

Whole Farm Nutrient Balance Pilot



- Agriculture is currently identified as the greatest source of nutrient loss in the Wye catchment with Environment Agency source apportionment studies indicating the industry generate 85% of the nutrients lost to water.
- Research undertaken by Lancaster University in 2022 during their REPHOKUS study initially indicated that farming systems in the Wye could be generating a 3000t surplus of Phosphorous per year.
- Poultry industry data and manure exports reduce this modelled excess to 2300t and 1700t respectively.
- Data used in modelling and research generally arises from agricultural census data and standard DEFRA figures for other enterprise types so is often not up to date and contains assumptions.
- With limited datasets available agriculture is not in a position to counter any evidence presented against it or to quantify and demonstrate improvements in practices as a result of changes made.
- Nutrient surpluses of any magnitude indicate inefficiencies that as an industry we should seek to improve, this will have both environmental and business benefits.

Whole Farm Nutrient Balance Pilot



- A locally led initiative was launched in 2024 to generate a farmer owned dataset that provides a more up to date view on nutrient load in agriculture in the Wye.
- Lead by Herefordshire Rural Hub and supported by Farm Herefordshire partners.
- Data from individual land managers is anonymous and is collated for analysis by the Lancaster Uni REPHOKUS project.

During 2024, thanks to funding support from the Environment Agency:

- Balances completed for >60 holdings since September covering >14000ha
- Range of farm sizes and enterprises including sheep, dairy, arable, beef, poultry (broiler only).

Rural Hub
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Whole Farm Nutrient Balance Pilot



PLANET's Farmgate tool is used to:

- Record data of any imports :
 - ✓ Fertiliser or manures
 - ✓ Livestock bought on to holding
 - ✓ Feed or bedding
- Record data of any exports :
 - ✓ Manures
 - ✓ Livestock sold off the holding
 - ✓ Crops and product
- Balance given of Total Nutrient Load and Load/hectare for the holding.

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Example Nutrient Balance - Garnstone Farms

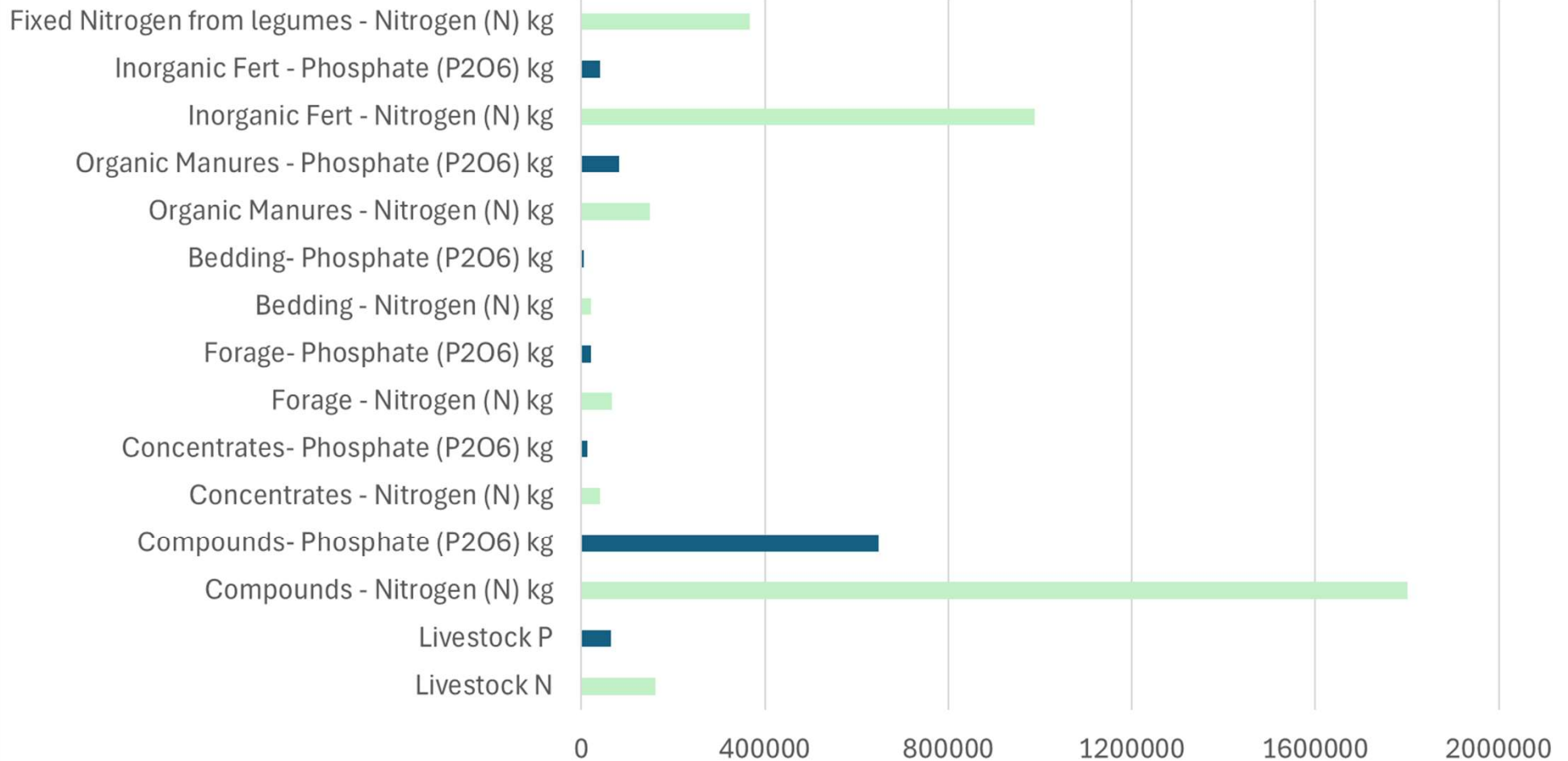
2022	Nitrogen (N) kg	Phosphate (P ₂ O ₅) kg	Potash (K ₂ O) kg
Total Imports	163,661	71,215	89,857
Total Exports	94,225	38,380	57,582
Nutrient balance for the whole farm	69,436	32,835	32,275
Benchmark	No benchmark	No benchmark	No benchmark
Nutrient balance per each ha or acre of farmed land (excluding rough grazing)	61	29	29
Benchmark	30 to 120	0 to 30	0 to 60

Tracking change and quantifying reductions in Nutrient Load over time:

2024	Nitrogen (N) kg	Phosphate (P ₂ O ₅) kg	Potash (K ₂ O) kg
Total Imports	115,473	2,258	31,258
Total Exports	84,420	35,200	47,923
Nutrient balance for the whole farm	31,053	-32,942	-16,665
Benchmark	No benchmark	No benchmark	No benchmark
Nutrient balance per each ha or acre of farmed land (excluding rough grazing)	27	-29	-14
Benchmark	30 to 120	0 to 30	0 to 60

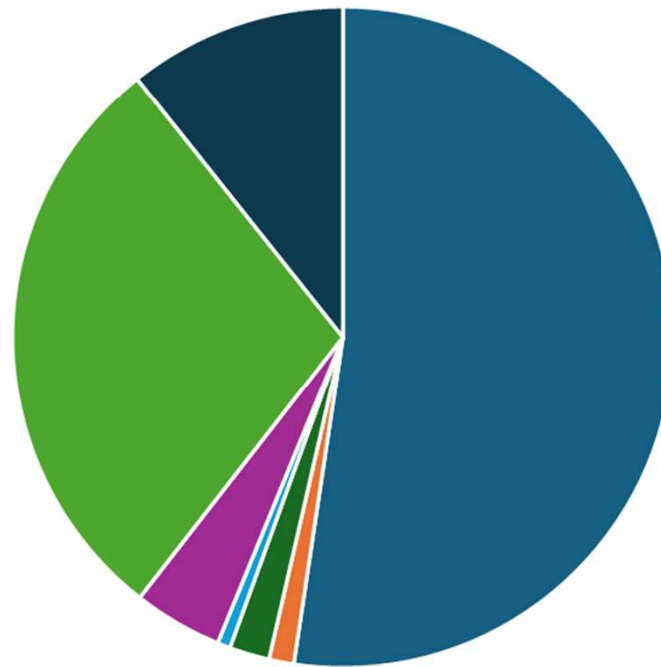


Nurtient Imports by Category



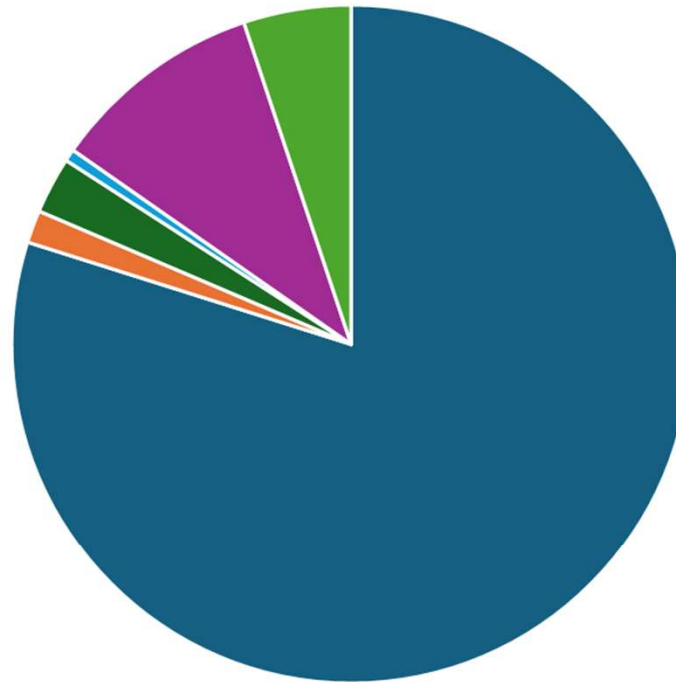


Nitrogen Imports



- | | |
|---|------------------------------------|
| ■ Compounds - Nitrogen (N) kg | ■ Concentrates - Nitrogen (N) kg |
| ■ Forage - Nitrogen (N) kg | ■ Bedding - Nitrogen (N) kg |
| ■ Organic Manures - Nitrogen (N) kg | ■ Inorganic Fert - Nitrogen (N) kg |
| ■ Fixed Nitrogen from legumes - Nitrogen (N) kg | |

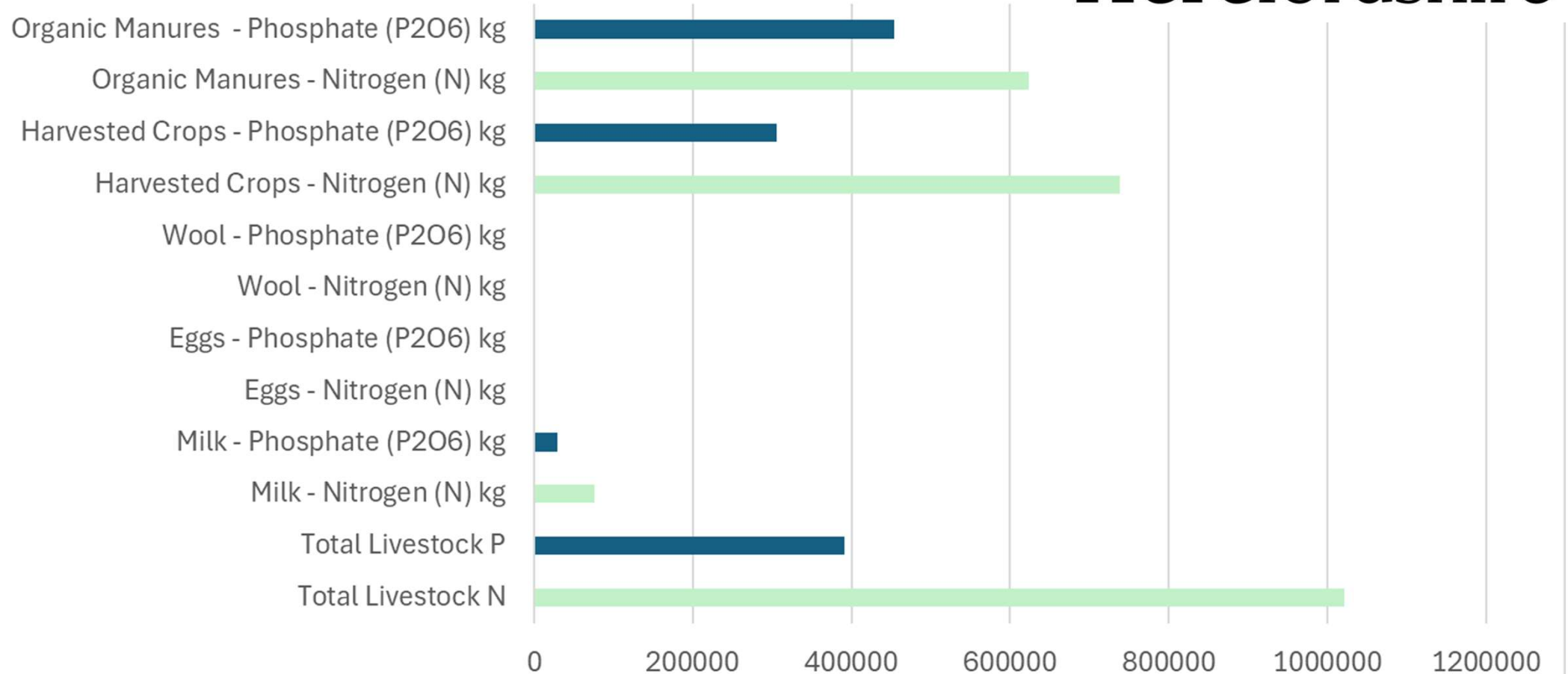
Phosphate Imports



- Compounds- Phosphate (P2O6) kg
- Concentrates- Phosphate (P2O6) kg
- Forage- Phosphate (P2O6) kg
- Bedding- Phosphate (P2O6) kg
- Organic Manures - Phosphate (P2O6) kg
- Inorganic Fert - Phosphate (P2O6) kg

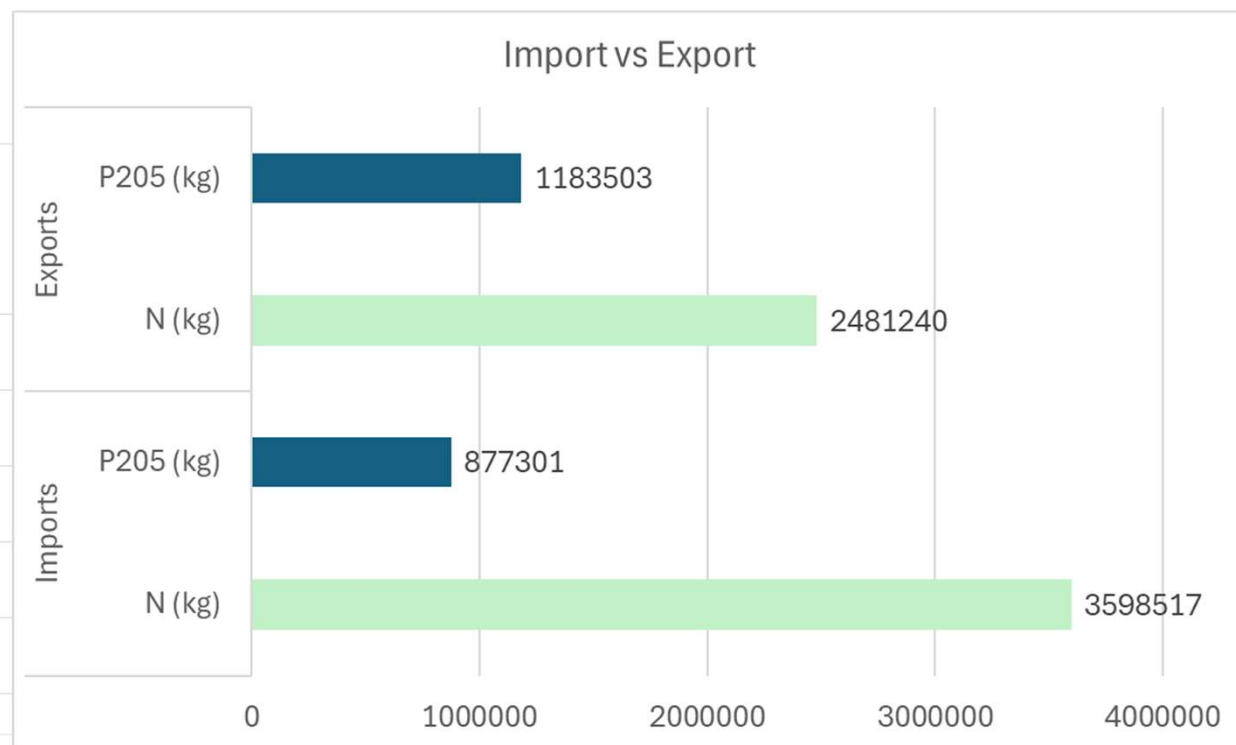
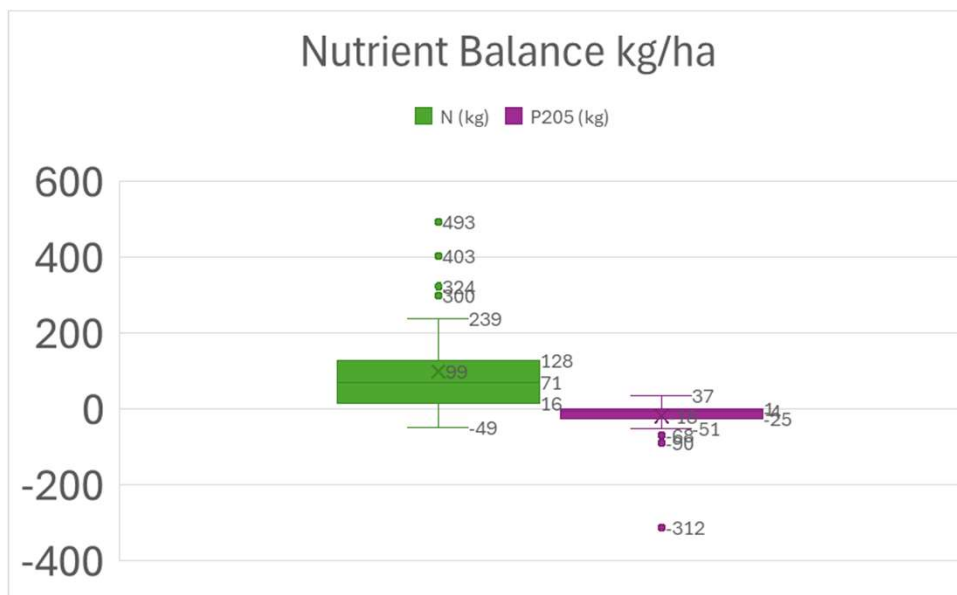


Nutrient Exports by Category



Wye Nutrient Balance Pilot Programme

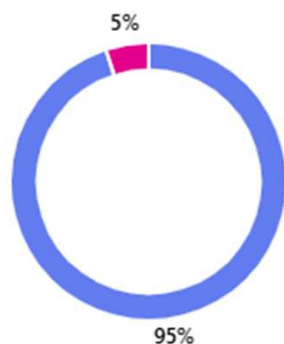
- REPHOKUS currently calculating 6.2kg P/ha excess
- Pilot average -14kg P/ha
- Pilot average +99kg N/ha



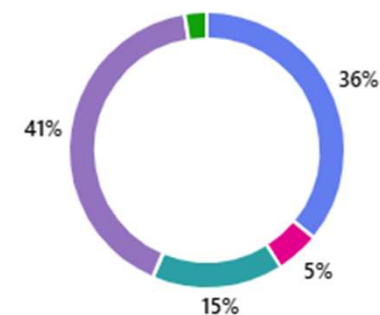
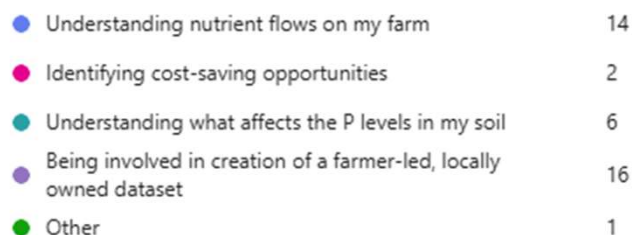
Evaluation of Nutrient Balance Pilot



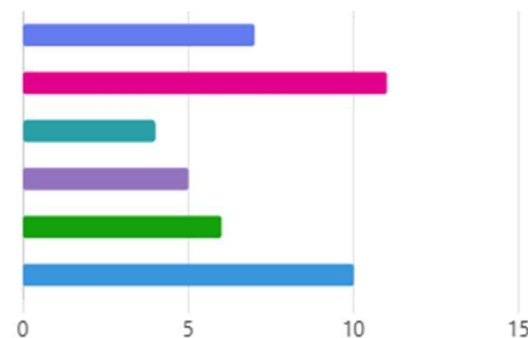
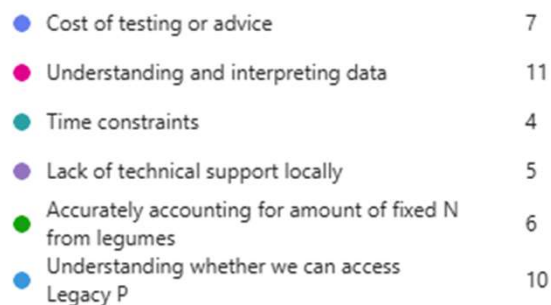
Did you find the process informative?



What were the most interesting aspects for you?



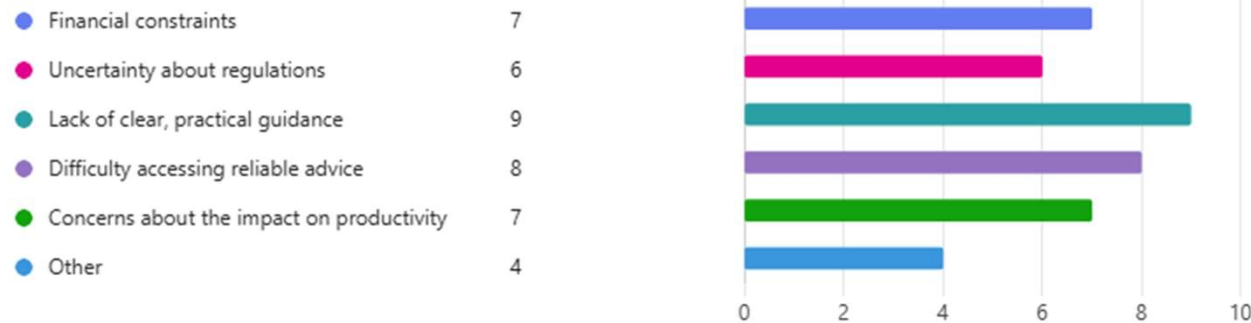
What are the challenges you face when managing nutrients effectively?



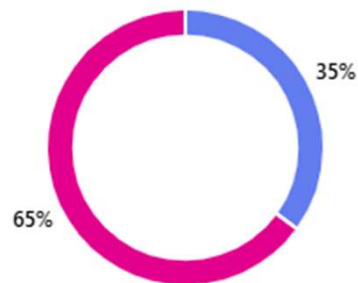
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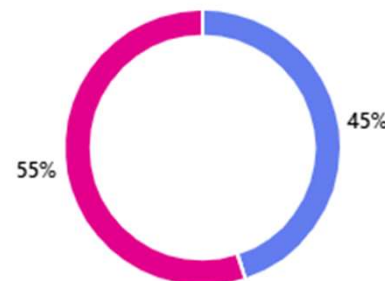
What are the barriers preventing you from making improvements to nutrient management?



Have you made changes on farm as a result of your nutrient balance?



Will you make changes in future?



Would you repeat the process in 5 years of after management changes to quantify impact?

