Ireland – innovation example 4

DEVELOPING LOCALLY TAILORED LIVESTOCK FEEDING AND WATERING SYSTEMS

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Figure 1

- **Location:** Burren Region, Ireland
- **HNV system:** Extensive winter-based grazing of rough limestone pastures by suckler cows.
- **Scale of operation:** Tested on 20 farms (2,500ha) but adopted by many of the 450 farmers on c. 30, 000 ha of Burren HNV farmland.
- **Timespan:** 2005-2010
- **Keys to success:** Rigorous scientific approach to developing the alternative feeding system; testing of the new system by local farmers on their holdings; monitoring of environmental, financial and agricultural impact; peer-dissemination of new system; support for required infrastructure (feed bins, troughs, water provision facilities).

Figure 2

Problems addressed by this example

The negative impacts of silage feeding systems on Burren HNV grasslands. These impacts include water pollution, poaching of soils, introduction of weed species and visual pollution at feed sites, as well as issues with waste silage plastic and metal feeders. Silage feeding also contributes to the undergrazing of species-rich grasslands and the encroachment of scrub. Animal health issues – including blood scours etc. – may also be more prevalent at such feed sites.

Figure 3

Story in a nutshell

The two biggest challenges to the HNV farmland of the Burren are undergrazing, leading to scrub encroachment, and silage feeding, leading to pollution and species loss. These two problems are closely related (more feeding means less grazing and more scrub) and so a solution was identified to help solve both: replacing silage feeding with concentrate feedstuffs which could, in turn, increase forage uptake by livestock. To achieve this, forage samples were taken from the HNV grasslands of the Burren on a year round basis. These samples were analysed (including mineral content) for their nutritional value, and compared with the nutritional requirements of the main grazers – in-calf suckler cows. A specifically formulated (with high protein and mineral content) cattle feed was then developed to meet the nutritional requirements of the suckler cows who were foraging on these HNV grasslands. The new feeding system was tested on 20 farms and the resultant agricultural, environmental and economic impact was assessed by the farmers and a local team of scientists. The research findings demonstrated that feeding the Burren ration increased grazing on rough pastures as the cows could process the rough forage more efficiently with the high-protein ration: increased grazing helped improve biodiversity while reducing pollution levels from silage. Animal health and performance - for cows and their calves - also improved and the cost of the new system was shown to be lower than the prevailing silage based systems. Other benefits included easier herding of livestock. As a result of these proven benefits there was, and continues to be, a gradual move to this new feeding system. Feeding of this ration requires a good water supply, a particular challenge in the karst Burren - so a range of solutions have also been implemented to address this. These include rainwater harvesters, solar and wind pumps, pasture pumps, hydra pumps, water storage tanks etc.

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What did developing a new supplementary feeding system achieve for HNV farming?

- Major reduction (>65%) in the feeding of silage with a consequent increase in grazing levels on undergrazed HNV farmland and reduced levels of water and soil pollution
- Improved animal performance (less illnesses, better calving intervals)
- Improved cost-benefit scenario for Burren farmers (reduced costs and time spent)

Figure 4

Figure 5

Achievements

In the period 2005-2010 there was a reduction by over 65% in the feeding of silage on project farms. This feeding concentrate feeding system reduced animal health issues and increased animal performance (verified by local vets). A best practice guidance document was published outlining the details of how best to supplementary feed outwintering livestock.

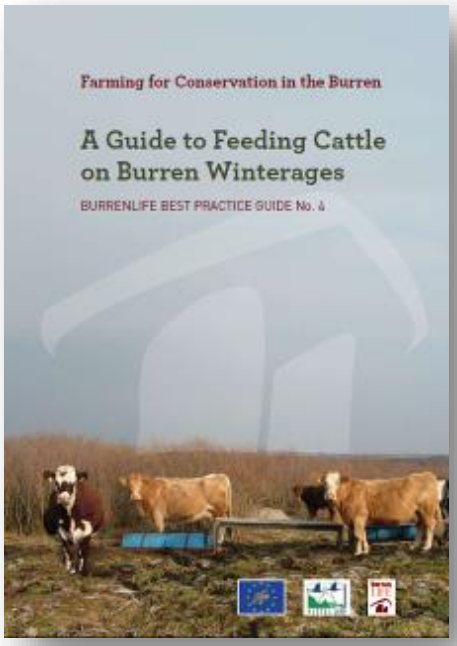

Figure 6

Economics of HNV farming

The new feeding system was demonstrated to be very cost-competitive when compared with the existing silage-based system.

Maintaining or improving HNV values

The new feeding system greatly improves a number of HNV values: reduced water pollution, reduced soil damage, reduced levels of visual pollution and increased forage uptake resulting in improved biodiversity.

Figure 7

Figure 8

Figure 9

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How did a new supplementary feeding system respond to the HNV LINK innovation themes?´

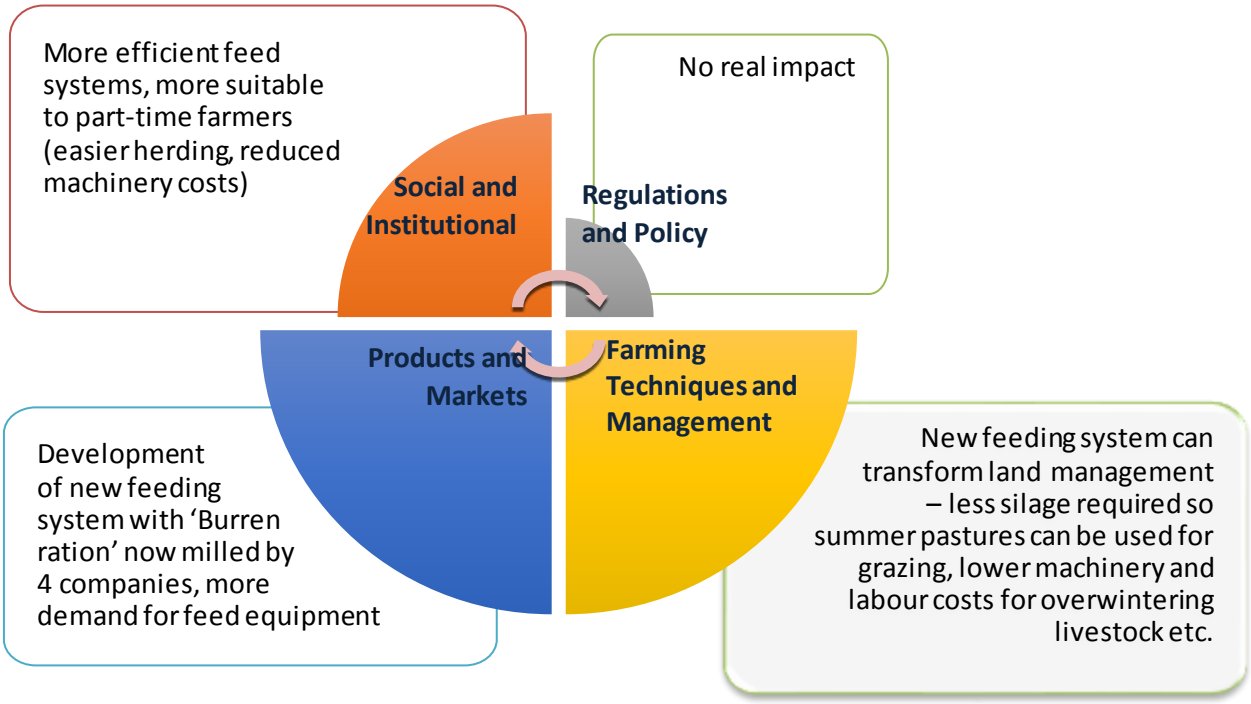

Figure 10 *Shows how this innovation addresses the four themes of the HNV-Link innovation framework.*

This practical farming innovation significantly changes farm management systems and enables a more efficient farming system in the Burren. It has resulted in the production of a dedicated 'Burren ration' feed stuff by feed mills. It has not had an impact on policy.

The process that made it happen and critical factors for success

- Listening to farmers regarding possible solutions to the problem of silage feeding
- Co-creation of solution by farmers and scientists; monitoring of environmental and agricultural impact
- Peer recommendation of new feeding system by local farmers to others

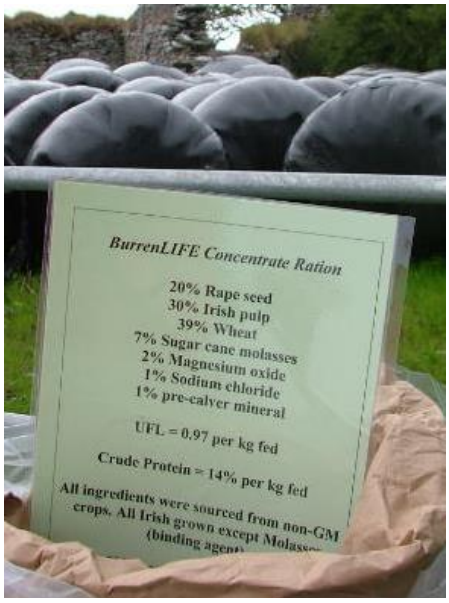

Figure 11

Figure 12

Figure 13

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Actors and roles: Teagasc (the National farm research and advisory service) through Dr. James Moran and with the support of the BurrenLIFE project team developed the new feeding system. The impact was monitored by the team and by the farmers and results shared by the team and farmers through farm demonstration events. A major feed company – Kerry Food – milled the ration and it was initially subsidized for a trial period.

Figure 14

Institutional context that made it possible: LIFE funding (2.23m) was available, a small proportion of which was used to develop the new feeding system. Technical support and credibility of Teagasc was a key factor.

Processes: Critical factors for success: rigorous development process, high level of farmer involvement, careful monitoring and dissemination of findings. Practical outcome.
Limiting factors: reluctance among farmers to change from familiar silage-based system: still being overcome, mainly by peer testimonial as to the efficacy of the new system.

Lessons learnt from this innovation example, and its potential replication

- HNV farmers have a lot of good ideas and when involved in the 'co-creation' of solutions they have a far higher sense of ownership
- Targeted use of high protein ration can be very effective of increasing forage uptake on HNV grasslands and can be an important tool to help restore undergrazed grasslands
- The development pathway for this innovation is easily replicable: analysis of forage value of HNV grassland, comparison with nutrient requirement of primary grazers, development of a feedstuff to bridge any gap; test on local farms and monitor impact; share results with farming community on demonstration farms

Overall lessons for HNV farming:
Practical solutions to key HNV farming challenges do exist and can have a huge impact when implemented well. New approaches to animal nutrition can have a major impact on the environmental health of HNV farmland. Co-creation of solutions which involve farmers at all levels ensure far better levels of buy-in and roll-out.

Replicability of innovation and key requirements to do so:
This innovation is highly replicable. It requires co-operation between farmers, scientists and feed companies along with modest resources for research and development.

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