# Fertiliser Programmes to Save Money and Emissions on Dairy and Drystock Farms

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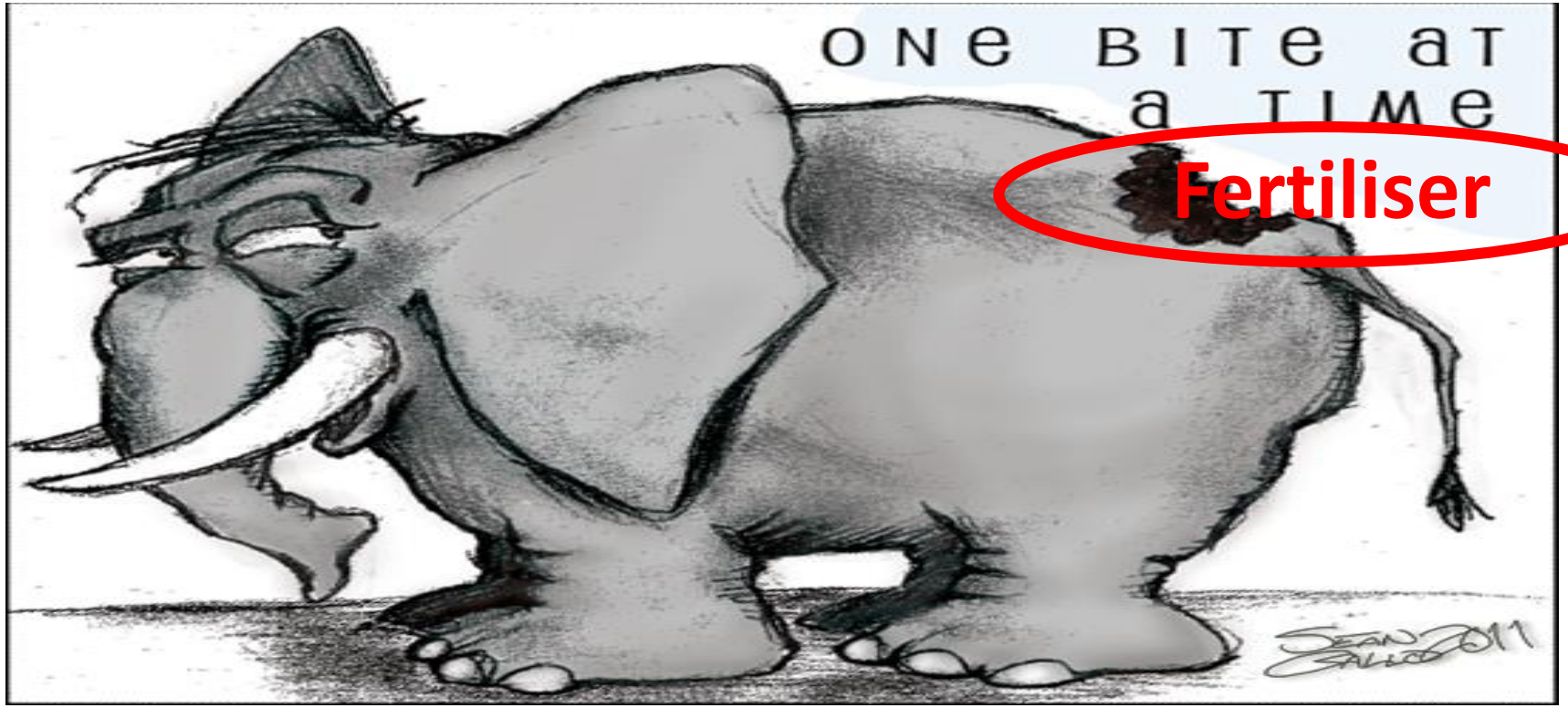
# Introduction

- Where do fertiliser quantity and type fit in to national policy
- Changing our thinking about fertiliser (ratings) emissions
- Save Dairy farmers money for 2022
- Saving Drystock farmers money for 2022
- Plan of action for 2022




# 22% to 30%

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# Roadmap to 2030 +

## Need to reduce by 5-7 Mt $CO_2e$

**2030: 16-18 Mt $CO_2e$**

2050
climate neutral
agriculture

**Early stage technologies**
**(Feed additives at pasture, breeding low emitting animals…)**
**1.5 – 3.0 Mt**

**Almost ready technologies**
**(Feed additives, earlier slaughter…)**
**1 – 1.5 Mt $CO_2e$**

**2018: 23 Mt $CO_2e$**

**Implement technologies in MACC 2 Mt $CO_2e$**

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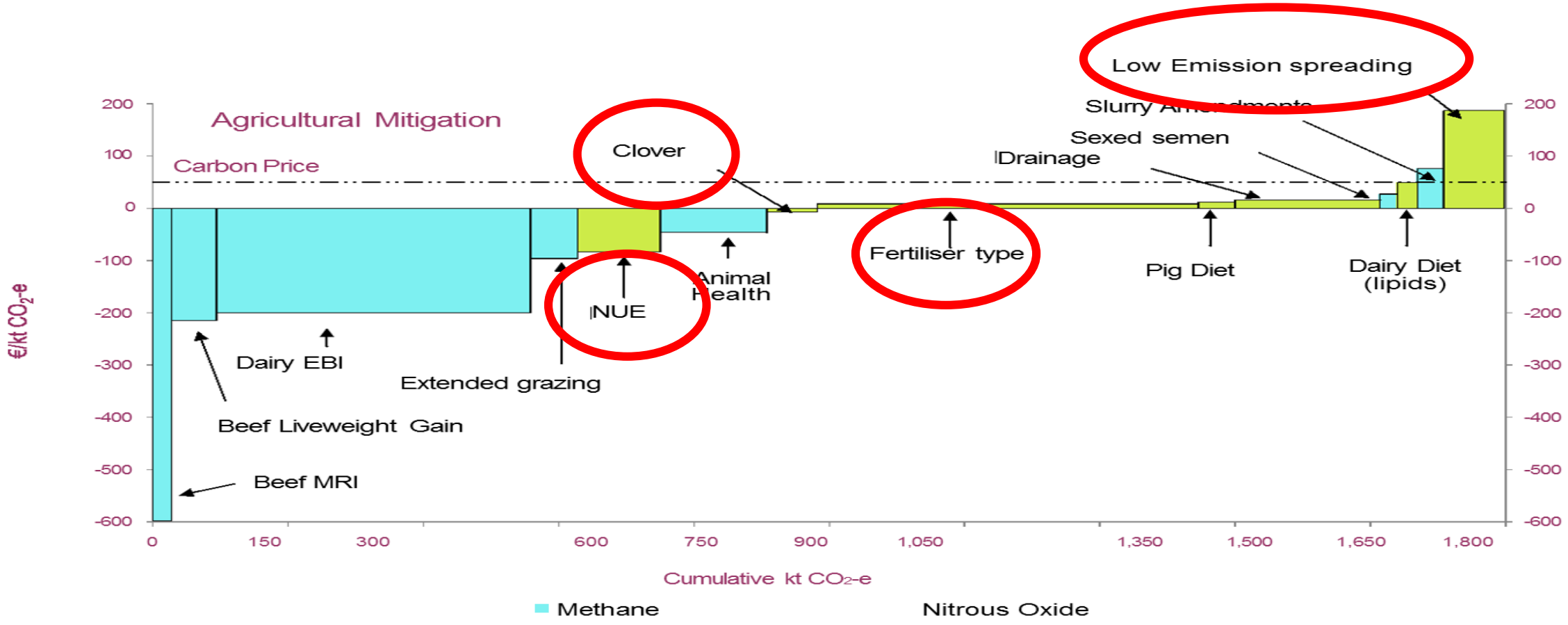
# Teagasc – Marginal Abatement Cost Curve (MACC Curve)

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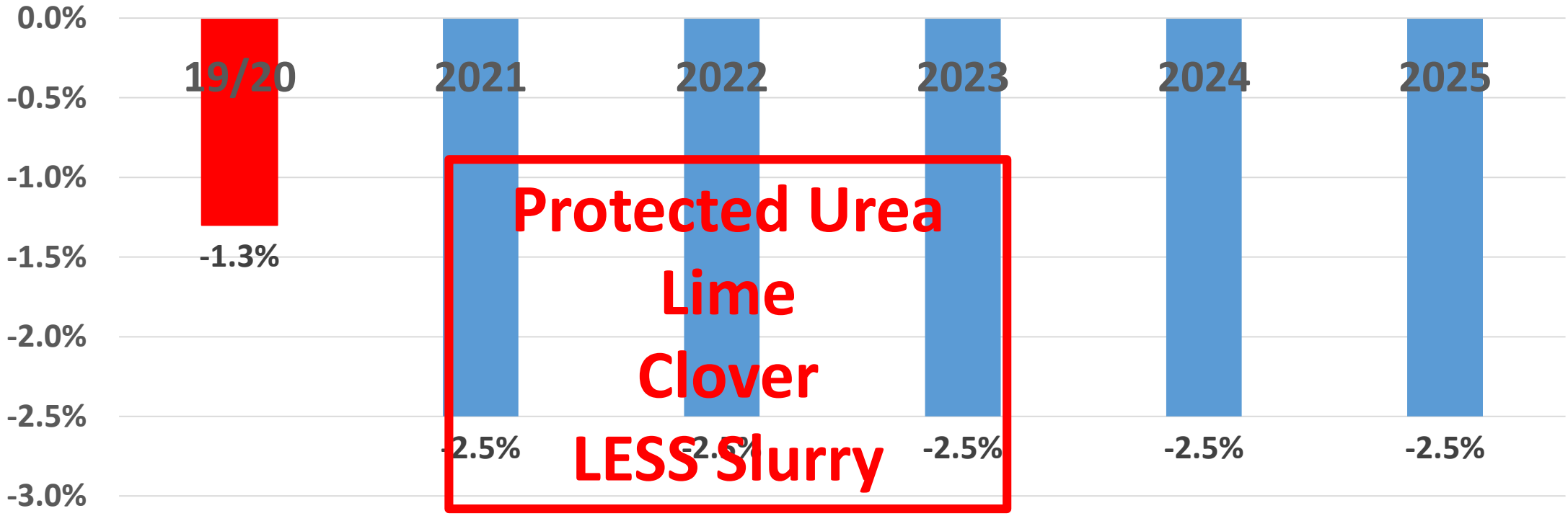
# Importance of Fertiliser Type & Quantity

| | MACC | % of MACC | 2021 Climate Action Plan |
|---|---|---|---|
| Protected Urea | 50% CAN switched | 28% | 65% CAN switched |
| Lime, P & K | 22% of land to receive 3 tons/acre | **6%** | Reduce Chemical N by **15% by 2025** **20% by 2030** From 2018 |
| Clover | 25% Beef Farmers 15% Dairy Farmers | **4%** | |
| LESS | 50% of Slurry | **6%** | 90% of Slurry |
| **Total** | **0.8 M Tons Co2 Eq** | **44%** | |

# Agricultural Greenhouse Gas Emissions

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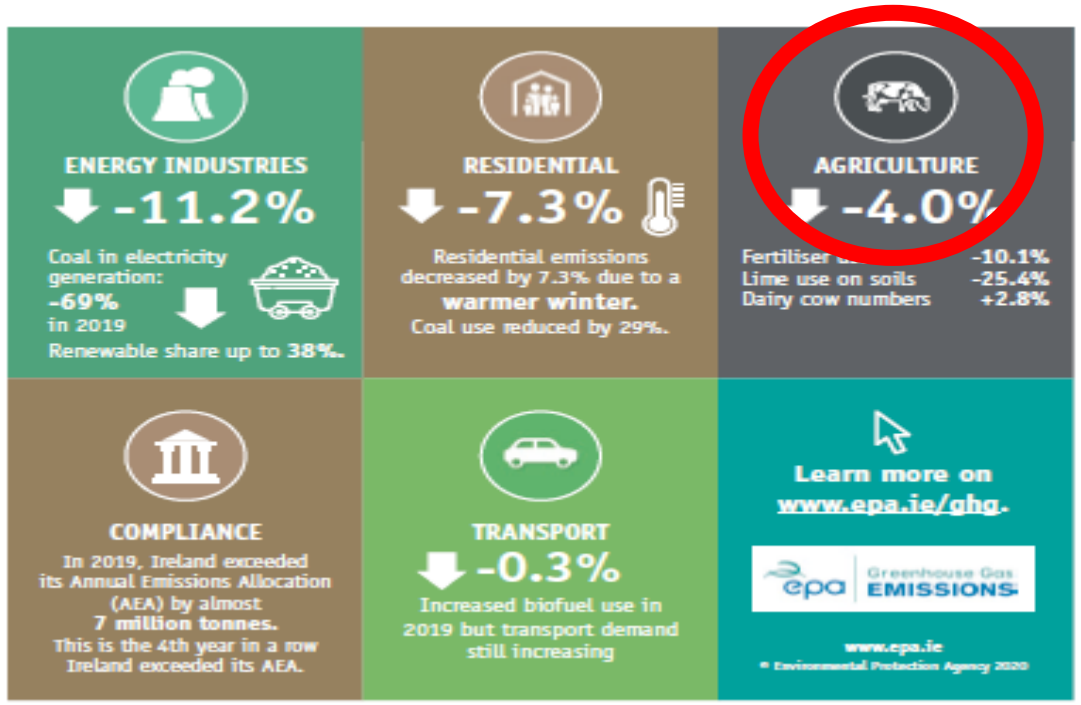
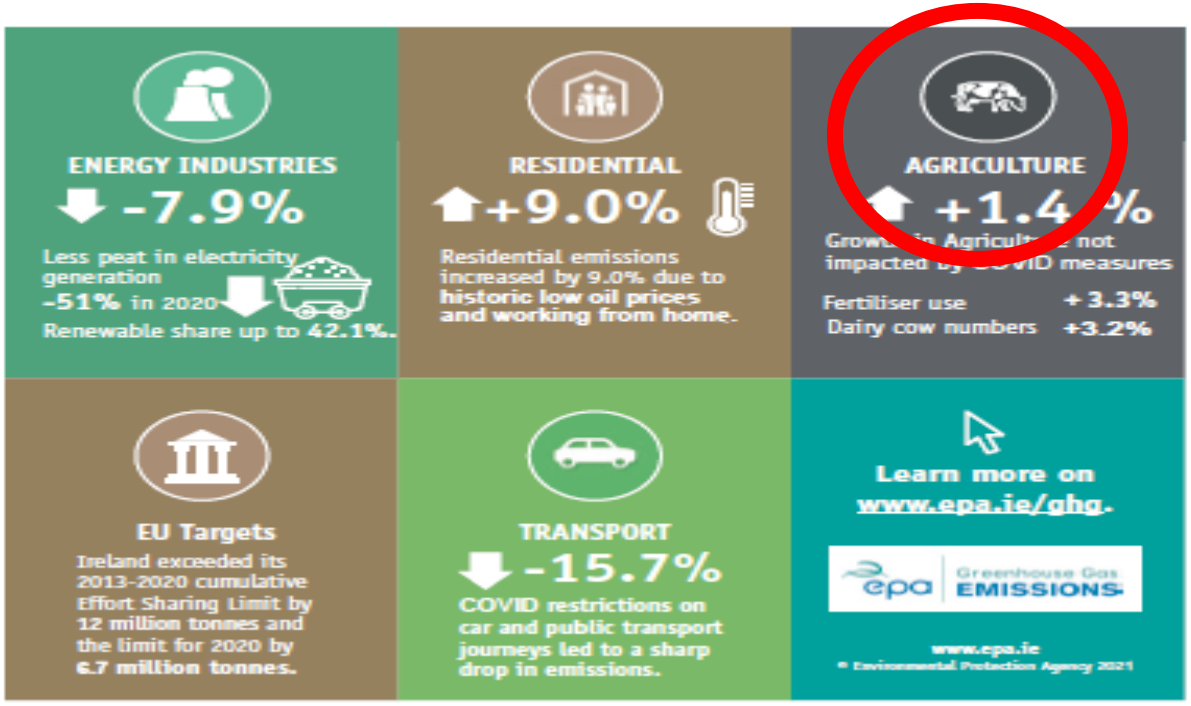
# 2019




# 2020

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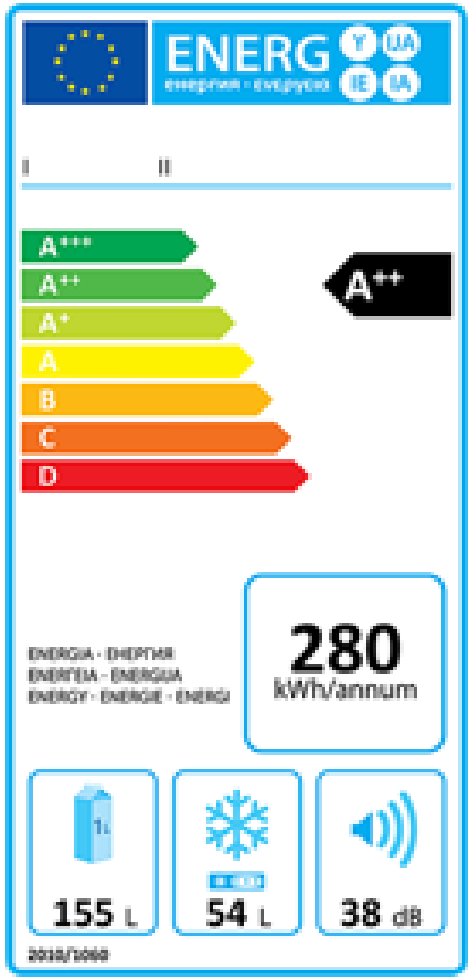
# Product Ratings

- Washing Machines
- 88% are A+++ Rated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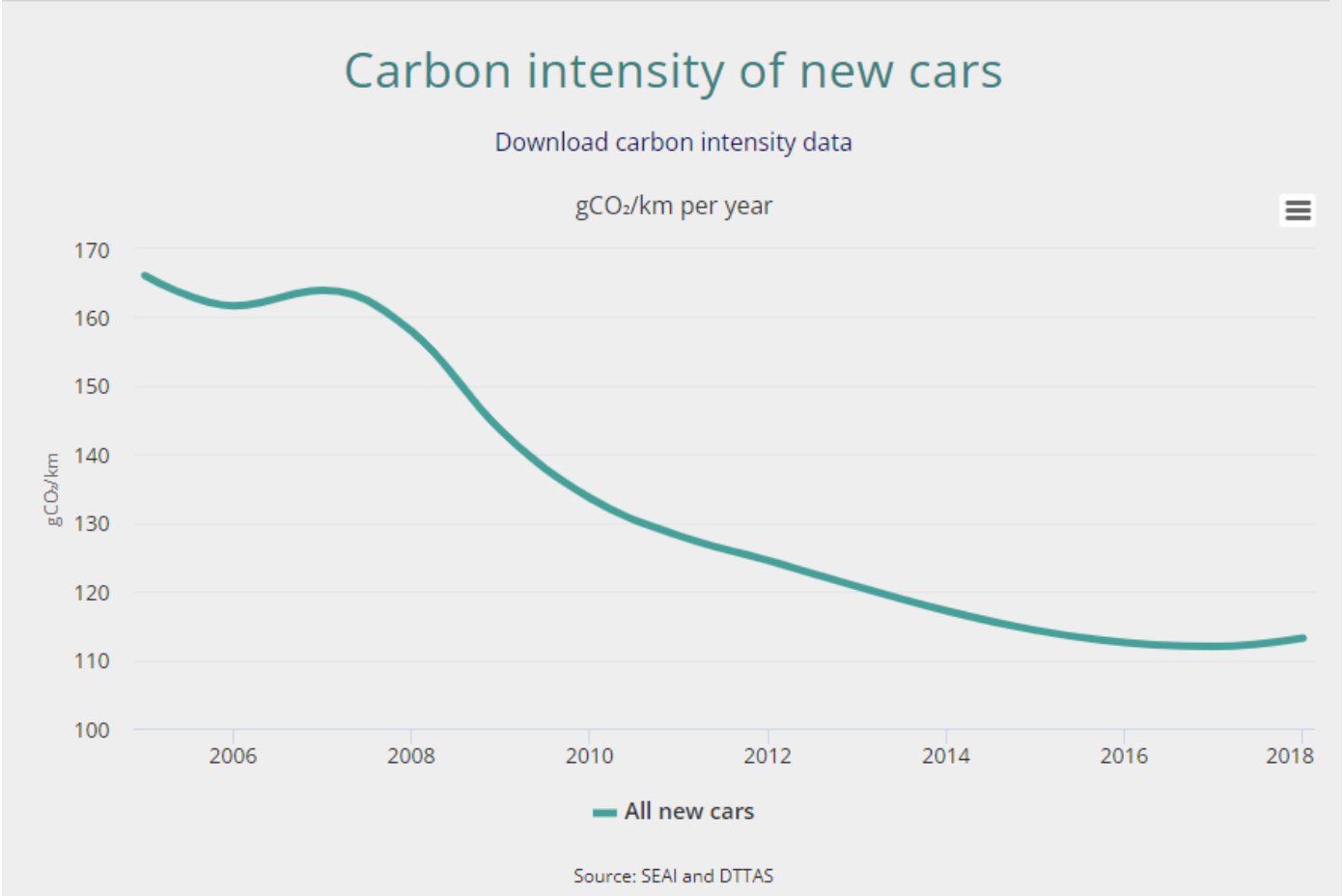
# Product Ratings

- Cars
- 32% more efficient/km
- Between 2007 and 2017

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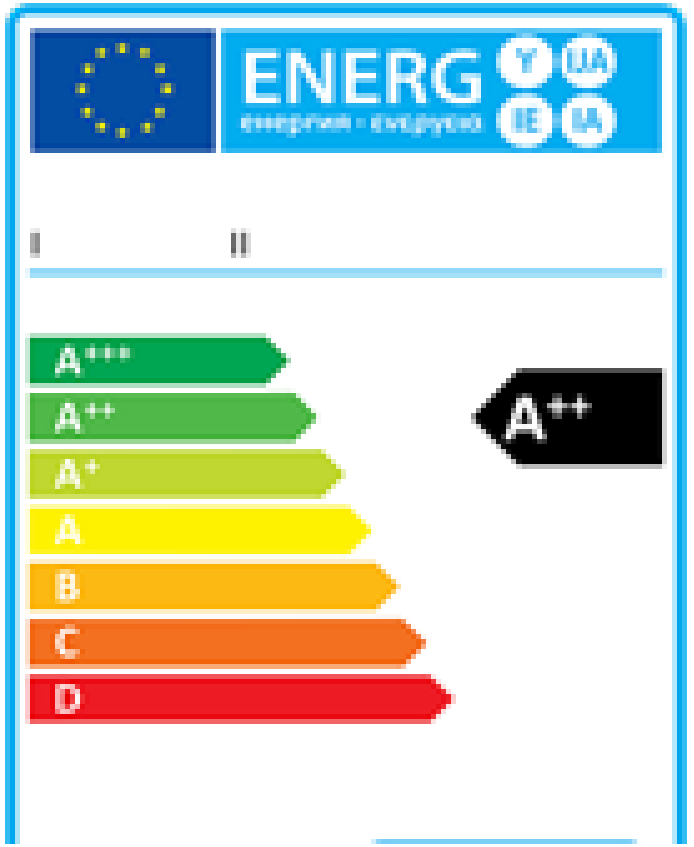
# Product Ratings

- N Fertiliser Types
- **Difference**
  - **Best Rating**
  - **Cheapest Product**




**A+++ Protected Urea**

**A Urea**

**C CAN**

# Dairy Case Study (Average Herd Size)

| Stock Numbers | | |
|---|---|---|
| 90 Cows | Land Farmed | 50 ha |
| 22 Heifers | Stocking Rate | 2.26 LU/ha |
| 22 Calves | | |
| 1 Bull | Fertiliser Used | **11,150 kg N** |
| 113 Livestock Units | | **223 kg N/ha** |

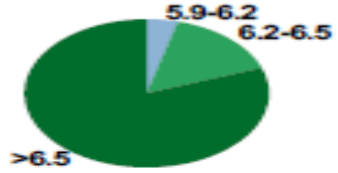
# Nutrient Plan for 2022

**Soil Fertility Summary**

**Overall Fertility Status**
pH > 6.2, P & K index 3 or 4


| | Ha's | % |
|---|---|---|
| Yes | 31.97 | 44% |
| No | 39.96 | 56% |

**Lime**
Soil pH > 6.2

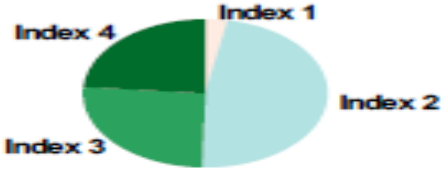



| pH | Ha's | % |
|---|---|---|
| <5.5 | 0.00 | 0% |
| 5.5-5.9 | 0.00 | 0% |
| 5.9-6.2 | 3.00 | 4% |
| 6.2-6.5 | 10.99 | 15% |
| >6.5 | 57.94 | 81% |

**Phosphorus**
P Index


| Index | Ha's | % |
|---|---|---|
| 1 | 0.00 | 0% |
| 2 | 5.57 | 8% |
| 3 | 38.20 | 53% |
| 4 | 28.16 | 39% |

**Potassium**
K Index




| Index | Ha's | % |
|---|---|---|
| 1 | 2.16 | 3% |
| 2 | 34.1 | 47% |
| 3 | 18.66 | 26% |
| 4 | 16.98 | 24% |

**%reduction in farm capacity to perform based on current fertility levels compared to optimal fertility**

| pH, P and K | pH | P | K |
|---|---|---|---|
| 9 | 1 | 2 | 7 |

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# Dairy Case Study

| 2021 Fertiliser Used | N kg | P kg | K kg |
|---|---|---|---|
| 1 Ton Cut Sward | 240 | 25 | 100 |
| 1 Ton CAN | 270 | 0 | 0 |
| Cut Sward 24 Tons | 5760 | 600 | 2400 |
| CAN 20 Tons | 5390 | | |
| **Total Nutrients** | **11150** | **600** | **2400** |

# Dairy Case Study

| 2022 Fertiliser Used | Price | Option 1 | Option 2 | Option 3 |
|---|---|---|---|---|
| Cut Sward | €835 | 24.0 Tons | 24.0 Tons | |
| 18:6:12 | €770 | | | 10.0 Tons |
| CAN | €700 | 20.0 Tons | | |
| Protected Urea | €960 | | 11.7 Tons | 20.3 Tons |
| 50% K (Murate of Potash) | €715 | | | 2.4 Tons |
| **Total Nutrients** | | **11150 N** | **600 P** | **2400 K** |

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# Dairy Case Study

| 2022 Fertiliser Used | Option 1 | Option 2 | Option 3 |
|---|---|---|---|
| Fertiliser Combination | Cut Sward & CAN | Cut Sward & Protected Urea | 18:6:12 & Protected Urea |
| **Cost** | **€34,014** | **€31,289** | **€28,929** |
| **2022 Savings to Farmer** | | **€2,725** | **€5,084** |
| % N as Straight N | 48% | 48% | 84% |
| **Savings of €101/ha (€41/acre) or 1 c/litre of milk** | | | |

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# Dairy Case Study

| 2022 Fertiliser Used | Option 1 | Option 2 | Option 3 |
|---|---|---|---|
| Fertiliser Combination | Cut Sward & CAN | Cut Sward & Protected Urea | 18:6:12 & Protected Urea |
| **Tons Co2 Eq** | **54** | **34** | **17** |
| **Saving to Planet Tons Co2 Eq** | | **20** | **37** |
| | | | |
| **Savings of 37 Tons Co2 Eq or 7 Dairy Cows** | | | |

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# Beef Case Study (Average Farm Size)

| Stock Numbers | | |
|---|---|---|
| 38 Cows | Land Farmed | 42 ha |
| 36 Cattle to 2yrs | Stocking Rate | 1.78 LU/ha |
| 36 Calves | | |
| 1 Bull | Fertiliser Used | **5,160 kg N** |
| 75 Livestock Units | | **122 kg N/ha** |

# Beef Case Study

| 2021 Fertiliser Used | N kg | P kg | K kg |
|---|---|---|---|
| 1 Ton Cut Sward | 240 | 25 | 100 |
| 1 Ton CAN | 270 | 0 | 0 |
| Cut Sward 8 Tons | 1920 | 200 | 800 |
| CAN 12 Tons | 3240 | | |
| **Total Nutrients** | **5160** | **200** | **800** |

# Beef Case Study

| 2022 Fertiliser Used | Price | Option 1 | Option 2 | Option 3 |
|---|---|---|---|---|
| Cut Sward | €835 | 8.0 Tons | 8.0 Tons | |
| 18:6:12 | €770 | | | 3.3 Tons |
| CAN | €700 | 12.0 Tons | | |
| Protected Urea | €960 | | 7.0 Tons | 9.9 Tons |
| 50% K (Murate of Potash) | €715 | | | 1.0 Tons |
| **Total Nutrients** | | **5160 N** | **200 P** | **800 K** |

# Beef Case Study

| 2022 Fertiliser Used | Option 1 | Option 2 | Option 3 |
|---|---|---|---|
| Fertiliser Combination | Cut Sward & CAN | Cut Sward & Protected Urea | 18:6:12 & Protected Urea |
| **Cost** | **€15,080** | **€13,442** | **€12,798** |
| **2022 Savings to Farmer** | | **€1,638** | **€2,282** |
| % N as Straight N | 63% | 63% | 88% |
| **Savings of €54/ha (€22/acre) or 18 c/kg carcase weight** | | | |

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# Beef Case Study

| 2022 Fertiliser Used | Option 1 | Option 2 | Option 3 |
|---|---|---|---|
| Fertiliser Combination | Cut Sward & CAN | Cut Sward & Protected Urea | 18:6:12 & Protected Urea |
| **Tons Co2 Eq** | **25** | **13** | **7** |
| **Saving to Planet Tons Co2 Eq** | | **12** | **18** |
| | | | |
| **Savings of 18 Tons Co2 Eq or 4 to 5 Suckler Cows** | | | |

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# Summary

- Fertiliser quantity and type are main technologies to 2025
- Reduce Chemical N
  - LESS Slurry/Lime/Clover
- Incorporate Protected Urea
  - Switch CAN to Protected Urea
  - Use higher P & K compounds to maximise Protected Urea
- Environmental gains = Financial Gains

**Spread Protected Urea**

**Save €€€€€**

**Save Emissions**

**Be Happy**

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