



Livestock on diverse leys: a return to the past for a promising future

*The use of herbal leys with grazing livestock is a dying practice, but one offering potentially huge benefits to livestock and arable farms alike. A group of six farms from across the country who have, make use of, or are establishing, more diverse leys with livestock are coming together as part of the DiverIMPACTS project to investigate some of the pros and cons of this practice. **Samantha Mullender** reports.*

Organic farms have long used leys of grass and herbs in their arable rotations to restore soil structure and fertility after cropping. Crops take up nutrients from the soil when growing, which are then exported when the crop is harvested and taken away. Meanwhile, the cultivation of the soil to sow, weed and harvest crops can disrupt its structure and damage its health.

The main drawback of a ley for an arable farmer is the perceived loss of productivity – the lack of an income from a crop for two, three, four years. For an organic farmer, the return in terms of soil fertility and capacity for weed control outweighs this, but for other farmers it is seen as cheaper and easier to return nutrients using organic or mineral fertilisers and to control weeds with herbicides.

A suggestion to make leys an attractive – and indeed beneficial – option for livestock and arable farmers alike is two-fold. First, to move to a more diverse mix of grasses and herbs, and second, to use the ley to keep livestock – effectively getting a ‘crop’ from the ley years too. It is this combination that this study group of farmers are experimenting with.

Benefits of diverse/herbal leys reported by study group

- Increased flood resistance and water holding capacity
- Improved workability of soil
- Better yield than standard ryegrass-clover mix
- Breaks weed cycles – combined with livestock, a solution to herbicide resistant blackgrass
- Increased drought tolerance
- Improved soil health (carbon, organic matter, nutrient cycling...)
- Simple solution – if you use enough species, you’re almost guaranteed to have some perfectly suited to your conditions
- Greater fertility benefits than standard grass mix, allowing reduced reliance on inputs
- Greater nutrient content and diversity for livestock
- Anthelmintic, anti-bloat and fertility benefits for livestock

By using a more diverse mix, farmers build an innate adaptability into their ley, with the species flourishing being those best suited to the field’s particular microclimate, soil and the weather experienced during the year. Deeper-rooting species are also able to resist dry conditions, highlighted by group member Adrian Steel’s experience with his leys this summer. He previously supplemented his ryegrass-clover leys with carefully selected additional species and has now found the deeper-rooting yellow trefoil to have coped with the hot, dry weather much better than the other species.

More generally, deeper roots both help the soil retain moisture for longer, as well as reducing risk of waterlogging in wetter areas – something particularly important in Welsh beef and sheep farmer Marc Jones’ decision to start diversifying his mainly ryegrass-clover leys. Other benefits identified by the group have included higher productivity than less diverse mixes, the availability of mid-tier subsidies for herbal leys and, from a livestock perspective, a more nutritious feed that also offers anthelmintic and anti-bloat properties.

Adding livestock to a ley adds an income. A ley, particularly a diverse one, in an arable situation is appealing for livestock owners. Not only is it clean grazing, it also represents an extra food source that can increase the number of animals that can be kept and/or reduce dependency on bought in feed. Alternatively, it offers a chance to rest other pastures that are perhaps suffering from overuse. Grazing livestock on diverse leys also has benefits beyond the health and performance of the livestock themselves. The productivity of the ley under grazing is usually higher than under cutting, whilst the conversion of vegetative material to manure deposited on field has a fertilising benefit that doesn’t require a mechanical spreader and purchased inputs.

If there are all these benefits, why don’t all farms feature diverse leys and why aren’t all of them grazed? As contract farmer Toby Baxter points out, a key barrier is that seed costs are more expensive and there simply aren’t numbers on the costs and benefits of investing available through the standard channels. He argues that the cost easily balances out once the higher productivity, the mid-tier support and the longer lifetime of the diverse ley are taken into account, but for someone newly investing, it can seem a big gamble. Several of the study group have responded to this by selecting just one or two species at a time to add to their mix.

From a livestock perspective, if a farm is not already mixed, concerns over having the appropriate labour skills and infrastructure – housing, on-field water availability, fencing etc. – often arise. This was the case for arable farmer Katie Bliss. She already worked with a local dairy farm, providing cut ryegrass-clover ley as silage for their cattle in return for them providing the machinery and labour for the cutting and sowing of the following crop. She wanted to bring in grazing livestock to help with blackgrass control but was worried about the logistics and having the appropriate skills. Having played host to about 200 sheep grazed on around 25ha last autumn, many of these fears were alleviated. For sheep, water and housing was less of an issue, whilst the sheep’s owner organised all the fencing, travel and logistics and was first port of call should any problems arise. As a further benefit, the dairy was also pleased with the arrangement, with the sheep keeping down the grass for cutting.

This solution won’t work in all cases, but it does demonstrate that adding a ley to your arable rotation



need not be years of lost income. With the right ley and right facilitators, it can offer its own returns both for the duration of the ley and into the following crops. Through partnerships with other farmers – something five of the group make use of – it doesn't need to represent large investment in machinery, infrastructure or labour.

Over the next three years, this group of farmers are going to continue to investigate the challenges these partnerships present, as well as explore the benefits and challenges diversifying their leys and bringing in livestock present on their own farms. The coming months will see two watching closely to see if their newly sown leys take hold, whilst another begins to restructure his farm management. Over the next few years, the challenges faced and overcome and the successes and failures on these farms will provide real

life insights into the benefits of livestock on diverse leys and how best to make it work.

If you have or are considering diverse leys combined with livestock, or have any more general questions for the group regarding this work, please don't hesitate to get in touch at samantha.m@organicresearchcentre.com

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Tom Appleby	Toby Baxter	Katie Bliss
<p>Bretforton House Farm, near Evesham</p>  <p>Farm: Dairy; all sown pasture. Organic</p> <p>Main soil type: Heavy but sandy. Around pH 7</p> <p>Leys: Just starting to diversify from ryegrass-white clover. Adding plantain, yarrow and cocksfoot for rooting. Fertilise with manure & slurry. Reseed when tired (10-20y)</p> <p>Livestock: switching Holstein cross to Norwegian red crossed wt. Kiwi/Jersey bull. Calves contract reared (wt Adrian Steel) from 12wks to 19mnths</p> <p>Motivations: (at home) drought resistance, cattle health - reduced antibiotics. (on contract) clean grazing, anthelmintic and anti-bloat properties, short leys so up-to-date seed mix, can increase dairy herd size (because followers offsite)</p>	<p>Farm contractor, Wiltshire</p>  <p>Farm: Mainly arable, some with sheep and cattle. All no-till</p> <p>Main soil type: Variable</p> <p>Leys: Standard Cotswolds mix. 4-5y ley-10y cropping</p> <p>Livestock: Fully outdoor breeding ewes – Romney-Lley crosses & some Aberfields. Just starting to take 60-70 cross bred male dairy calves from 10wks to sell at approx. 20mnths</p> <p>Motivations: weed (esp. herbicide-resistant blackgrass) control. Increase in crop productivity post ley, and cheap livestock grazing (because ley would need to be there anyway) is added bonus</p>	<p>Ferry Farm, near Wisbech</p>  <p>Farm: Arable</p> <p>Main soil type: Fens</p> <p>Leys: Cotswolds mixed variety grass/red clover. Limited by dairy's requirements (buys cut grass for silage)</p> <p>Livestock: Rented out grazing to sheep farmer overwinter. Romney, Suffolks and Kerry Hills. Ley also cut and sent to local dairy for silage.</p> <p>Motivations: blackgrass control, tackle compaction, decreased reliance on inputs (pesticides & fertilisers), improve soil biology</p>
Richard Gantlett	Marc Jones	Adrian Steel
<p>Yatesbury House Farm, Calne</p>  <p>Farm: Mixed arable and beef. Biodynamic & organic; all no-plough.</p> <p>Main soil type: Silt loam, chalk beneath</p> <p>Leys: Cotswolds mix of annuals & perennials with 33 varieties, 24 species. 3y (prev. 2y) ley-4y cropping. Graze April-Nov</p> <p>Livestock: pedigree Aberdeen Angus.</p> <p>Motivations: needed more grass for cattle, better forage (health perspective and protein), improve soil carbon dynamics. Also seen improved water filtration as added bonus</p>	<p>Trefnant Hall, Welshpool</p>  <p>Farm: Grass leys in rotation wt. fodder crops</p> <p>Main soil type: Thin medium loam on shale</p> <p>Leys: Ryegrass-red clover. Switching to 'dry' mix from Germinal wt added plantain. Fertilise wt N, P and potash. 5-6y ley-2y fodder crop. Graze Feb-Nov.</p> <p>Livestock: 850 Lley & Romney sheep, fully forage fed. 300 dairy cross Angus/Hereford bought in Feb for finishing, plus 100 contracted for intensive finishing (indoors)</p> <p>Motivations: summer growth & drought tolerance; reduce inputs (fertilisers, feed, anthelmintics and antibiotics...), better finishing & conditioning. Would be interested grazing partnership wt local arable</p>	<p>Chapel Farm, Pershore</p>  <p>Farm: Arable wt. sheep. Organic, but leys before organic.</p> <p>Main soil type: Heavy clay (nearly heaviest), some loam, some marl</p> <p>Leys: 4 varieties of rye grass, 3 clovers, timothy and trefoil; agreed with dairy (see below). Fertilise wt compost. 3y ley-3y cropping.</p> <p>Livestock: own sheep (under review), contracted dairy followers (from Tom Appleby)</p> <p>Motivations: herbicide-resistant blackgrass control, calf GR higher on ley, easy outlet for excess straw</p>