Referral Report

Agricultural Sustainability Support and Advisory Programme (ASSAP)

Advisors working with ASSAP offer a free and confidential advisory service to farmers. Where farmers agreed to take part in the programme the advisor carried out a farm assessment and recommended mitigation actions targeted to address the water issues identified by the Local Authority Waters Programme (LAWPRO).

Mitigation Actions Recommended

During a farm visit the advisor identifies issues that need mitigation measures implemented to reduce the risk to water quality. These are categorised as Risk 1, 2 or 3. Risk 1 issues are those that are most likely to impact on water quality and relate directly to the water quality issues identified by LAWPRO. Risk 2 and 3 are other issues on the farm that may require management or improvement which would indirectly lead to improvement in water quality.

Reporting

Waterbody scale reports are a summary of the issues impacting water quality and the mitigation actions implemented by farmers. They are a synthesis and interpretation of individual referral reports. They are prepared by ASSAP advisors following review with the catchment scientist.

Accompanying this report are summary details of the mitigation actions recommended and implemented in this waterbody. This report and the accompanying tables will be uploaded to the WFD App.

Summary

PAA	Sow
No. of waterbodies	4
Water body name	Sow_030
Number of referrals	2
Referral codes	SE_Sow_002 – phosphate SE_Sow_003 – nitrate
Advisor	Neilus Nunan, Teagasc, Eamonn Grace, Teagasc (retired) TJ Phelan & Matthew Moylan (Tirlan)
Scientist	Stephen Davis, LAWPRO
Date	1st June 2023

1 Referral 1:

1.1 Background information

Table 1: Information relating to PAA and waterbody name, draft and referral code, and referral date.

PAA	Waterbody	Draft referral code (LAWPRO excel code)	WFD App Referral code	Referral date
Sow	Sow_030	SE_Sow_002	RA0000167 RA0000175	07/04/2020

1.2 Referral evidence and significant issue

From LAWPRO referral

The Sow_030 is currently at moderate status (2013-2018). Phosphate is a significant issue affecting its water quality. The catchment is a mix of well and poorly drained soils with poorly drained soils mainly to the west. These are the areas with potential pathways for phosphate loss.

Two tributaries of Sow_030 flowing east-west. Focus on fields adjacent to the watercourse or adjacent to drains which drain into the main waterbodies

1.3 Measures implemented following advice

Information relating to the final mitigation measures agreed and implemented – at referral scale. Use data from Farm Assessment records to detail measures implemented.

The farmers in the poorer draining areas of this section of the Sow were asked to take on measures to ensure that phosphorous losses would be minimised. High Phosphorous PIP maps were consulted extensively to target the right measures in the right place. This was the main focus of the visits but other measures were also recommended as many of these farms also had lighter/drier fields and some tillage which required other mitigation measures to be taken on. The main actions recommended in relation to the referral were as follows;

- Source control options were discussed with farmers such as informing and educating around the areas of NMP implementation, increasing use of clover, multi-species swards, protected urea, soil sampling, etc. as well as provision of extra slurry storage facilities in some cases and addressing issues around the proper storage and land spreading of FYM.
- Mobilisation control options were also discussed on farms such as avoiding high risk activities such as applications of fertilisers/organic manures very early and late in the season and in high risk areas such as near expose rock, lakes, waterbodies, etc. The use of LESS was promoted extensively as was the general precision application of nutrients and pesticides.
- High phosphate PIP maps were used extensively to identify at risk areas and in particular, Critical Source Areas or C.S.A's and measures such as buffer zones/fencing/moving of water troughs and feeders, etc. were recommended to protect these areas from the detrimental effect of overland flow of P and sediment in particular
- The planting of hedges and trees were recommended in some cases where they could act as buffers to slow down and break the pathway of P and sediment upslope from the CSA or waterbody identified
- Sediment traps close to the farmyard were recommended in a small number of cases where the nutrient load and strength of grey water from the yard was very high.

1.4 Barriers to implementation of measures

Information relating to the barriers that prevented the implementation of mitigation measures recommend by ASSAP – at referral scale.

List of potential barriers:
Time (e.g., measure not implemented because farmer must wait until next growing season),
Cost (e.g., farmer can't afford to implement a measure),
No. of farms that have not engaged
Behaviour (e.g., reasons for no or lack of engagement or participation)
Social (e.g., age, health)
Policy (e.g., existing policy prevents the farmer from implementing a measure),
Non-ag issue (e.g., LAWPRO confirmed the issue is due to a pressure other than agriculture, such as WWTP),
Time lag (e.g., waiting for nutrient levels to decline after nitrate mitigation measures are implemented),
Unknown issue (e.g., where ASSAP and LAWPRO agree the pressure or issue has not been identified)

Describe any barriers to implementation of measures, see suggestions above, and any others.

The main barrier to the uptake of some of these measures was cost, in particular the cost of watercourse fencing and providing heavily vegetated riparian buffers. Also, some of the part time farmers intimated that they did not have the time to carry out extensive fencing on the farm and did not see the need. Many were unhappy at the suggestion of moving long established water trough locations even when they understood the good reasons for it. The fact that most of these recommendations will most likely become compulsory in time for all farms was not lost on them but only served to rationalise their postponing of the inevitable.

1.5 Referral 1 Conclusion

Conclusion relating to the process from measures recommended to barriers to implementation – at referral scale.

Unfortunately phosphate losses to water will continue to be a significant pressure in this section of the Sow until all farmers bite the bullet on protecting waterbodies from overland flow of P and sediment by agreeing to fence off waterbodies and move troughs, etc. To be fair, many have already carried this out but this was mainly due to the legislation having caught up on them. There is still a cohort of farmers out there that are stubbornly resistant to carrying this out and may wait until they have no other choice, which is unfortunate. Riparian buffers that are heavily vegetated also form a large part of the solution and their uptake also needs to improve dramatically. Financial assistance and/or legislative requirements are needed to enable this to occur.

In the meantime most farmers in the referral areas and PAA in general are doing great work to minimise the effect of P losses by carrying out the many measures recommended. It is hoped that the cumulative effect of all their efforts will have a significantly positive overall effect on the water quality of the Sow_30 over time.

This referral conclusion can be combined with the conclusions on other ag referrals for this water body and entered into the WFD App.

2 Referral 2:

2.1 Background information

Table 2: Information relating to PAA and waterbody name, draft and referral code, and referral date.

PAA	Waterbody	Draft referral code (LAWPRO excel code)	WFD App Referral code	Referral date
Sow	Sow_030	SE_Sow_003	tbc	07/04/2020

2.2 Referral evidence and significant issue

From LAWPRO referral

The Sow_030 is currently at moderate status. Nitrate is a significant issue affecting its water quality. The catchment is a mix of well and poorly drained soils well drained soils underlain by a sand and gravel aquifer to the east. The sand and gravel aquifer is the most prevalent pathway for nitrate loss in the catchment. PIP maps show that all of the area east of the waterbody has a high potential for nitrate loss.

This referral applies to the high nitrate PIP areas in the catchment.

2.3 Measures implemented following advice

Information relating to the final mitigation measures agreed and implemented – at referral scale. Use data from Farm Assessment records to detail measures implemented.

Nitrate losses to water are a very significant problem in this area of the Sow and in the region overall as evidenced by the very high nitrate concentrations in the River Slaney, close by. The suite of measures recommended to deal with the nitrates problem were as follows;

- NMP advice to maximise nutrient use efficiency and avoid the overuse of N in particular as many farms in the area were still applying nitrogen very early and late in the year just in case there may have been growth to take it up. This was a widespread practice was years and years and was fuelled by low fertiliser prices. The increase in price in recent years has helped to stem these practices
- Soil thermometers were recommended and demonstrated to help farmers know when to start applying fertiliser and recognise the wastage that occurs when N applications are mistimed
- Grass measuring and looking at growth rates were recommended to help farmers maximise N applications and know how much to apply at certain times of the year
- Clover and multispecies crops were recommended to help reduce dependence on expensive chemical fertiliser inputs and have gained a lot of traction in the last couple of years
- Cover/catch crops were strongly recommended for spring sown tillage crops in the area to mop up excess N in the risky autumn and winter periods

2.4 PAA Communications

Description of farmer meetings, discussion groups, KT events, media engagements, newsletters, training courses etc undertaken by ASSAP advisors in water body. Dairy co-op advisors to detail their engagements separately.

Where relevant, include a description of broader engagements in the PAA in addition to the one-to-one farmer-advisor farm assessments. If this is a joint report from ASSAP Teagasc and dairy co-op advisors, you may wish to detail the dairy co-op communication engagements separately.

- LAWPRO Community information meeting
- ASSAP farmers meeting
- Local discussion group meetings
- Articles in local paper
- South East radio interviews
- Newsletters
- AETS water quality course completed with a number of farmers in PAA

2.5 Barriers to implementation of measures

Information relating to the barriers that prevented the implementation of mitigation measures recommend by ASSAP – at referral scale.

List of potential barriers:
Time (e.g., measure not implemented because farmer must wait until next growing season),
Cost (e.g., farmer can't afford to implement a measure),
No. of farms that have not engaged
Behaviour (e.g., reasons for no or lack of engagement or participation)
Social (e.g., age, health)
Policy (e.g., existing policy prevents the farmer from implementing a measure),
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Time lag (e.g., waiting for nutrient levels to decline after nitrate mitigation measures are implemented),
Unknown issue (e.g., where ASSAP and LAWPRO agree the pressure or issue has not been identified)

Describe any barriers to implementation of measures, see suggestions above, and any others.

There were some barriers to the implementation of the measures recommended and mainly related to cost. The cost of stablishing cover crops in particular was seen as onerous by many and some took a lot of convincing on the many benefits of them. In general the attitude to the measures recommended were very positive and this was helped greatly by the huge spike in fertiliser costs in recent years and that of nitrogen costs, in particular. Most farmers were very keen to learn how they could reduce their dependence on chemical N and this helped the advisors greatly in the task.

2.6 Referral 2 Conclusion

Conclusion relating to the process from measures recommended to barriers to implementation – at referral scale.

This referral conclusion can be combined with the conclusions on other ag referrals for this water body and entered into the WFD App.

There was a huge amount of work involved in changing farmer attitudes towards the overuse of chemical N in the area. Many were genuinely unaware of the detrimental effect they were having on the environment by doing this. Education on this was a key plank of the mitigation strategy used and was helped greatly by the very significant spike in fertiliser N costs in recent times. This provided the 'burning platform' needed to influence and change these attitudes of casual overuse due to historically low input prices in the past.

New best practices and technologies such as cover crops and multispecies swards in particular have been embraced to help reduce dependence on expensive chemical N inputs and can only serve to improve the overall water quality in the years to come. The cumulative effects of this and the many more measures recommended should have a very positive overall effect over time in reducing nitrate levels and in raising the current status of the River from moderate to good, hopefully.

Summary of actions carried out in the waterbody as a whole:

13 farms were visited by Advisors in the Sow_030 with each farm getting a plan from the advisors containing advice to reduce pesticide and nutrient/sediment loss to the waterbody. Of the 13 farms, 3 received two farm visits, 1 received three visits and 1 received 4 visits by advisors to support the farmers in the PAA.

Risk 1's identified in the Waterbody: 79

Identifying the risks is crucially important is setting out the appropriate mitigation measures needed to be implemented on the ground by the farmers. This highlights the importance of one on one farmer support to improve water quality.

Table 0-3: Risk 1 mitigation action progress in Sow_030

Commenced	Complete	Ongoing
18	4	23

3 Appendix 1 Referral structures

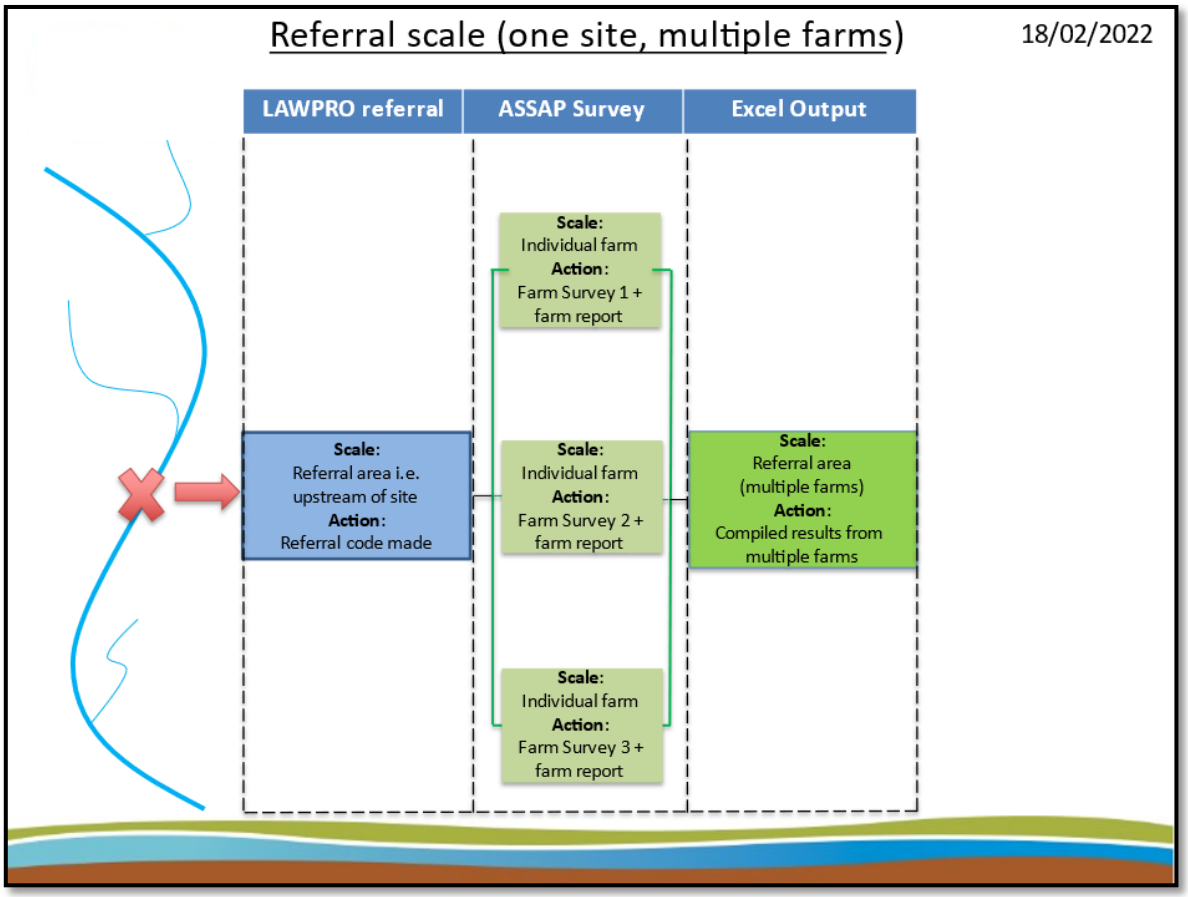

Figure 1 Image showing the hypothetical structure of referral scale. One referral is typically one site in the waterbody that has shown evidence of impact and the referral area around it may contain multiple farms i.e., referral scale ~ one site, multiple farms.

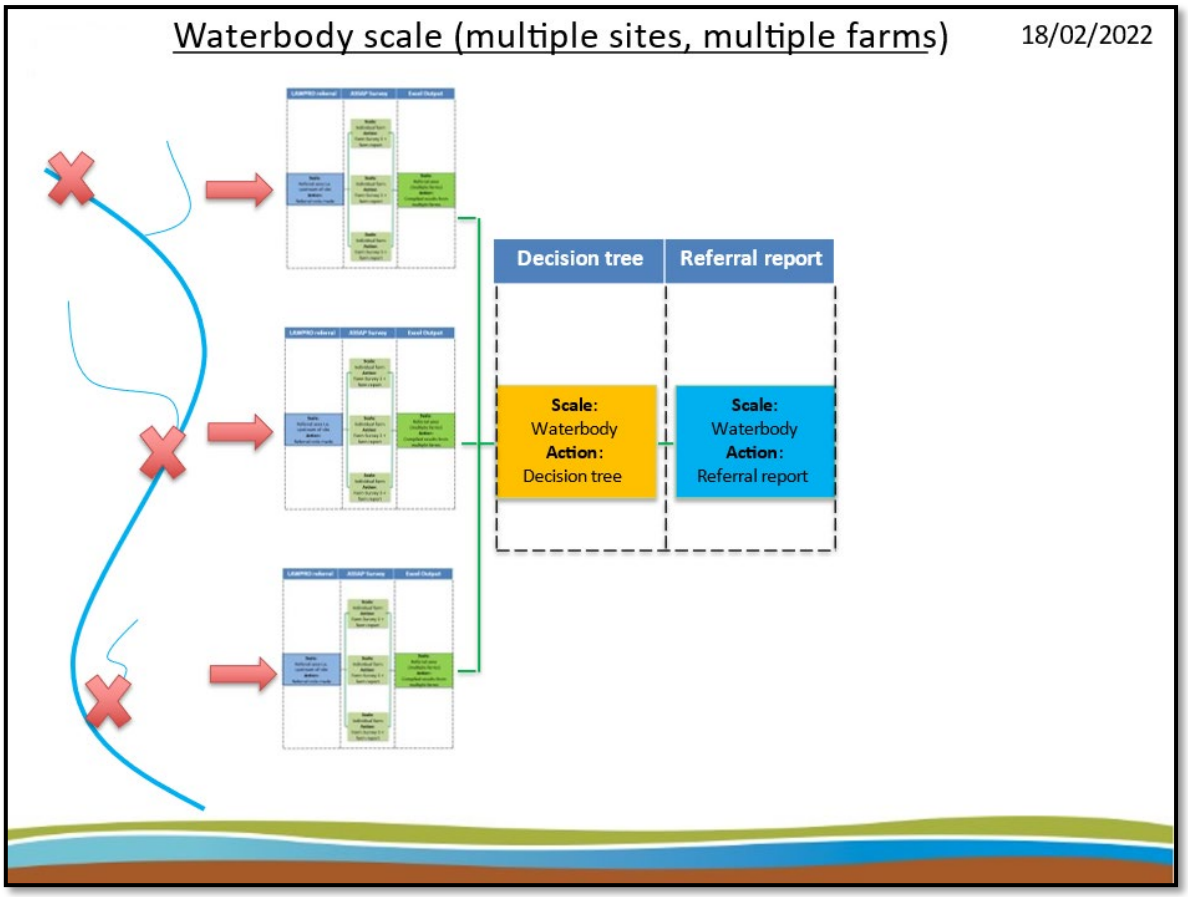

Figure 2 Image showing the hypothetical structure of waterbody scale. This document reports at waterbody scale but uses referral scale details and results. Waterbody scale contains multiple sites and referral areas i.e., waterbody scale ~ multiple sites and multiple farms.

4 Appendix 2 Handover process (decision tree)

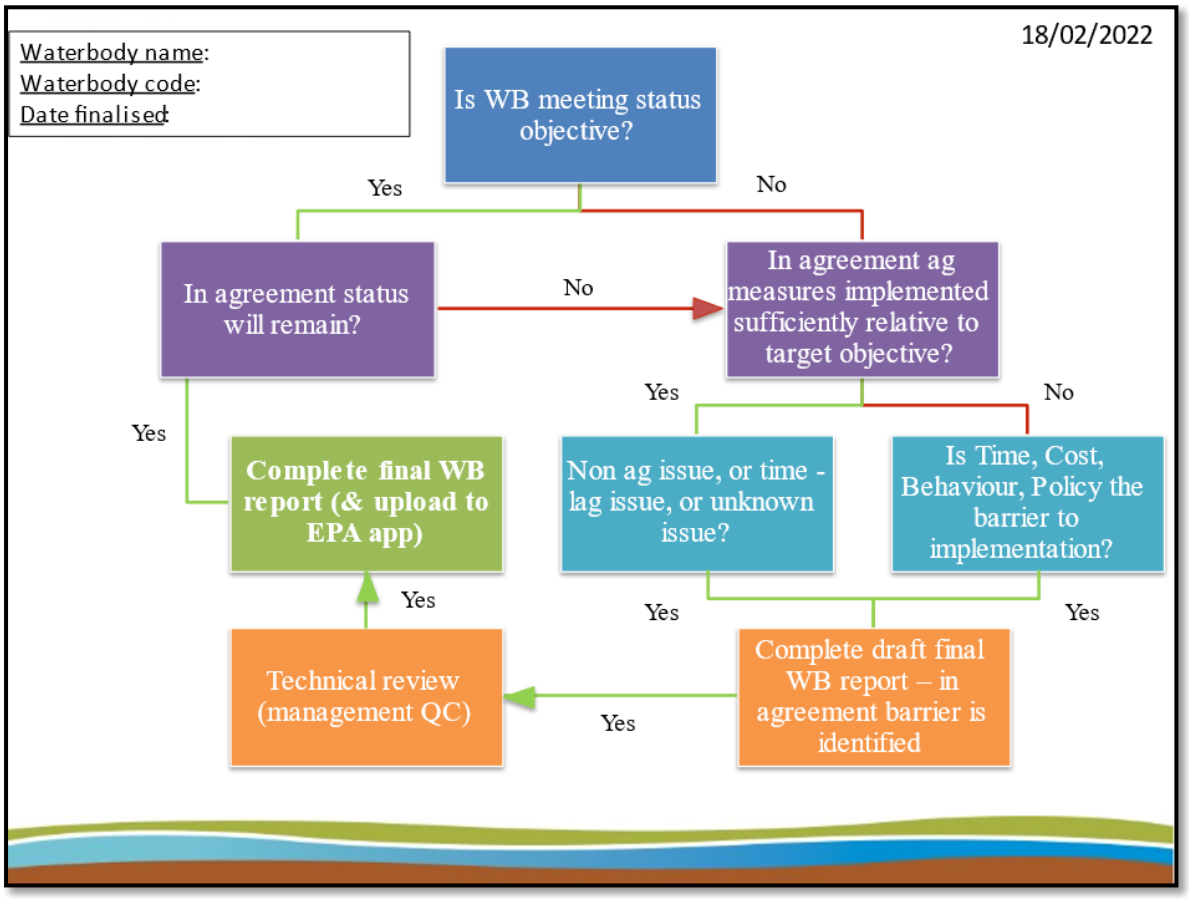

Figure 3 Decision tree used by advisor and scientist to discuss measures and any barriers to measures identified. This is used as part of the handover process.