# Ten Steps to Fertiliser Savings

**Martina Harrington, Future Beef Manager**

Future Beef
Sustainable Cattle Production

Teagasc
Agriculture and Food Development Authority

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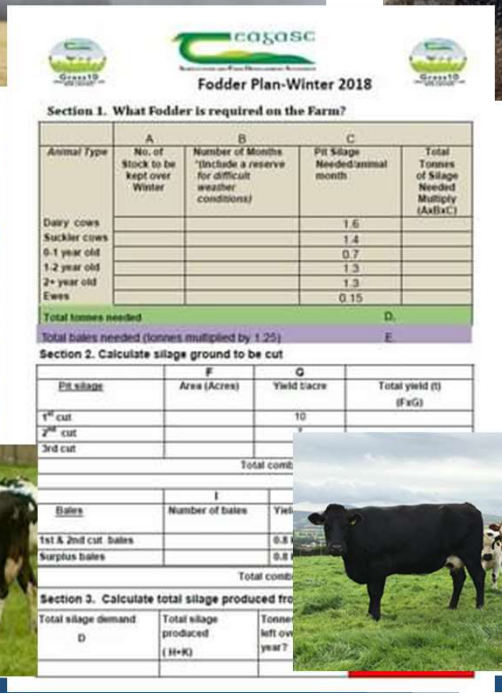
# Topics

- ❑ Importance of lime
- ❑ Should I continue to use P&K?
- ❑ Make a Fodder budget
- ❑ Apply slurry to silage ground
- ❑ Cull poor performers



Fodder Plan-Winter 2018

Section 1. What Fodder is required on the Farm?

| Animal Type | A: No. of Stock to be kept over Winter | B: Number of Months *(Include a reserve for difficult weather conditions)* | C: Pit Silage Needed/animal month | Total Tonnes of Silage Needed Multiply (AxBxC) |
|---|---|---|---|---|
| Dairy cows | | | 1.6 | |
| Suckler cows | | | 1.4 | |
| 0-1 year old | | | 0.7 | |
| 1-2 year old | | | 1.3 | |
| 2+ year old | | | 1.3 | |
| Ewes | | | 0.15 | |
| Total tonnes needed | | | | D. |
| Total bales needed (tonnes multiplied by 1.25) | | | | E |

Section 2. Calculate silage ground to be cut

| Pit silage | F: Area (Acres) | G: Yield t/acre | Total yield (t) (FxG) |
|---|---|---|---|
| 1st cut | | 10 | |
| 2nd cut | | | |
| 3rd cut | | | |
| Total comb | | | |

| Bales | I: Number of bales | Yie |
|---|---|---|
| 1st & 2nd cut bales | | 0.8 |
| Surplus bales | | 0.8 |
| Total comb | | |

Section 3. Calculate total silage produced fro

| Total silage demand D | Total silage produced (H+K) | Tonne left ov year? |
|---|---|---|
| | | |

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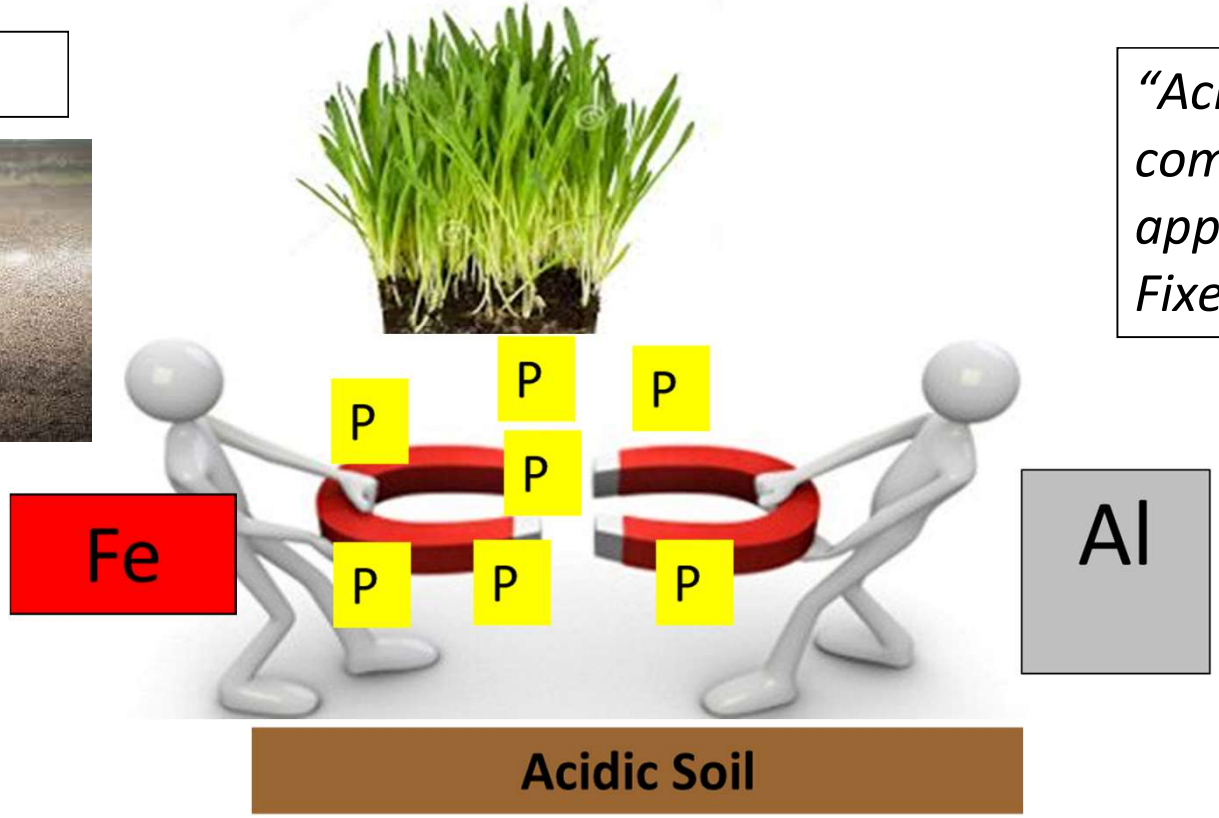
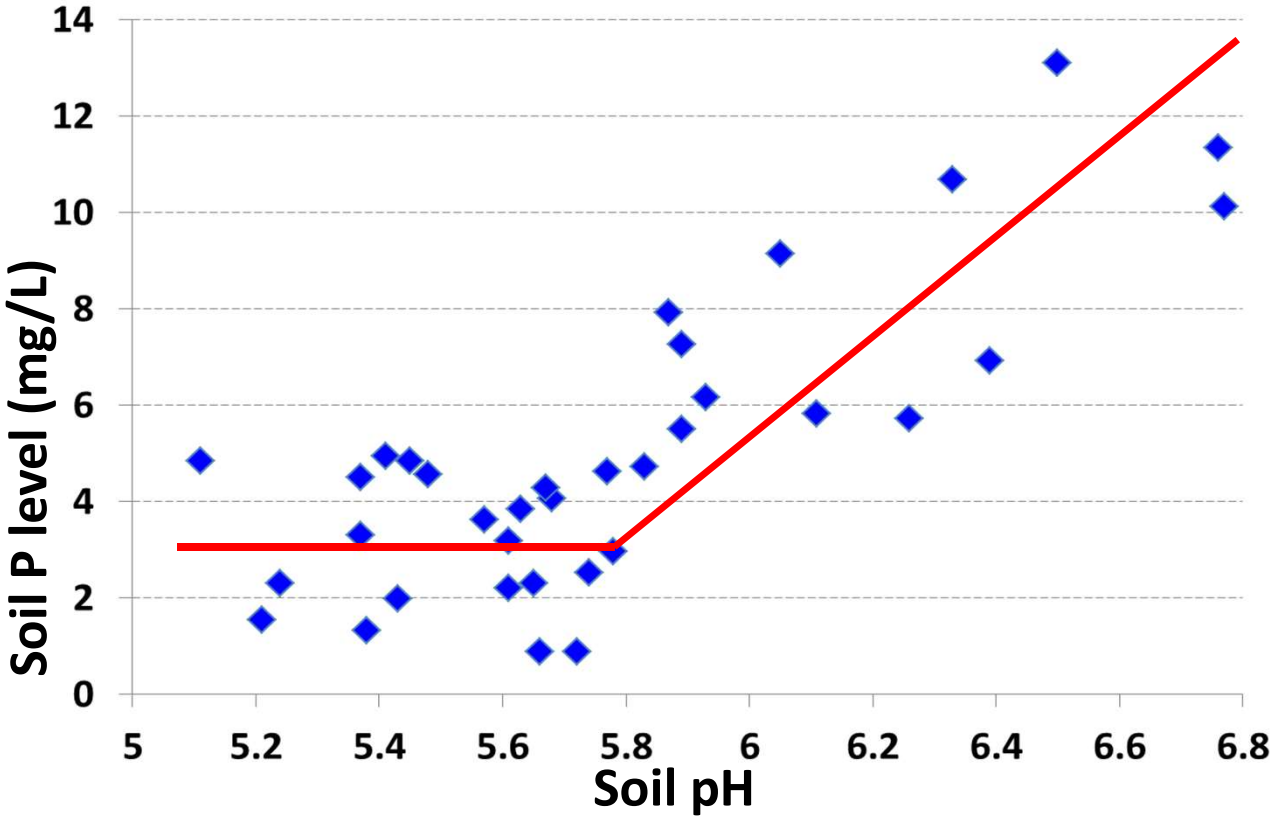
# Spread Lime: Acidic Soils Fix P – Mineral Soils

**P Fertiliser**




*"Acidic soils competes for freshly applied P & its is Fixed by Al & Fe"*

# Spread Lime: Acidic Soils Fix P – Mineral Soils




***Data points represent the 35 fields on one farm (Doonbeg)***

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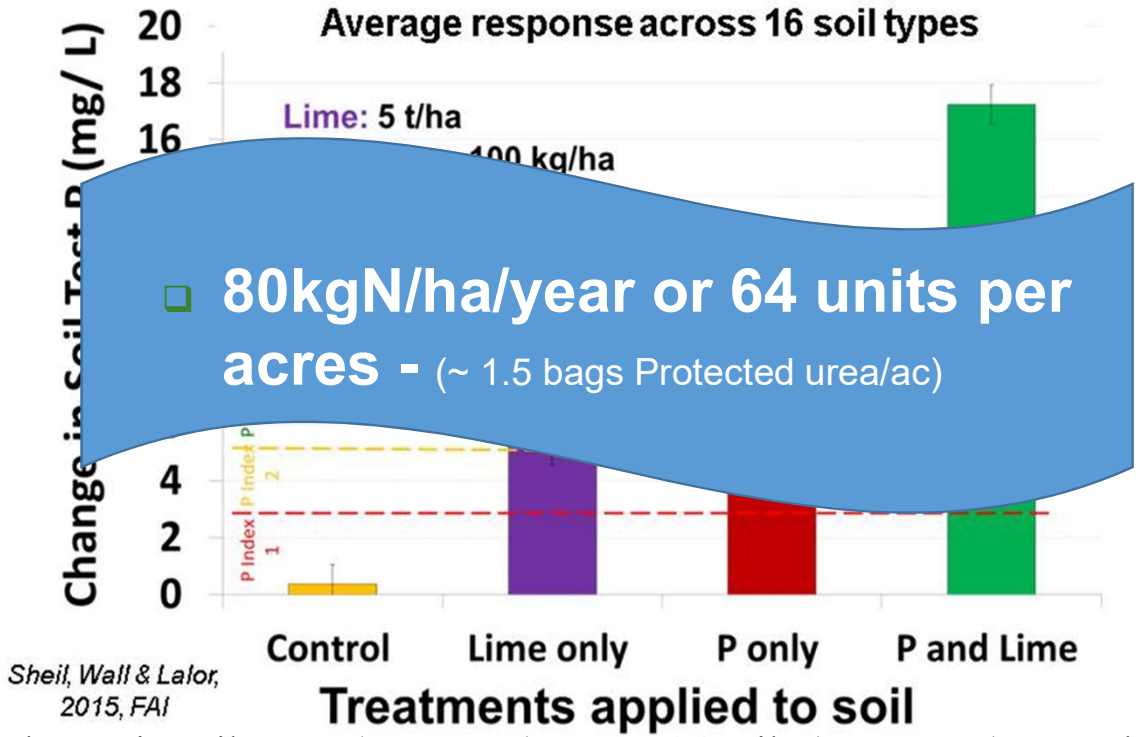



- 80kgN/ha/year or 64 units per acres - (~ 1.5 bags Protected urea/ac)

- Lime before building soil P
- **Target pH 6.3-6.5**

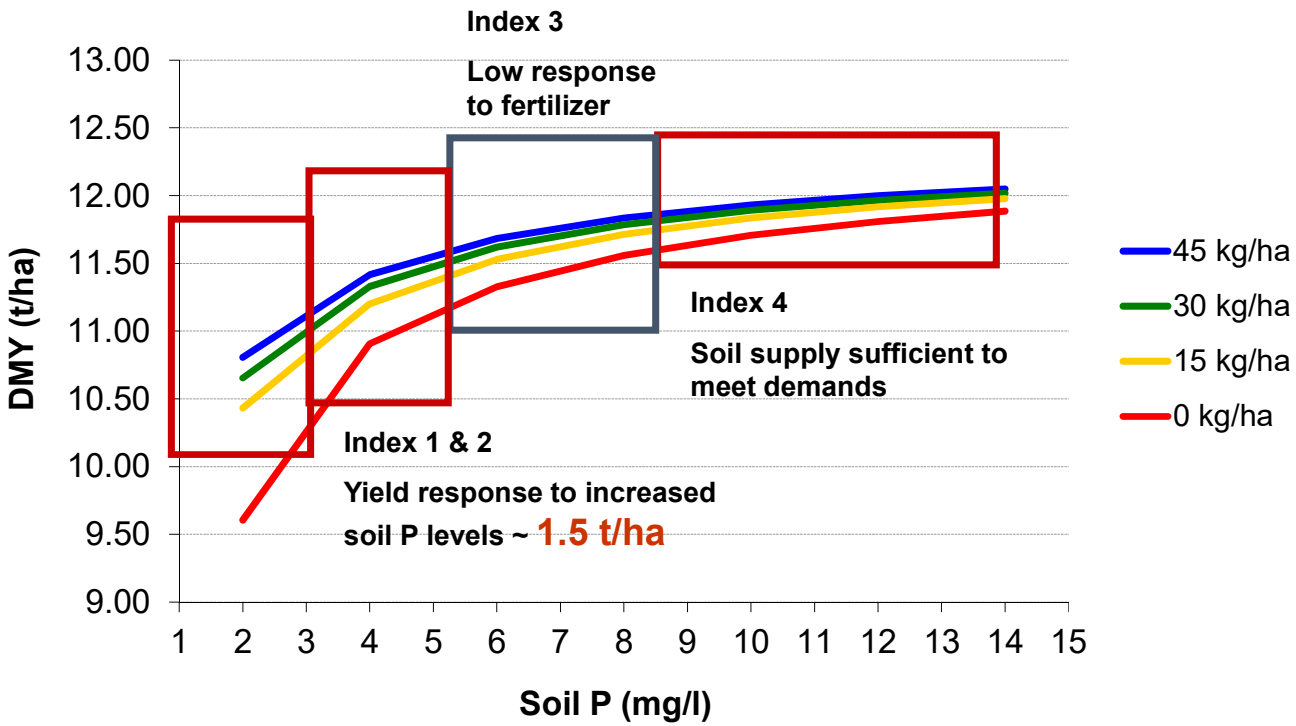
Grazing - all year
Silage Ground – after silage is cut

Average change in soil test P (Morgan's) across 16 soils (av. pH 5.5) treated with P (100 kg/ha of P), Lime (5 t/ha of lime), and P + Lime and incubated over 12 months in controlled conditions

# Should you continue to Apply P & K?

Nitrogen Use Efficiency

**Mean dry matter yield response to soil and fertilizer P (Schulte & Herlihy, 2007)**




**How much grass do you need to grow?**

K – Similar response in silage (1-3 t/ha/yr)

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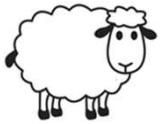
# P & K Advice – Replacing offtake

| Stocking Rate (LU/ha) | 1.5-2.0 | 2.0-2.5 | 2.5-3.0 | > 3.0 |
|---|---|---|---|---|
| **Dairy** | **P – K advice** | | | |
| kg/ha | 14 – 30 | 19 – 35 | 23 – 40 | 27 – 45 |
| *units/acre* | *11 – 24* | *15 – 28* | *18 – 32* | *22 – 36* |

Apply phosphorous in the spring when growth starts



| Stocking Rate (LU/ha) | 1.0-1.5 | 1.5-2.0 | 2.0-2.5 | 2.5-3.0 |
|---|---|---|---|---|
| **Beef/Sheep** | **P – K advice** | | | |
| kg/ha | 7 – 10 | 10 – 15 | 13 – 20 | 16 – 25 |
| *units/acre* | *6 – 8* | *8 – 12* | *10 – 16* | *13 - 20* |

Maintain in 2022, possibly build again in 2023

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# Complete a Fodder Budget

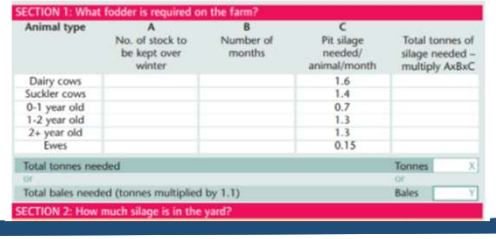
- ❑ Teagasc Fodder Survey July 2021 - Surpluses on farm
- ❑ Kind and mild autumn in 2021
- ❑ This spring dry so far – possible early turn out
- ❑ Save the silage you do have, silage is high input crop
- ❑ Complete your fodder budget in April before closing for silage, ensure to have a buffer – remember 2013/2018
- ❑ If you don't need it, don't grow it
- ❑ Graze silage ground instead and reduce fertiliser requirements

| Enterprise | Region | Winter Fodder balance[1] % | Approx. Days Short |
|---|---|---|---|
| Dairy | Midlands North East | 106 | - |
| Dairy | North West | 110 | - |
| Dairy | South East | 116 | - |
| Dairy | South West | 122 | - |
| Drystock | Midlands North East | 128 | - |
| Drystock | North West | 131 | - |
| Drystock | South East | 134 | - |
| Drystock | South West | 127 | - |

[1]Based on planned winter feed demand minus current feed stocks

[2] Simple (un-weighted) average of fodder balance per farm in sample

PastureBase IRELAND


SECTION 1: What fodder is required on the farm?

| Animal type | A No. of stock to be kept over winter | B Number of months | C Pit silage needed/ animal/month | Total tonnes of silage needed – multiply AxBxC |
|---|---|---|---|---|
| Dairy cows | | | 1.6 | |
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| 2+ year old | | | 1.3 | |
| Ewes | | | 0.15 | |

Total tonnes needed — Tonnes X

or

Total bales needed (tonnes multiplied by 1.1) — Bales Y

SECTION 2: How much silage is in the yard?

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# Apply slurry to silage ground

Recycle on Silage Fields

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# Apply slurry to silage ground

**Silage:**

Slurry on silage ground → closing nutrient cycle

- P:K supply ratio of slurry ≈ 1:6
- P:K requirement ratio for silage (Index 3) ≈ 1:6
  → Well balanced

**Grazing:**

- P:K supply ratio of slurry ≈ 1:6
- P:K requirement ratio of grazing ≈ 1:3
  → Poorly balanced
- Excess K
  → Luxury K uptake & Mg levels
  → K might be required elsewhere
- Pig Slurry Ideal for Grazing Ground (1:3)
- Pig Slurry 19-7-20

**Typical N, P and K fertiliser replacement values of cattle slurries with varied levels of dilution**

| DM% | Application Dilution | Application | | Fertiliser Value (units/ 1000 gallons) | | |
|---|---|---|---|---|---|---|
| | | Timing | Method | N | P | K |
| 7 | None | Spring | | 6 | 5 | 30 |
| | | | | 10 | | |
| 5 | 1/3 water, 2/3 slurry | | | | 4 | 28 |
| 3 | 2/3 water, 1/3 slurry | Spring | | 3 | 2 | 17 |
| | | | S | 4 | | |
| | | Summer | P | 1 | | |
| | | | TS/BS | 3 | | |

*SP = Splash Plate
*TS/BS = Trailing Shoe/Band Spreader

Worth €40 per 1000 gals

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# Cull poor performers

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Call 023-8820452

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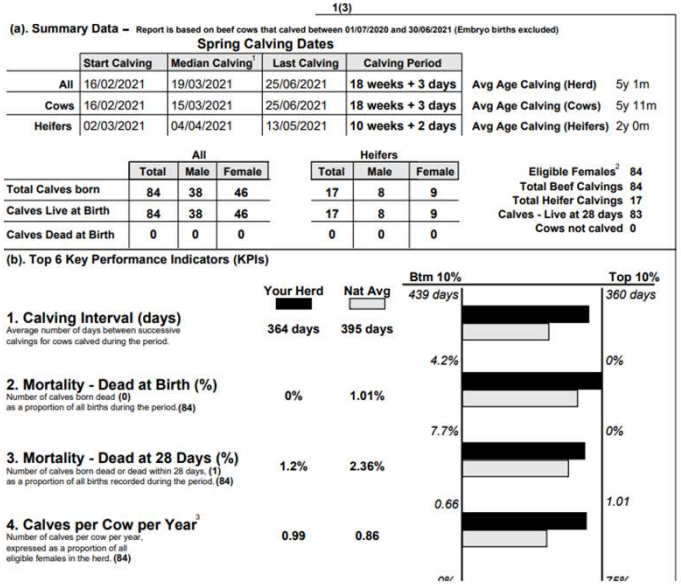
- Cull cows not in calf or that have long calving interval
- Mark cows with poor calves, had calving difficulty, udder issues etc wean early and cull
- Watch late calvers, can they be pulled back, if not cull
- Cull cows with high somatic cell counts
- Use milk recording to identify poor milkers, consider culling
- Health issues, bad feet etc.
- Cull any ewes that loose lambs if not fostered
- Mark ewes that had difficult lambing, bad teeth, bad feet or other issues, wean early and cull



1(3)

(a). Summary Data – Report is based on beef cows that calved between 01/07/2020 and 30/06/2021 (Embryo births excluded)

Spring Calving Dates

| | Start Calving | Median Calving[1] | Last Calving | Calving Period | |
|---|---|---|---|---|---|
| All | 16/02/2021 | 19/03/2021 | 25/06/2021 | 18 weeks + 3 days | Avg Age Calving (Herd) 5y 1m |
| Cows | 16/02/2021 | 15/03/2021 | 25/06/2021 | 18 weeks + 3 days | Avg Age Calving (Cows) 5y 11m |
| Heifers | 02/03/2021 | 04/04/2021 | 13/05/2021 | 10 weeks + 2 days | Avg Age Calving (Heifers) 2y 0m |

| | All | | | Heifers | | | |
|---|---|---|---|---|---|---|---|
| | Total | Male | Female | Total | Male | Female | |
| Total Calves born | 84 | 38 | 46 | 17 | 8 | 9 | Eligible Females[2] 84 |
| Calves Live at Birth | 84 | 38 | 46 | 17 | 8 | 9 | Total Beef Calvings 84 |
| Calves Dead at Birth | 0 | 0 | 0 | 0 | 0 | 0 | Total Heifer Calvings 17 |
| | | | | | | | Calves - Live at 28 days 83 |
| | | | | | | | Cows not calved 0 |

(b). Top 6 Key Performance Indicators (KPIs)

| | Your Herd | Nat Avg | Btm 10% | Top 10% |
|---|---|---|---|---|
| 1. Calving Interval (days) Average number of days between successive calvings for cows calved during the period. | 364 days | 395 days | 439 days | 360 days |
| 2. Mortality - Dead at Birth (%) Number of calves born dead (0) as a proportion of all births during the period.(84) | 0% | 1.01% | 4.2% | 0% |
| 3. Mortality - Dead at 28 Days (%) Number of calves born dead or dead within 28 days. (1) as a proportion of all births recorded during the period. (84) | 1.2% | 2.36% | 7.7% | 0% |
| 4. Calves per Cow per Year[3] Number of calves per cow per year, expressed as a proportion of all eligible females in the herd. (84) | 0.99 | 0.86 | 0.66 | 1.01 |

# In Summary

- ❑Take a good set of soil samples
- ❑Apply lime first
- ❑Apply P&K where required
- ❑Maintain soil index's, can build in 2023
- ❑Do a fodder budget
- ❑If you don't need it don't grow it
- ❑Recycle your slurry onto silage ground
- ❑Cull any poor performers