POLICY BRIEF No.9

NUTRI-CHECK NET
OPTIMISING CROP NUTRITION

Title:

Supporting nutrient management checking and reviewing on farms for successful and efficient nutrient use in agriculture

Objective:

- This Policy Brief aims to summarize the evidence collected by the NUTRI-CHECK NETwork on how nutrient management strategies for arable crops in Ireland can be made more effective by adopting a more holistic 3 step nutrient management approach.
- Inappropriate applications of nutrients to crops can result in both economic and environmental risks. Farmers in Ireland are currently obligated to match crop nutrient (specifically nitrogen and phosphorus) applications to crop requirements under the Nitrates Directive National Action Plan (NAP) rules[1]. Whilst these rules and incentives encourage soil testing and appropriate planning of nutrient applications in arable systems prior to the main crop growing season, there is no standard format established for assessing how seasonal conditions may have impacted the nutrient demands of the crop.
- Opportunities to better utilize tools to gather and interpret farm- and field-specific nutrient management data exist However, this data may come from disparate sources and often presents challenges to collate, analyze and interpret to inform crop nutrient management decision making.
- Key indicators and benchmarks of successful nutrient management on farms are not readily available, or frequently used by farmers, farm advisors and agronomists. The use of indicators and benchmarks to measure success in achieving crop nutrition, maintenance of soil productivity and minimizing nutrient losses to air and water are critical to monitoring the long-term sustainability of arable farming systems.
- Results from national soil testing show that in Ireland on average 20% soil samples from arable farms had optimum soil fertility (pH, P and K) levels for crop production in the last 3 years (2023-2025)[2]

Methodology:

- A 9-nation Thematic Network called 'NUTRI-CHECK NET' was formed from 2023 to 2025, with 26 Crop Nutrition Clubs (CNCs) of farmers & advisors and 9 National Expert Groups (NEGs). Project partners reviewed stakeholder (CNC & NEG) attitudes, costs and benefits to addressing CNM challenges and adopting available tools.
- Crop nutrient management guidelines and tools to support farmers and advisors were reviewed across the 9 partner countries. Information was categorized into broader management stage categories – (1) Planning, (2) Checking & Adjusting and (3) Reviewing.
- Stakeholders were surveyed and interviewed, including to understand whether reviewing and reflecting on nutrient management success formed a common aspect of nutrient management approaches.
- Stakeholders were also surveyed and interviewed on common needs, gaps and barriers of tools to support nutrient management decision making.

Key Findings:

- Crop nutrient management tools are available for each stage in the management process, some tools are old and used widely whilst some are new but used less.
- Stakeholders involved in making nutrient management decisions rarely reviewed the success of a nutrient management plan[3].
- Where nutrient management strategies were reviewed in terms of success, the most

common indicator of success was crop yield. Commercial tools and services could aid stakeholders in reviewing nutrient management strategy success, but a recurring barrier remains as how to incorporate the results of these tools and services into future nutrient management plans[3].

Policy Implications & Recommendations:

- Farmers and farm advisors should be supported to implement a balanced approach to completing the three steps of nutrient management (1) Planning, (2) Check & Adjust, and (3) Review. The 3-step approach should be promoted as a key component of the good agricultural and environment management practice.
- It is recommended that current guidelines for nutrient management planning in Ireland (Teagasc Green Book and NMP software utilizing the guidelines)[4] include information on how to review the success of a nutrient management plan. This should include guidance on how to interpret the results of nutrient management checking & adjust tools and review tools that are available to farmers and farm advisors.
- Farms and other stakeholders should be incentivized to monitor nutrient offtakes and balances on a field-by-field basis, especially to gauge efficiencies of nitrogen & phosphorus management, but ideally efficiencies for all 12 crop nutrients.
- Incentives for creating nutrient management plans, such as in the Farming for Water EIP[5], should be updated to include a formalized step for reviewing the success of the plan at the end of the season. Future nutrient management plans developed by the stakeholder should then accommodate learnings from previous years.
- By encouraging reviewing and reflection of the outcomes of nutrient management planning, farmers and stakeholders involved in prescribing nutrient applications for crops, reduce the risk of inappropriate nutrient applications in future years.
    - Where the risk of under-application of nutrients to reach an optimized yield is reduced, this will have positive impacts on farm economics through increased gross-margins, food production security and contribute to efficient use of agricultural land.
    - Where the risk of over-application of nutrients is reduced, this will have positive impacts on farm economics through reduced reliance on fertilizers and reduced risks to the environment through lower fertilizer-related emissions, contributing to achievement of national environmental targets.
- Education and training for farm advisory services and industry agronomists will be critical to introduce and support farmers to implement the 3 step nutrient management approach on their farms. This will lead to both short-term and longer-term benefits over time as the knowledge, expertise and farm & field specific nutrient data develops.
- Finally, nudging initiatives and clear communication about the benefits of implementing the additional (2) checking & adjusting and (3) reviewing steps of nutrient management may encourage farmers to prioritize follow-up and improved decision making as central elements of their annual nutrient management routines.

Key References:

1. S.I. No. 113/2022 - European Union (Good Agricultural Practice for Protection of Waters) Regulations 2022. Ireland https://www.irishstatutebook.ie/eli/2022/si/113
2. Teagasc, (2025), National soil fertility report 2024_ https://teagasc.ie/wp-content/uploads/2025/05/Teagasc-Soil-Fertility-Report-2024-1.pdf
3. Wall et al., (2023). Report: Drivers, needs, challenges and barriers for farmers to improve arable crop nutrition and the adoption of nutrient management decision tools and technologies. NUTRI-CHECK NET. Available at https://ec.europa.eu/research/participants/documents/downloadPublic?documentIds=080166e506b3d0ef&appId=PPGMS
4. Wall, D. and Plunkett, M. 2020. "Major and Micro Nutrient Advice for Productive Agricultural Crops". Teagasc, Johnstown Castle, Co. Wexford, Ireland https://teagasc.ie/publications/major-micro-

nutrient-advice-for-productive-agricultural-crops-php/

5. Farming for Water, European Innovation Partnership. https://farmingforwater.ie/measures/