Soil Fertility Conference

Implications of the fertiliser register – The quick calculation for Grassland Farms

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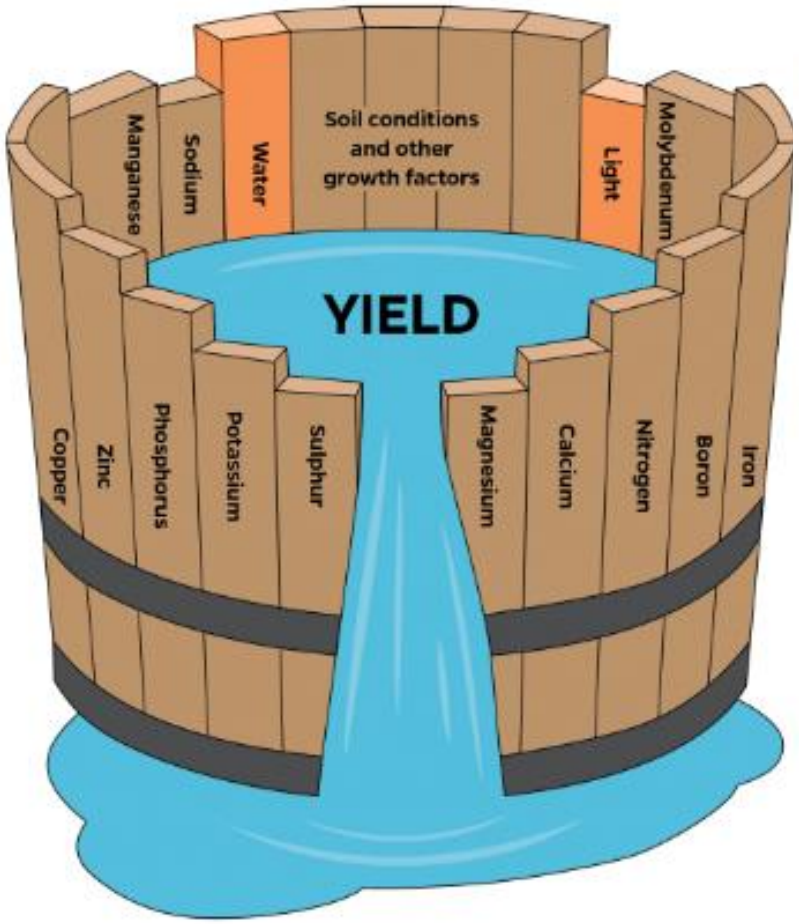
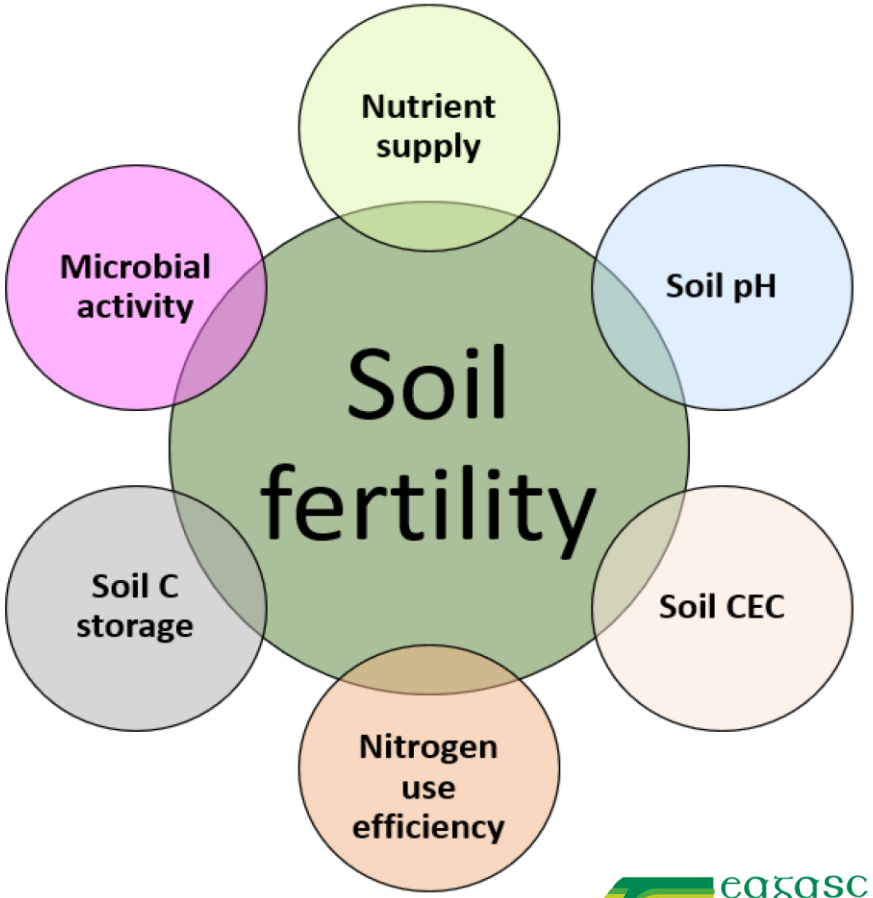
Trying to Maintain Soil Fertility – will the NFD affect this?

Liebig's Law of Minimum



Definition

In the 19th century, the German scientist Justus von Liebig formulated the "Law of the Minimum," which states that if one of the essential plant nutrients is deficient, plan growth will be poor even when all other essential nutrients are abundant.



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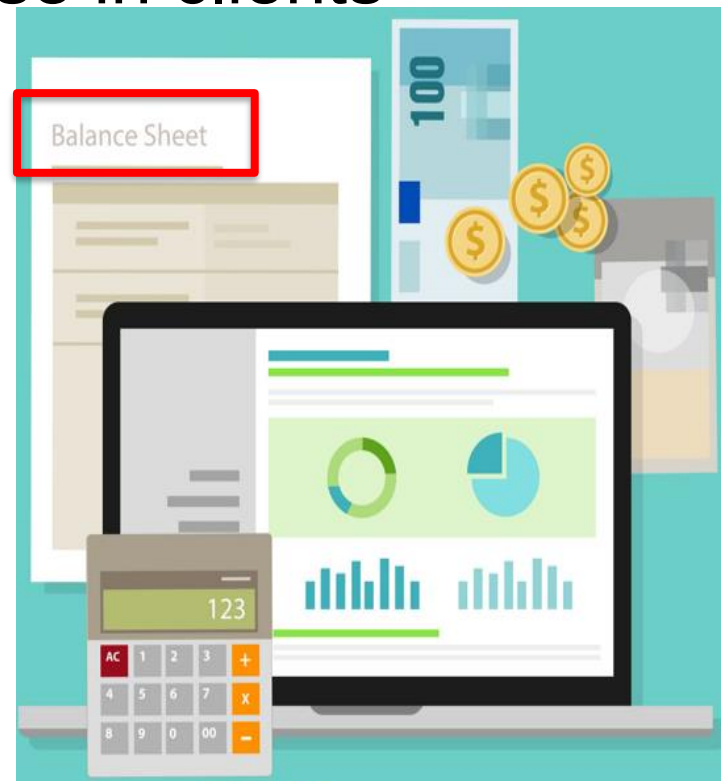
More farmers looking for NMP's (fertiliser plans)

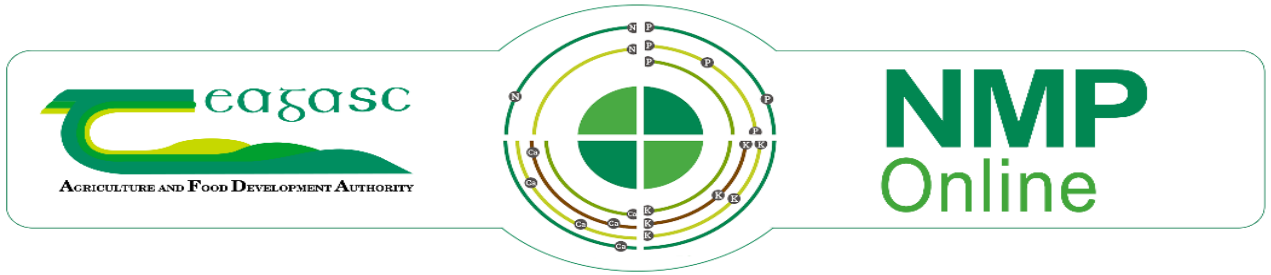
- Most advisors are expressing a significant increase in clients requesting NMP's
  - Driven by National Fertiliser Database (NFD)
  - 5-10% cut in fertiliser N under Nitrates Action Plan
  - All tillage lands not sampled = P4
  - All Grassland farms where previous years GSR >130 NpH = P4
  - **P4 = no chemical P and no imported organic P**
  - ACRES, DAFM soil sampling scheme + increase in soil samples
  - What can I buy, how much, when can I buy it?
    - » Closing stocks declared on the NFD on 15/09/2023
    - » Fertiliser bought after 15th September to year end 2023
    - » Fertiliser bought in 2024
  - Low stocked farm with no soil sample = max One bag -18/6/12 per Acı



NFD V's reality

- Co-op's, merchants & advisors are helping farmers to know the fertiliser allowances for their farm
- Farmers asking their farm advisors to get fertiliser list for the year
- Increase in soil sampling by 200% on 2022/2023
- Notable increase in NMP/Fertiliser plans

Doing a simple grassland NMP



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250+ agencies
700 + agents
300 + students

- Background information
  - Previous years Grassland stocking rate (GSR)
  - Total N from grazing livestock previous year
  - Concentrates fed to grazing livestock previous year
  - Land area this year
  - Soil sample results if available
    - » Where soil samples available ha's of land at P1, P2, P3 & P4
  - Where organic manures will be spread
  - Check OM layer for high OM soils (>20% OM)

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Simple Grassland NMP

Positives

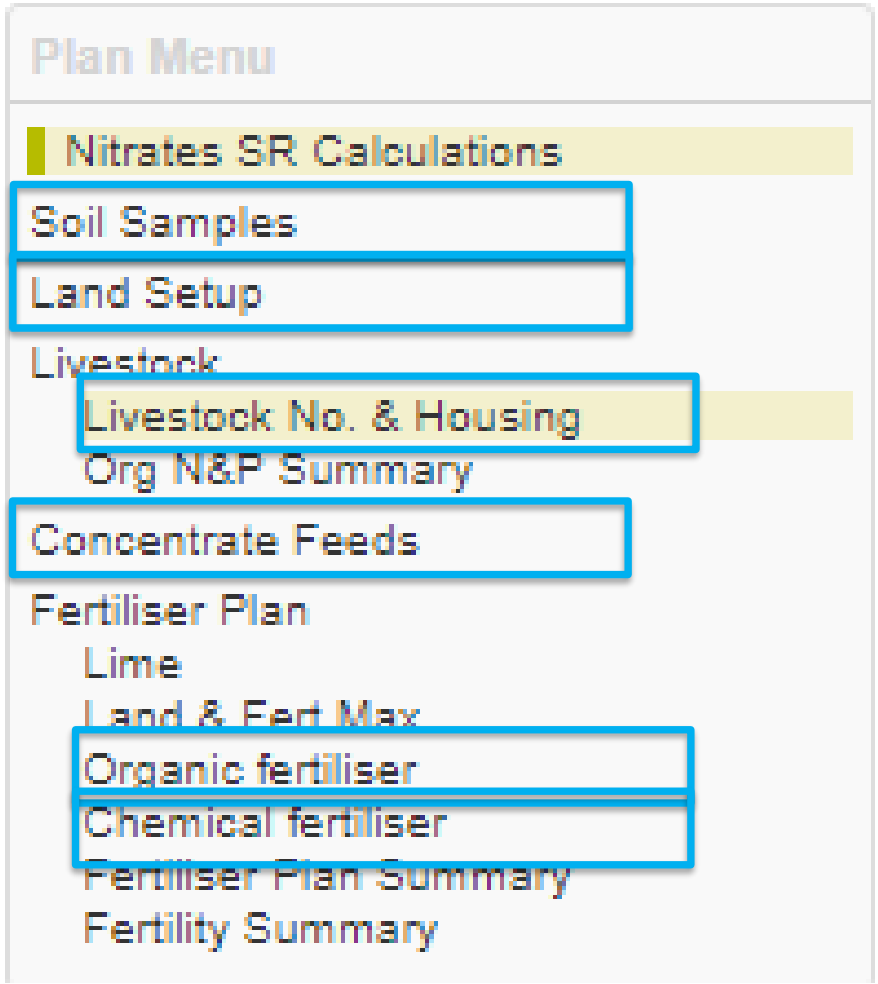
- Quick < 10 Minutes
- Get a total N and P for farm
- Simple to use
- Farmer gets a shopping list
- Can advise products to reduce emissions
- Farmers know their limits

Negatives

- Full farm NMP – not field specific
- No individual field x field fertiliser plan
- No liming plan
- Takes no account of soil type
- May impact individual fields soil fertility status
- Tillage farms need to take into account N indices

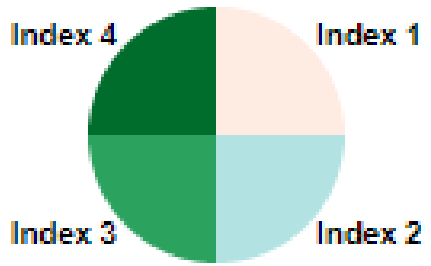
Using NMP online to create the Simple NMP

- Online Demo – all going well ☺



Phosphorus

P Index



Index	Ha's	%
1	10.00	25%
2	10.00	25%
3	10.00	25%
4	10.00	25%

Details used in the training example

Projected Average Livestock Numbers for this Year

(This calculates the Current Year Stocking Rates – visible in the Plan Summary)

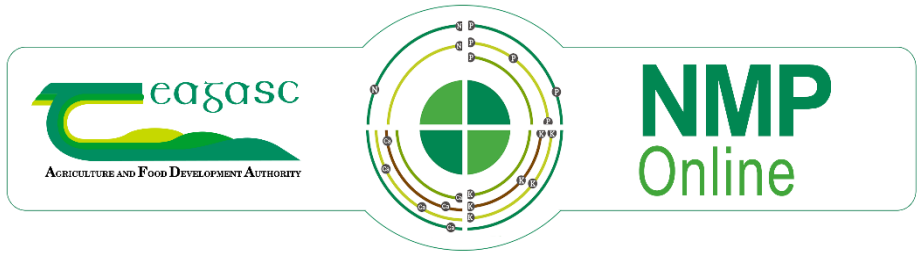
Livestock Type	Av. No Over Year	Av. No Over Winter
Suckler cow	30	3
Cattle (1-2 year old)	20	2
Cattle (0-1 year old)	30	3
Lowland ewe & lambs	100	

Name	Quantity (t)
Meal	16.0
	16.0

Last years total organic N	4,100	kg
Total P Fed to Grazing Livestock	80.0	kg
Total P to be discounted	66.8	kg
Net P contributing to Available Allowance	13.2	kg

Over Wintering/Housing Type

Livestock Type	Av. No Over Winter	No. on Slurry
Lowland ewe	0	0
Cattle (0-6 months old)	-	0
Cattle (6-12 months old)	30	30
Cattle (12-18 months old)	-	0
Cattle (18-24 months old)	20	20
Suckler cow	30	30



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Details used in the training example Cont'd

N allowance	(Kgs)
Maximum total available N	4,560.0
- Available N produced on holding (0 from Grazing from 2018)	0.0
- Available N in manures Imported	0.0
+ Available N in manures Exported (Max 708.0)	0.0
Maximum Chemical N fertiliser allowed	**4,560.0**

P allowance	(Kgs)
Maximum total available P	600.0
- Total P in Manures produced on holding (0 from Grazing from 2018)	0.0
+ Manure P not available (Applied to index 1 & 2)	84.3
- Total P in manures Imported	0.0
+ Total P in manures Exported (Max 260.0)	0.0
Total P in Concentrate Feeds Used	80.0
Discounted P in feeds (up to 300kg)	66.8
- Net P in concentrate feeds used	13.2
Maximum Chemical P fertiliser allowed	**671.1**

Manure Allocations

Fertiliser	Estimated T	Applied T	Balance T
Cattle Slurry	331	337	0

Organic Manures Fertilisers plan

Crop: Select all

N Index: Select all

Plot(Ha)	Crop	Index N | P | K	Nutrients Applied (Units/Acre) N | P | K	Nutrients Advice (Units/Acre) N | P | K	Nutrients Balance (Units/Acre) N | P | K	Organic Manures Fertilisers 1 Cattle Slu
P1 land(10.00)	Grazing	1 | 1 | 3	347 | 51 | 144	84 | 22 | 20	-263 -30 -124	1500.0 Gals/Acre
p2 land(10.00)	Grazing	1 | 2 | 3	13 | 3 | 48	84 | 14 | 20	71 | 10 | -28	1500.0 Gals/Acre
P3 land(10.00)	Grazing	1 | 3 | 3	0 | 0 | 0	84 | 6 | 20	84 | 6 | 20	0.0 Gals/Acre
P4 land(10.00)	Grazing	1 | 4 | 3	0 | 0 | 0	84 | 0 | 20	84 | 0 | 20	0.0 Gals/Acre

Chemical Fertilisers Fertilisers plan

Crop: Select all

N Index: Select all

P Index: Select all

Plot(Ha)	Crop	Index N | P | K	Nutrients Applied (Units/Acre) N | P | K	Nutrients Advice (Units/Acre) N P K	Nutrients Balance (Units/Acre) N | P | K	Chemical Fertilisers Fertilisers 1 18-6-12	2 Urea (38%
P1 land(10.00)	Grazing	1 | 1 | 3	86 | 21 | 84	84 | 22 | 20	-2 | 0 | -64	3.0 Bags/Acre	0.5 Bags/Acre
p2 land(10.00)	Grazing	1 | 2 | 3	87 | 15 | 72	84 | 14 | 20	-3 | -2 | -52	2.0 Bags/Acre	1.0 Bags/Acre
P3 land(10.00)	Grazing	1 | 3 | 3	85 | 6 | 12	84 | 6 | 20	-0 | -0 | 8	1.0 Bags/Acre	1.8 Bags/Acre
P4 land(10.00)	Grazing	1 | 4 | 3	85 | 0 | 0	84 | 0 | 20	-1 | 0 | 20	0.0 Bags/Acre	2.2 Bags/Acre

Nutrient Balance

	N(kg)	P(kg)	K(kg)
Chemical Recommended	4,160	321 (100%)	0
Max Chemical Allowed	4,560	671	⚠
Chemical Usage	3,912	445	890

Planned Fertilisers

Fertiliser	Tonnes
18-6-12	7.41
Urea (38%N + 7%S) + Protected	6.78

CONCLUSION

- Getting the background information is key
- Give the farmer the fertiliser plan
- Keeping track during the year and swapping products is a challenge

Planned Fertilisers	
Fertiliser	Tonnes
18-6-12	7.41
Urea (38%N + 7%S) + Protected	6.78

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Thank you - Questions