

Herbal Leys

Ian Wilkinson says that diverse swards offer diverse benefits

For cattle breeders three significant areas of expenditure are fertiliser, feed and veterinary bills. To maximize margins, costs in these areas must be kept to an absolute minimum. There is one solution that will make a real impact on all three of these: a herbal ley.

In recent decades the ryegrass monoculture has been popular, as it responds well to N fertiliser and offers high yields. However with the current price of N, this option is becoming less and less attractive. In addition, ryegrass-only swards are relatively low in protein so may mean extra feedstuffs are needed, including vitamin and mineral supplements.

The herbal ley offers a radical solution in this situation. By using a complex seed mixture cattle breeders can produce their own high protein, healthy feed, and dramatically reduce N fertiliser usage and veterinary costs.

Accounts of herbal ley usage stretch back over 100 years. Well known supporters of this type of sward, like Robert Elliot who devised the Clifton Park Farming System, wrote about deep-rooting, soil-improving swards that fattened beef cattle and finished large numbers of sheep.

Diverse benefits

Herbal leys contain deep-rooting grasses, N-fixing legumes and medicinal herbs. Seed mixtures can contain as many as 17 species (see chart for a typical mix), all with varying growth patterns and habits, providing wholesome forage nearly all year round.

Forage legumes such as red, white and alsike clover, trefoil and sainfoin in a ley mixture have a number of advantages. They are largely drought resistant, which has been a real bonus to those on drought-prone land in recent summers. But it is the high protein content of forage legumes that makes them really attractive. With red clover, for example, around 20 per cent CP. The desire to produce more home-grown protein has of course been increasing in the face of an unsustainable reliance on imported soya, which also brings with it all the complications of EU GM regulations.

Legumes also fix N, free of charge, and lots of it. Grass swards that comprise around 30 per cent legumes, will not need any artificial N fertiliser. This has always been true of leys with high percentages of clover.

However with N prices sky rocketing and fertiliser being the main variable cost of grass production this means inputs on N are now £174/hectare: time for legumes to step back into the spotlight.

Bloat

When asked, most farmers who do not currently use legumes, mention the 'B' word as their reason for not growing clover. Bloat is a dreadful condition, but thankfully very uncommon. Stands of pure clover or swards with really high levels can pose a risk but it has long been known that bloat never occurs with certain fodder legumes, such as sainfoin and birdsfoot trefoil.

These species contain condensed tannins which have been identified as preventing bloat. Sheep and cattle farmers can exploit the beneficial effects of tannin-containing species by incorporating them in grass leys. Herbal leys containing even low levels of these bloat-preventing forage plants have near zero risk of bloat, a massive bonus to farmers.

There is also evidence that condensed tannins can increase both the ovulation rate and lambing percentages in sheep. This may well be the case for other ruminants, but further research is necessary to confirm this theory.

Health benefits

The two major cost savings of home-grown protein and leys self-sufficient in N would be enough to get interest from most livestock producers, but there is something else. For cattle breeders especially, there are health benefits which mean reduced veterinary intervention and more efficient reproduction. The diverse range of species in herbal ley swards mean livestock are ingesting important micronutrients such as copper, cobalt, selenium, zinc and iodine as they graze. Deficiencies in micronutrients can be serious, with a 5-10 per cent loss of production at a sub clinical level and even death in severe cases.

Research has shown that the concentration of micronutrients in herbs (and weeds) is roughly double that of grasses. Furthermore, the application of N fertiliser dilutes the concentration of micronutrients in grasses and depletes soil levels over time. So a sward rich in herbs that has no artificial N applied



Ian Wilkinson is the Managing Director of Cotswold Seeds where he has worked for over 25 years. He has a particular interest in forage legumes and their application in modern farming systems. He trained in Farm and Grassland Management at Berkshire College of Agriculture.

will naturally provide ruminants with the micronutrients necessary for good health and high production.

Anthelmintic

Some plants have remarkable properties that are not related to yield or live weight gain. Sainfoin, birdsfoot trefoil and chicory are proven to be anthelmintic (natural wormers). Sainfoin in particular has been the subject of a recent EU research project known as Healthy Hay (www.sainfoin.eu). As a result of four years' work involving twelve European research institutes it is now clear that sainfoin can significantly reduce the worm burden in cattle and sheep.

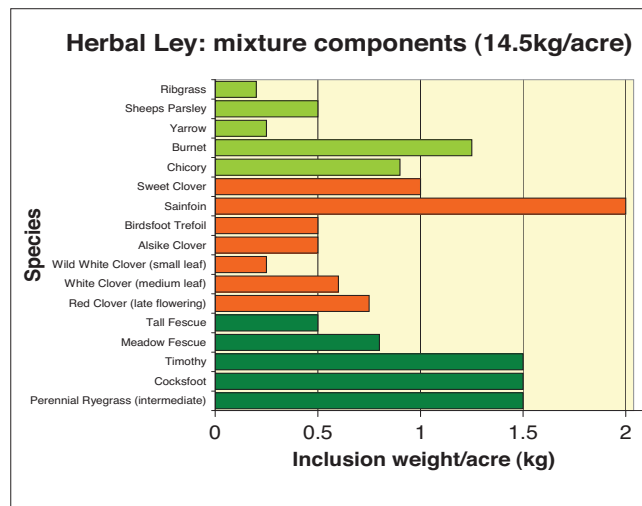
Balanced forage

Perhaps the most striking thing about herbal leys is the fact that of the 15 or so species sown together, not one of them seems to take over. This is a real advantage, and the complete opposite of a ryegrass/clover ley, for example, where either the clover or grass can dominate depending on the time of year or soil fertility. The harmonious balance between species in a herbal ley means there is little risk of bloat and any problems associated with breeding stock and excesses of oestrogen in red clover are mitigated.

Drought resistance

One noticeable difference between a simple ryegrass ley and a herbal ley is the latter's ability to withstand dry summers. The deep-rooting nature of these mixes was noticeably beneficial last summer when many farms in the Midlands and South of England struggled to produce sufficient grass. That just was not the case for those growing herbal leys.

Plants that have very different growth habits can successfully co-exist, both above and below ground. The fibrous roots of grasses like cocksfoot and timothy are able to reach many feet through the soil. Alongside these, the long tap roots of many clovers also go down deep, drawing



moisture from below where the shallow-rooted grasses can reach.

Soil health

The many species that make up a herbal ley, each with its own growth habits and biology, benefits the soil in as many ways. The tap roots of chicory and some legumes can break through soil pans, improving soil structure. The root structure of the grasses increases soil organic matter, so boosting microbacterial activity. Once the herbal ley is ploughed in, the health and fertility of the soil will be hugely improved for the next crop in the rotation.

Cost of Seed

Herbal seed mixtures cost around £90 per acre which is more than ryegrass/clover leys which currently sell between £40 and £50 per acre. The establishment costs are the same, but there will be some who say the seed cost is 'too expensive'. To balance this viewpoint it must be remembered that these leys are largely self sufficient once established, requiring no N fertiliser and producing superb forage and healthy stock. It is very much a case of short term pain for long term gain.

Establishing a herbal ley

Herbal leys are easy to establish provided the soil is warm enough. Grasses need a temperature of around 7°C for germination, but the

clovers and herbs need warmer soils at 10°C.

Ideally these leys should be sown after an application of manure or following a good root crop like turnips grazed. FYM increases microbial activity in the soil which results in higher quantities of plant nutrients being available to the new seedlings.

These leys contain many small-seeded species and it is

important to shallow sow into a very well worked seedbed. Broadcasting is preferable to drilling as this leads to more even plant distribution. The recent availability of comb harrows with seed distributors has provided another option. Once sown, the seed should be rolled immediately to ensure good soil-to-seed contact.

To get really high numbers of seeds to germinate sowings should be made from late March. In most districts the soil is too dry for germination in June and July. Autumn sowings commence in late July and are good until mid September. Anything later should be postponed till Spring.

Management

Herbal leys are best put into a rotation for around four years. They are ideally suited to grazing, but can be cut for silage if required. With so many species in the mix this type of ley 'flattens' the peak of forage production, extending the grazing season. Perfect as a grazing sward, the herbal ley should be rotationally grazed to get the most from it. It can be set stocked but, like any grass area, this is not the way to get the best quality forage.

Summary

These are difficult times for livestock farmers with ever more volatile farm-gate prices, and input prices rising much faster than inflation. There is also an increasing pressure to farm in a 'sustainable' way. For farmers who want to increase herd health, reduced expenditure on N, improve forage quality and boost soil health, the herbal ley is the answer. ■