

Improve biodiversity and drinking water quality with results based agri-environment schemes

It is expected that a new agri-environmental scheme will commence in 2023, which will contain results-based elements. This will provide payments to participants based on achieving measurable results. There will also be payments for delivering specified actions (the payment model for the various iterations of REPS, AEOS and GLAS).

Where an applicant commits to delivering 'results-based elements,' the health/condition of the habitat will be scored (e.g., on a scale of 1-10) using a range of indicators to assess biodiversity, water quality and soil health. The better the environmental health of a field, the higher its score and consequently the more the farmer will be rewarded for their time, effort, and management. Each field stands on its own merits and contributes to an overall farm score.

What it boils down to is that delivering on biodiversity, water quality and soil health will pay -- the better the 'environment conditions' on your farm, the higher the payment will be. So, it is worth thinking about the actions you can take today to maximise environmental scores and future earnings.

Management affects biodiversity

It is well established that the management imposed on a field by a farmer significantly impacts biodiversity, e.g., stocking rate, severity of grazing, regrowth interval and nutrient status (N, P, K, and pH). For example, relatively high levels of N, P, K, tight grazing, and a pH in the range of 6.0 – 6.5 all act to promote responsive grass species (perennial ryegrass etc.).

Lax grazing and low levels of soil fertility favour the dominance of positive indicator species, such as native wildflowers, herbs, vetches and clovers (red and white), which are all species that will contribute to higher scores and payments. Farmers will need to realign their perception of a weed – some are detrimental (rushes, docks etc.) if present in large populations, but others can thrive in tandem with good framing practice.

Herbicides are designed to kill weeds and so a decision to use a grassland herbicide will negatively impact on sward biodiversity and may threaten water quality. These are not actions you want to take if you are considering signing up for results-based elements of any future agri-environment scheme.

Example

Table 1 lists the 'weeds' controlled by herbicides that are based on MCPA. Such products are mainly used to tackle rush infestations, but they also kill other herbs and broadleaved plants in the sward at the time of application. So, using any grassland herbicide will reduce sward species diversity. This is especially the case in old permanent pastures which may have built up a rich diversity over many decades.

Herbicides do what they are designed to do, but in the new era of results-based agri-environmental schemes, it is crucial that you think twice about your decisions and actions to avoid unintended consequences. You must now ask if the 'benefit' derived from spraying (or mulching) rushes outweighs potential income loss that can be derived from participating in the new generation agri-environmental schemes.

Table 1. A summary of weeds controlled by MCPA products.

Susceptible	Greater plantain, Ribwort Plantain
Moderately susceptible	Autumn Hawkbit, Cat's Ear, Common Knapweed, Compact Rush, Creeping Thistle, Common Daisy, Common Ragwort, Hoary Cress, Meadow Buttercup, Self-Heal, Soft Rush, Spear Thistle

How REAP works

To further emphasis this point it is worth looking at how the current REAP program (**R**esults Based **E**nvironment-**A**gri Pilot **P**roject) works, as it reflects current thinking within the DAFM.

Participants in REAP are trialling various environmental measures designed to enhance 'on-farm' biodiversity and related environmental services, ultimately feeding into the next iteration of GLAS which is due to commence in 2023.

As REAP is currently structured, it has two 'flagship' measures – **L**ow-**I**nput **G**rassland (LIG) and **M**ulti-**S**pecies **L**eys (MSL). Each field is scored separately using relevant scorecards. Applicants can also select relevant complementary actions (e.g., tree or hedge planting) as part of a hybrid payment model.

A trained advisor scores each field (from 1 to 10) to determine its environmental value, the higher the score the greater the payment (up to a maximum upper limit of €400/ha for LIG and €275/ha for MSL). The lowest score for which payment can be made is four – no payment issues for scores of one, two and three.

Negative indicator species and damaging activities are also assessed as part of the scorecards.

Table 2. Payment rates to accompany each score for LIG

Score	<4	4	5	6	7	8	9	10
€/ha	0	250	275	300	325	350	375	400

Table 3. Payment rates to accompany each score for MSL

Score	<4	4	5	6	7	8	9	10
€/ha	0	125	150	175	200	225	250	275

Based on LIG payments only, Table 4 summarises the potential financial impact over five years for two applicants each farming 10ha, achieving average biodiversity scores of 9 and 4 respectively. In this example, applicant A would be €6,250 better off (compared to Applicant B) at the end of the scheme (assuming both applicants keep their existing biodiversity score, which obviously can go up or down).

Table 4. Financial impact from a results-based agri-environmental scheme through obtaining a high (9) versus a low (4) biodiversity score over five years on a 10ha holding.

	Holding (ha)	Scheme duration (years.)	Average biodiversity score	LIG (€/ha)	€/holding/year	€/holding for five years.
Applicant A	10	5	9	375	3,750	18,750
Applicant B	10	5	4	250	2,500	12,500

As REAP is currently structured, a bonus payment of €50/ha is available for late meadow cutting (between July and August) where the LIG scorecard is chosen.

Avoid biodiversity loss

Anecdotal commentary from advisors involved in assessing fields for REAP payments suggests a direct relationship between MCPA application and low biodiversity scores. Fields where MCPA products had been applied in the previous two years, lacked both the quantity and diversity of plants needed to get good scores and so payment levels were at the lower end of what was potentially available.

It was also observed that higher plot scores were achieved where individuals had used weed-wiping technology, with herbicides based on glyphosate (e.g., Roundup) as a more targeted approach to tackling harmful/noxious weeds.

It should also be noted that rushes have a value in the environmental scorecard and can contribute positively to sward structure, provided they are not over-dominant. In such cases they can be managed by appropriate grazing levels or rotational topping as an alternative to herbicide use.

Residues

One of the reasons for commenting on MCPA in this article is that it continues to show up at low levels in drinking water supplies, and it is suggested that its use could/should be substantially curtailed in future to provide a win-win situation for farmers, i.e. improved water quality and biodiversity along with better financial remuneration for a small amount of forward planning.

In brief

Think long and hard about the potential financial implications from applying herbicides to grassland.

This is especially true with regard to MCPA use, which needs to be minimised to prevent loss to water bodies.

If you intend to participate in one of the new agri-environmental schemes, spraying with MCPA is likely to reduce one's results-based biodiversity payment.