

Grassland

Grassland is the essential basis for the livestock enterprises on the Estate. The dairy herds and their followers, the Hampshire Down sheep and the Cleveland Bays, all graze over the grass fields for most, if not all, of the year. They also rely on forage harvested during the spring and summer for winter feed, in the form of either hay or silage.

The grassland falls into two main categories. Approximately one third is managed under the Countryside Stewardship Scheme in order to regenerate chalk downland and assist those birds and insects that are associated with this important habitat. Some of the fields were previously part of the arable enterprise, but were allowed to regenerate into grassland, without the addition of purchased seed. These fields now have over a hundred species of wild flowers and grasses. This has been achieved through a combination of late topping, which allows desirable species to set seed, and low density livestock grazing regimes.

Other fields have never been ploughed but were overgrown with scrub or by rank grasses. A vigorous regime of selective scrub clearance and well-timed grazing has initiated a remarkable renaissance, so that some sites now carry over 130 species of plants and a complex insect fauna as well. One locality can swarm with Hornet Robber Flies, as well as having a population of Adonis and Chalkhill Blue butterflies. A further site has recently also been reclaimed by the Chalkhill Blue and Grizzled Skipper butterflies.

Managing Leys

The remainder of the grassland consists of leys that carry livestock at a higher density and provide the great bulk of hay and silage. These leys are formed from seed mixtures carefully tailored for each particular field, with a view to optimising grazing and/or forage conservation. There is a strong leguminous content. Legumes provide the grasses with essential nitrogenous



compounds, which will boost soil fertility and encourage grass growth. They are also an important source of protein for grazing animals and a source of nectar for pollinating insects. Legumes are a crucial component of life in the countryside; land deficient in legumes will have a paucity of insect life, and this will have further knock-on effects on the environment as a whole.

Care is taken to ensure that a selection of legumes is incorporated in the leys so that there is flowering for as much of the growing season as possible. White Clover, used as a mix of different forms, flowers from early summer through to the autumn. Red Clover is a summer and autumn flowerer, and is particularly attractive to bumble bees. Lucerne flowers in the late summer and autumn and is very attractive to butterflies and a wide variety of other insects. Sainfoin is the highest nectar producer of all. It flowers in June and will attract so many bees that great care must be taken when walking through the crops.

The structure of a ley should be planned not only with a view to top growth but also to the rooting characteristics of the species incorporated within it. Cocksfoot grass is a vigorous rooter, producing great mop-heads of roots that spread and penetrate deeply into the soil. Such is the effect of these roots that land formerly devoid of structure will be turned into a beautifully crumbly garden compost in a few seasons. Subsequent crops grown in this soil will benefit from soil that is higher in organic matter, more moisture-retentive and better able to maintain fertility. The higher organic matter content boosts the levels of micro organisms in the soil – the complex interaction of these bacteria, microforms and fungi is little understood, but that they are highly beneficial, and indeed essential, to the sustainability of agriculture is beyond contention. Legumes are also generally deep-rooting and when ploughed help to develop the soil structure – the decomposition of the nitrogen-fixing rhizobia attached to their roots releases nitrogen compounds, which will boost the performance of subsequent crops.

Increasing Fertility

It is interesting to reflect that the most promoted and widely used species of grass – perennial ryegrass – is actually not good at building soil fertility. It has a shallow and very limited rooting system and consequently is very prone to drought. Though capable of good growth in the spring and early summer, when soils are damp, it can be virtually useless in the summer and autumn until the wet weather returns.

Leys at Cholderton incorporate perennial ryegrasses to optimise early growth, but also contain other species, such as timothy and cocksfoot, to boost mid and late season growth, in addition to building soil fertility. White clover will be incorporated in a mix of types to encourage forage conservation or grazing throughout the season. Herbs such as chicory and plantain are also included both to encourage deep-rooting and to boost the mineral uptake of grazing stock.

A typical Cholderton general purpose ley (per acre/0.4ha) consists of:

- 4.5lb (2kg) cocksfoot
- 6.5lb (3kg) white clover (blend)
- 15.5lb (7kg) perennial ryegrass (blend)
- 1lb (0.5kg) plantain
- 6.5lb (3kg) timothy

A large acreage of sainfoin is grown at Cholderton. Sainfoin must be mixed with



a less competitive grass if the rosettes are not to be overshadowed during the winter and late summer. Generally meadow grass and red fescue are satisfactory in these circumstances. A typical Cholderton type sainfoin ley mix per acre (0.4ha) might be:

- 62lb (28kg) sainfoin
- 9lb (4kg) meadow fescue
- 1lb (0.5kg) plantain
- 6.5lb (3kg) red fescue

Lucerne may be taken as hay or silage with the aftermath then grazed by cattle. Less competitive grasses are again incorporated in the mix (per acre/0.4ha):

- 18lb (8kg) Lucerne
- 10lb (4.5kg) meadow fescue

Red clover performs well on our deepest soils but does not prosper on the thinnest chalk, where sainfoin reigns supreme. Red clover mixes have tended to be incorporated with a more general purpose ley:

6.5lb (3kg) red clover
11lb (5kg) perennial ryegrass
4.5lb (2kg) cocksfoot
2lb(1kg) white clover blend
5.5lb (2.5kg) timothy (wild white)

Grass and legume seeds vary in size and weight. It is essential to take this into account when working on the composition of new mixtures.

Number of seeds per lb/0.45kg weight

Timothy – 1lb (0.45kg) contains 1,170,500 seeds
Meadow Fescue – 1lb (0.45kg) contains 236,000 seeds
Cocksfoot – 1lb (0.45kg) contains 426,000 seeds
Italian Ryegrass – 1lb (0.45kg) contains 285,000 seeds
Perennial Ryegrass – 1lb (0.45kg) contains 223,000 seeds
Red Clover – 1lb (0.45kg) contains 239,000 seeds
White Clover – 1lb (0.45kg) contains 740,000 seeds
Lucerne – 1lb (0.45kg) contains 200,000 seeds
Sainfoin – 1lb (0.45kg) CONTAINS 22,500 seeds
Red Fescue – 1lb (0.45kg) contains 400,000 seeds
Sheep Fescue – 1lb (0.45kg) contains 680,000 seeds

Grass leys are normally established by undersowing spring barley. This involves working down the seedbed with discs and harrows prior to drilling the barley at half the normal rates. The grass seed is then drilled over the barley, with the drill merely scaping the surface of the ground to ensure that the small seeds are not buried too deeply. The field is then rolled again by the Cambridge roller, the action of which both covers in and consolidates the seed bed.



Given the right weather conditions, a fine young pasture should be apparent by the autumn, when the barley crop is harvested and the straw removed. An undersown stubble such as this offers excellent feeding and protection for birds such as grey partridge, corn bunting and yellowhammer.

Leys are left down for five years before being ploughed to revert to arable for two or three years. In the course of its life, the ley will have improved soil structure and fertility, and will also have suppressed arable weeds.

The arable crop will have the best possible start, in a fine, crumbly seedbed rich in nutrients, and will probably require little, if any, weed control.

Cotswold Grass Seeds are currently marketing one of the Cholderton grass mixtures as the 'Cholderton Mix' – a four year plus grazing/cutting ley. This has been well received within the farming community and sales are increasing on an annual basis.