For more than 75 years successive British governments have supported the farming industry in order to keep food prices at a low level, using a mixture of production subsidies, market protection and direct income support. At the time that the UK ceased to be a member of the European Union (Brexit) in 2021, farmers were able to claim payments on the area of land they farmed, provided they followed rules to avoid environmental damage, under the terms of the Basic Payment Scheme (BPS) administered under the Common Agricultural Policy (CAP).

From 2022, the UK will follow the same environmental principles as the European Union, although the rules for implementing them will differ. Under EU’s agri-environmental schemes, farmers have been paid to maintain or enhance the public goods they deliver, such as clean air, clean water, open spaces and habitat for wildlife. The withdrawal of BPS and the introduction of new environmental land management schemes means that farmers and other land managers may be paid to deliver the ‘public goods’ which are of benefits to people and the environment.

Changes in the way the land is managed for the environment can help to maintain and even increase the quality and quality of the assets that exist, and of the services and public goods flowing from them.

What are ‘public goods’?

Natural assets occurring in the landscape include the soils, water, rocks, plants and wildlife, plus any historic sites and traditional features such as paths, hedgerows and dry stone walls. These assets provide ecosystem services which then deliver the ‘public goods’ which are benefits to people and the environment.

Our assessment concludes that the adoption of environmental land management on upland farms can contribute to the delivery of public goods. In future on environmental outcomes rather than on livestock production. Upland farms would probably need to increase the amount of land used for environmental purposes to ensure that the income from environmental agreements from their management.

Pen Farm - business and accounts

The farm currently receives income from two previously CAP-funded schemes: the Basic Payment Scheme (BPS) and a ‘Countryside Stewardship’ agreement that pays for the management of hedgerows, woodslands and traditional farm landscapes, plus the conservation management of some fields to support biodiversity. Agriculture generates nearly £21,000 a year for the farm. The main costs of managing the 113 hectares of Pen Farm (nearly £80,000 a year) are mainly associated with sheep and cattle production, growing and cutting silage, machinery costs, and purchasing some bought in feed and fertiliser. Most labour is provided by the family. It is important to note that the cost of farming currently outweighs the income it generates on Pen Farm.

Total Annual Farm Business Income is therefore around £21,000: a very typical figure for hill farms in this area.

Other natural assets that the farm has include:

- Clean air
- Clean and plentiful water
- Thriving plants & wildlife
- Beauty, heritage and engagement with the environment
- Reduction of and adaptation to climate change

The withdrawal of BPS and introduction of new environmental land management schemes means that farmers and other land managers may be paid to deliver the ‘public goods’ which are of benefits to people and the environment. The key public goods that Pen Farm currently provides are:

- Water provision, Water quality regulation.
- Local climate regulation, Water flow regulation.
- Carbon storage.
- Pollination, Biodiversity, Soil quality regulation.
- Aesthetic experiences, Recreation & tourism, Education & training, Valuing biodiversity, Spiritual & cultural experiences.

Pen Farm in Lancashire explores how this change might affect the farming business and landscape of one holding: ‘Pen Farm’, as we attempt to find out ‘What’s a Hill Worth?’

What public goods can an upland hill farm provide?

Pen Farm is an imaginary farm, created as a result of research and analysis of three real-life farms on Pendle Hill, in Lancashire. The drawing below shows the farm as it is now:

Currently Pen Farm is made up of the following land cover types: 68% Improved Grassland, 15% Semi Improved Grassland, 10% Woodland, 8% Water, 3% Rough Grazing, 3% Rushy Grassland, 3% Other.

The drawing below shows the farm as it is now:

In total Pen Farm is currently a net emitter of 350 tonnes CO2/year (this is split evenly between land based emissions and farming activity).

Clean & plentiful water

Carbon storage.

Summary of the ‘What’s a Hill Worth?’ research Pen Farm case study


Conclusions

Our assessment concludes that the adoption of environmental land management on upland farms can deliver multiple public benefits associated with the main themes of the proposed new scheme. This will, however, require very significant changes in land management and farming practices that will place more emphasis in the future on environmental outcomes rather than on livestock production. Upland farms would probably need to increase the income from environmental agreements from their present level by about 3 times to compensate for the loss of the Basic Payment.

Acknowledgements

Proposals for new environmental land management at Pen Farm

Now that the owners of Pen Farm know what public goods their land currently provides they can begin to work out how to maximise these goods. They can do this by changing the way they manage the land to improve the condition of the natural assets and thereby increase the amount and value of the public goods they provide, and will be rewarded for.

As a result of the proposed new management approaches adopted, over time Pen Farm will come to look like this:

- **Moorland restored** on areas of semi-natural grassland used for rough grazing
- **New woodland and wood pasture** created from improved and semi-improved grassland
- **Riparian buffer zones, woody dams and off-line ponds** introduced along watercourses
- **Dry stone walls and traditional buildings restored and maintained across the farm**
- **Wide shelterbelts and well managed hedgerows** created from improved and semi-improved grassland
- **Recreational access improved**
- **Species-rich grassland** restored in areas previously covered by bracken
- **Peatland restored** on areas of moorland under common grazing (not shown, off landholding)
- **Rushy grassland managed for upland breeding wading birds**
- **Species rich grassland** restored in areas previously covered by bracken

**Impacts of the changes in land management on public goods and farm income**

- The area of intensively managed grassland will reduce by 56ha, to account for just 30% of total farm area
- The area of broadleaved woodland increases by 7ha, and there is also 3ha of new woodland, plus more scrub habitat for wildlife
- Semi natural and semi improved grassland area increases by 13ha

The Farm will have to reduce current livestock numbers by about 22% as there is less land available for grazing, and it is stocked at a lower density. However, although agricultural income will fall, around £5300 of running costs a year can be saved by reducing needs and costs for feed, fertiliser and vet services.

As Pen Farm, as in most upland areas, the main public goods are linked to water and carbon, and the benefits linked to ‘beauty, heritage and engagement’. Therefore:

- Trees, hedgerows and grasslands will store and capture more carbon from the atmosphere
- Carbon emissions from agriculture and the moorland will fall
- The value of improving water quality and reducing water flow will increase, especially if this is carried out in collaboration with neighbouring farms
- Air quality will increase
- Timber production will increase and some income from timber and wood-fuel will be generated in the mid to longer term
- Opportunities for education, training, recreation and tourism; and for aesthetic, spiritual and cultural experiences will all increase under the new management

In total Pen Farm will become carbon zero, sequestering 24.5 tonnes of CO₂ per year.

As the details of the new schemes are yet to be determined it is not possible to calculate the exact payments the provision of public goods in this scenario might generate towards the farm income.