

Crops and Field Margins

The Estate's 2,500 acres (1,000ha) are divided broadly as follows: 1,100 acres (440ha) is put down to grass, forage and leys; 550 acres (220ha) is arable; 50 acres (20ha) is kale and turnips; 500 acres (200ha) is held under Countryside Stewardship Scheme, and the rest is woodland.

Crops

Cereal crops are sown at Cholderton in the autumn and the spring. Autumn sowing commences in early October and spring sowing generally in February or March, depending on soil conditions.

Oats are the favoured crop for autumn sowing, as these are particularly suited for growing in organic conditions. They are vigorous, tend to suppress weeds, and produce a nutritious grain that can be fed to livestock or sold for rolling to make porridge. Harvesting takes place in September, and all the straw is baled and retained for animal feed or for bedding.

Barley is sown in the spring into seedbeds that have been made in the autumn by ploughing stubble or grass fields that have reached the end of their productive life. Barley is not as vigorous as oats and does not suppress weeds to the same extent. Weeds may be controlled by the careful use of a flexi tine harrow but this is only used very occasionally and never when ground-nesting birds are present. This implement is drawn by a tractor up and down the rows of young barley and is able to remove weeds mechanically while doing the minimum amount of damage to the crop. Usually, the growing crop is vigorous enough to suppress weeds so no 'scratching' is necessary.

The barley is harvested in August. All the grain is stored at the main granary and is rolled for consumption by the cattle. Normally enough grain is gathered in to feed the stock until the next harvest. All straw is baled and is used for bedding and for feeding to the livestock.

Cereal crops form part of a rotation. This takes the following form:

<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>
Legume/grass ley	Legume/grass ley	Legume/grass ley
<u>Year 4</u>	<u>Year 5</u>	<u>Year 6</u>
Winter oats	Spring barley	Winter vetches
<u>Year 7</u>	<u>Year 8</u>	<u>Year 9</u>
Maincrop turnips/kale	Legume/grass ley	Legume/grass ley

Greater flexibility can be put into the system by the use of fodder crops such as kale and protein crops such as vetches.

Kale is grown as forage for the dairy herds and to build soil fertility. Growing extremely vigorously in the autumn, it is frost-hardy and is grazed by the cows, access being controlled by an electric fence. When the grazing has been completed, the kale stubble is topped and spread with well-rotted manure. Spring barley follows.

Vetches are an extremely vigorous leguminous crop. They completely smother all weeds and are very attractive to pollinating insects during the mid-summer flowering season. They die off and are harvested in mid-September. The seed can be used as a protein supplement for cattle feed. Vetches clean the ground and build soil fertility. Vetches are also sown with oats in the autumn and used for silage in the following spring, producing exceptional crops.

Field Margins



In line with Farming and Wildlife Advisory Group (FWAG) guidelines, the headlands or margins of some arable fields are allowed to become grassy strips. These have immediate, and low cost, benefits for wildlife. They provide nest sites and forage areas for grey partridges; provide cover for rodents, which in turn become prey for barn owls; and act as 'wildlife corridors' connecting different natural features of the Estate for the benefit of wildlife. The bigger

fields are divided by 'beetle banks', which have a similar botanical composition to the arable margins. As the organic regime at Cholderton becomes mature, it seems likely that these margins will become richer in beneficial wild plants.

The Transition from 'Inorganic' to Organic Grassland

For many years the farm was managed on a semi-organic basis. Nitrogen fertilisers were used on the grassland, amounting to approximately 200 units of nitrogen per acre (0.4ha) per annum; but about 10-15% of total acreage of pasture was composed of legumes such as red clover, sainfoin and Lucerne, mixed with cocksfoot, meadow fescue, timothy and perennial ryegrass. These leys received no fertiliser, but were dressed with manure in the autumn or after a hay or silage cut. The remaining pastures were composed of ryegrass, timothy and white clover mixtures. The white clover varieties then available were not persistent and these leys required a supplementary nitrate dressing to boost production to levels necessary to maintain the stock enterprises.

The transition to an organic system has meant the complete cessation of the use of artificial nitrogenous fertilisers. All nitrate is now supplied from composted manure derived from the grazing stock and from the nitrogen-fixing bacteria that attach themselves to the roots of leguminous plants. The principal species of leguminous plant in use are:

Sainfoin. This has been grown at Cholderton since 1730. There were once several local (Landrace) varieties of this important fodder plant; these types included Cotswold Common, Essex Common, Cambridge Common and Vale of Glamorgan Common and our variety, Hampshire Common, remain in cultivation. Each variety was selected over generations for the particular local conditions.

Sainfoin means 'Holy Hay' – it is a magical plant, with beautiful racemes of pink flowers in June. Animals thrive on its high protein, non-bloating fodder. It is the best source of nectar for honey bees. It is also very attractive to a whole range of pollinating insects; bumble bees being present in huge numbers in flowering crops. Sainfoin seed is harvested most years and is used on the Estate to sow an additional acreage. It can remain in the same field for up to 80 years.



Red Clover This later flowering legume is ideal for silage production. It responds well to the application of farmyard manure and is mixed with perennial ryegrass and timothy to boost yields. It is not grazed in the spring, but a silage or hay cut is taken later and the aftermath grazed until the late autumn, care being taken to ensure the plant is not damaged by trampling in wet conditions. These leys are left down for three to four years before being ploughed for cereal production.

Lucerne Like red clover, this later flowering legume is good for silage or hay production. It is frequently strip-grazed by the dairy cows and then dressed with farmyard manure. It can be particularly productive in late summer and autumn and is very resistant to drought. Butterflies are very attracted to its flowers in August and September. In a favourable year many thousands of butterflies – 12 different species – can be seen nectaring.

Lucerne can cause bloat, so it is necessary to restrict its accessibility. In time cattle do appear to become less susceptible. Lucerne is sown as a part of a mixture with cocksfoot, ryegrass and timothy. These grasses help the cattle to digest this highly nutritious fodder crop. No bloat has been seen since organic conversion.

White Clover This is the most widely grown forage legume on the Estate. It is the main workhorse of the general purpose, grazing-forage conservation ley. White clover can produce up to 250 units of nitrogen per acre (0.4ha) per annum. It is therefore capable of giving a huge boost to its accompanying grasses. White Clover is highly nutritious but in certain conditions is quite likely to give bloat. The flowers are attractive to honey bees; while it does not compete with sainfoin as a nectar producer, it does flower over a longer period. White clover leys are both grazed and used for silage and hay production. Fertility is maintained by the application of farmyard manure. Leys are left down for one to six years and are then followed by a cereal crop.