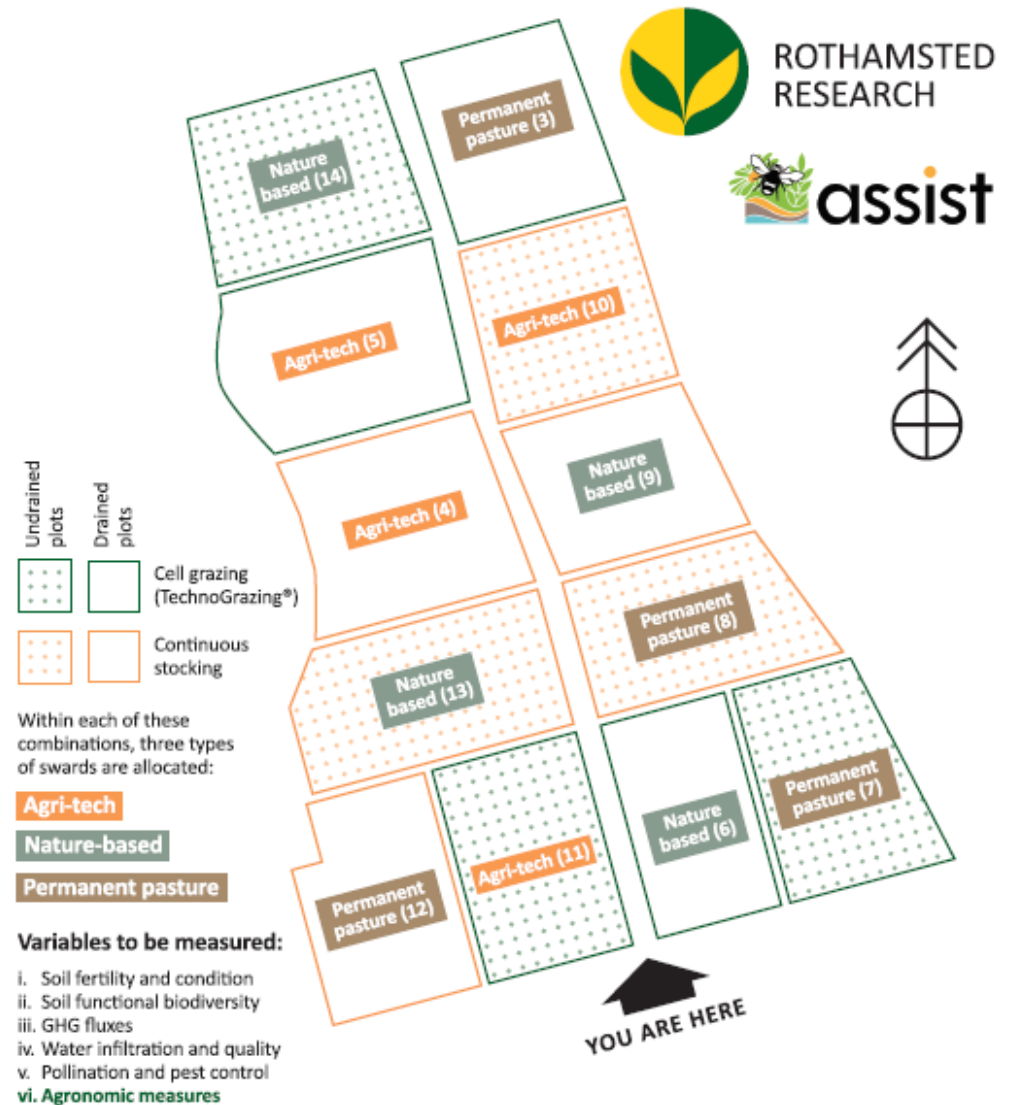
## Grazing strategies:

**Continuous stocking** animals graze the whole grazing area throughout the grazing season, and surplus forage can be cut if necessary (common system for sheep)

**Cell grazing** animals are moved sequentially among ‘cells’ to intensively graze small areas, allowing sward recovery before further intensive grazing (innovative system for sheep)

## Grazing season:

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
			Grazing ewes & lambs + cut			Grazing lambs + cut		Grazing ewes /rest period			



ROTHAMSTED RESEARCH



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