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Appendix I Example farm

An example of how the pollinator score changed for a beef farm (Farm 27) over three years is shown below. The pollinator scorecard and associated farm map for each of the farming years one to three can be seen (Tables 3-5 and Figures 4-6). An example on what the potential farm pollinator score could be for the farming year 2022/2003 (year four) can be seen in Table 6 and the associated farm map can be seen in Figure 7.

The farmer increased their pollinators points from 13,788 (€689) in year one to 17,388 points (€869) in year two, to 27,593 points (€1,380) in year three. Within two farming years, this farmer more than doubled their score. This was achieved by changing how they managed their hedgerows and by increasing the amount of clover swards on the farm.

Table 1 Whole farm pollinator scorecard for Farm 27 for the farming year 2019/2020 (year one).

No.	Action	Units of measurement	Approximate amount	Proposed Weighting	Final Score	Monetary Reward
8	Clover pasture / mixed species sward allowed to flower	ha	1.95	400	2340.00	€117.00
10	Non-farmed areas (e.g., around farmyard, lanes, road margins) unmanaged to allow grass and wildflowers to grow naturally	m ²	21778	0.10	8711.20	€435.56
18	Herbicides - only used on crops and not used to "tidy-up" the farm	Yes or No	27.3	5	136.50	€6.83
			TOTAL		13787.70	€689.39



Figure 1 Farm map associated with the whole farm pollinator score for Farm 27 for the farming year 2019/2020 (year one). Maps are drawn in Google Earth.

Table 2 Whole farm pollinator score for Farm 27 for the farming year 2012/2021 (year two).

No.	Action	Units of measurement	Approximate amount	Proposed Weighting	Final Score	Monetary Reward
3	Flowering hedgerow cut once every two years (no margin)	metres	1800	2.00	3600.00	€180.00
5	Pollinator-friendly flowering trees (up to max 500)	number of trees	104	5	2600.00	€130.00
8	Clover pasture / mixed species sward allowed to flower	ha	1.95	400	2340.00	€117.00
10	Non-farmed areas (e.g., around farmyard, lanes, road margins) unmanaged to allow grass and wildflowers to grow naturally	m ²	21778	0.10	8711.20	€435.56
18	Herbicides - only used on crops and not used to "tidy-up" the farm	Yes or No	27.3	5	136.50	€6.83
SCORE					17387.70	€869.39



Figure 2 Farm map associated with the whole farm pollinator score for Farm 27 for the farming year 2012/2021 (year two). Maps are drawn in Google Earth.

Table 3 Whole farm pollinator score for Farm 27 for the farming year 2021/2022 (year three).

No.	Action	Units of measurement	Approximate amount	Proposed Weighting	Final Score	Monetary Reward
3	Flowering hedgerow cut once every two years (no margin)	metres	1800	2.00	3600.00	€180.00
4	Other pollinator-friendly field boundary	metres	0	1.00	0.00	€0.00
5	Pollinator-friendly flowering trees at least 10 years established (up to max. 500)	number of trees	104	25.00	2600.00	€130.00
9	Clover pasture / mixed species sward allowed to flower	ha	15	400	12000.00	€600.00
11	Non-farmed areas (e.g., around farmyard, lanes, road margins) unmanaged to allow grass and wildflowers to grow naturally	m ²	21778	0.10	8711.20	€435.56
17	Eliminated herbicides from whole farm	Yes or No	27.3	25	682.50	€34.13
SCORE					27593.70	€1,379.69

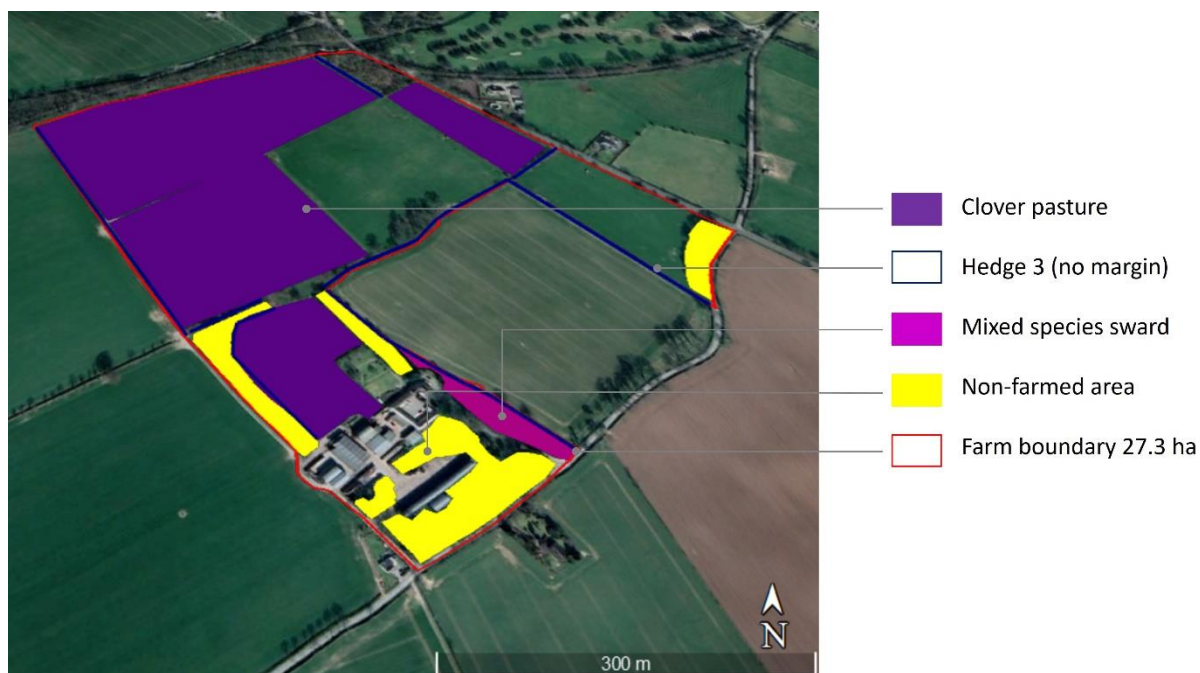


Table 4 Potential whole farm pollinator score for Farm 27 for the farming year 2022/2023 (year four).

No.	Action	Units of measurement	Approximate amount	Proposed Weighting	Final Score	Monetary Reward
1	Flowering hedgerow max. cut once every 3-5 years with a 1.5-2m margin or understory fenced from grazing part of the year or untilled	metres	86	10	2580.00	€129.00
2	Flowering hedgerow cut once every 2-5 years with at least 0.5m margin fenced from grazing part of the year or untilled	metres	482	4.0	5784.00	€289.20
3	Flowering hedgerow cut once every two years (no margin)	metres	1232	2.00	4928.00	€246.40
5	Pollinator-friendly flowering trees at least 10 years established (up to max. 500)	number of trees	104	25.00	2600.00	€130.00
7	Native hay/wildlife meadow (maximum cut or grazed once/twice a year)	ha	0.42	6000	7560.00	€378.00
9	Clover pasture / mixed species sward allowed to flower	ha	14.58	400	11664.00	€583.20
11	Non-farmed areas (e.g., around farmyard, lanes, road margins) unmanaged to allow grass and wildflowers to grow naturally	m ²	21778	0.10	8711.20	€435.56
17	Eliminated herbicides from whole farm	Yes or No	27.3	25	682.50	€34.13
SCORE					44509.70	€2,225.49

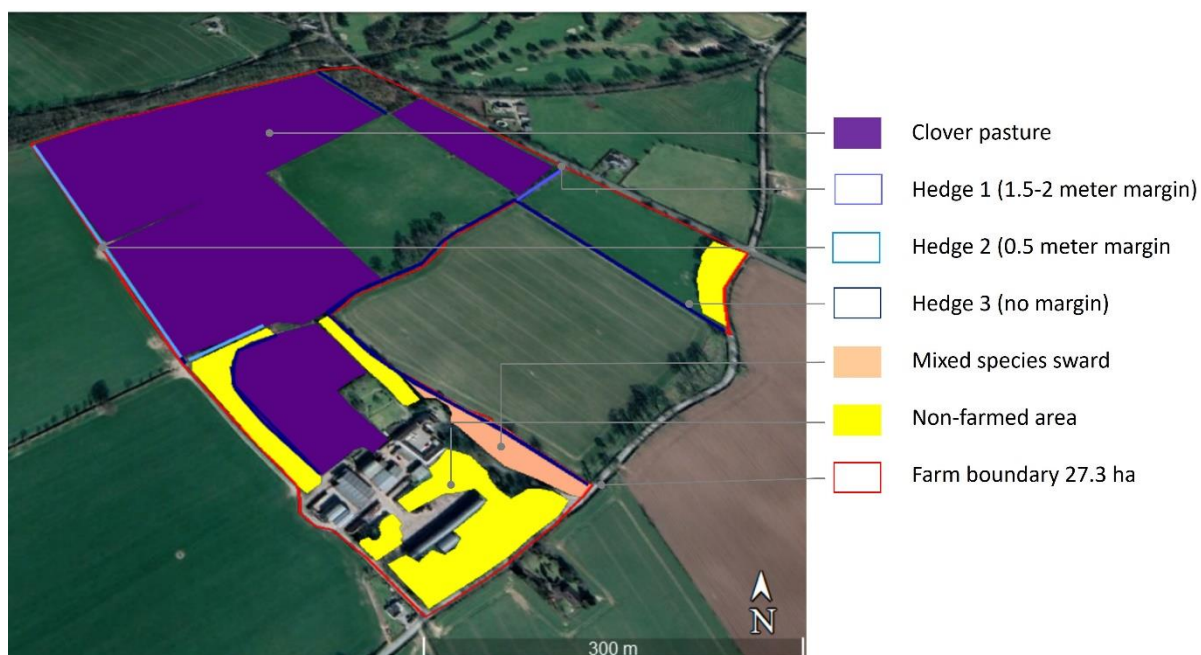


Figure 4 Farm map associated with the potential whole farm pollinator score for Farm 27 for the farming year 2022/2023 (year four). Maps are drawn in Google Earth.

Table 5 The table shows the area of land eligible for the basic payment scheme (BPS) (ha), the number of different pollinator friendly habitats on the farm, the total area of pollinator friendly land (ha) and the monetary reward for the farmer (€) over a four-year period for a beef farm (farm 27).

	Year 1	Year 2	Year 3	Year 4
Productive land area (BPS eligible) (ha)	25.12	25.12	25.12	25.12
Number of pollinator friendly habitats	3	4	4	5
Total area pollinator friendly habitat (ha)	4.14	4.5	17.96	17.96
Monetary reward for farmer	€689	€869	€1,380	€2,225

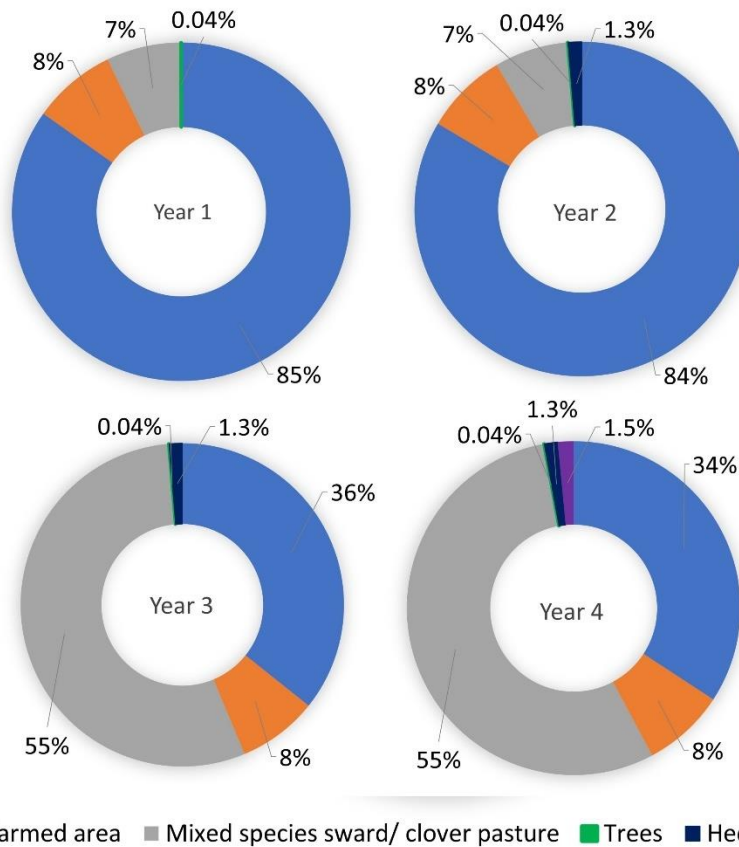


Figure 5 The donuts show the percentage of pollinator friendly land within a beef farm over a four-year period. Year one to three are based on actual data and year four is theoretical. Other refers to land that is of little value to pollinators.

Appendix II: Calculation of the range

The calculation of the range for the hedgerow actions (1-4) is based on the number of flowering plant species (number of plants in flower). The woody plants and the plants at the base of the hedge or within the margin (ground flora) area are included. The following equation is used to calculate the range for actions 1-4:

$$N = \frac{(\text{number of species of ground flora} + \text{number of woody species})}{2}$$

If $N = <2$ (2 species) the range = 1

If $N = 2-4$ (3-9 species) the range = 2

If $N = 5-6$ (10-12 species) the range = 3

If $N = 7$ (14 species) the range = 4

If $N = >8$ (16 species) the range = 5

To get a score of 5 for a hedge you need at least 16 species of flowering plants in flower in that hedge.

E.g. Woody species = 8

Ground Flora = 8

$N = 8$

$$N = \frac{8 + 8}{2}$$

For all other actions (7-12), the range is based on the number of flowering plant species (number of plants in flower).

1 = <2 species in flower

2 = 3-4 species in flower

3 = 5-7 species in flower

4 = 8-12 species in flower

5 = >12 species in flower

To get a score of 5 for a hay meadow you need at least 12 plant species in flower within the meadow.

For auditing purposes, if an action's range increases between years, photos must be submitted by the farmer to the project manager showing the increased floral diversity.

Simple guidelines on how to improve a farms pollinator score were produced, so that progress can be easily measured and that all farms can become more pollinator-friendly over time.

Appendix III Solitary bee nest data

Table 6 Diversity and total abundance recorded from active ground nesting solitary bee sites for each farm type (beef, dairy, mixed and arable). The number of sites surveyed per farm and the number of surveys per farm are also reported.

Beef Farms	Farm 1	Farm 2	Farm 3	Farm 4	Farm 5
Diversity	4	2	2	2	1
Abundance	4	2	2	2	1
Sites Surveyed	3	1	1	1	1
Number of Surveys	4	1	1	1	1

Dairy Farms	Farm 1	Farm 2	Farm 3	Farm 4	Farm 5	Farm 6
Diversity	3	2	5	1	1	3
Abundance	3	2	6	1	1	4
Sites Surveyed	1	1	4	1	1	1
Number of Surveys	1	1	5	1	1	2

Mixed Farms	Farm 1	Farm 2	Farm 3
Diversity	2	4	1
Abundance	5	4	1
Sites Surveyed	3	1	1
Number of Surveys	3	1	1

Arable Farms	Farm 1	Farm 2	Farm 3	Farm 4	Farm 5
Diversity	2	2	1	1	1
Abundance	3	3	1	1	1
Sites Surveyed	2	1	1	1	1
Number of Surveys	2	2	1	1	1