Fertiliser Targets to Maximise Grass

Stan Lalor & Michael O'Donovan

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P & K - GRAZING

2

P & K - SILAGE

3

SLURRY

4

SULPHUR

5

EARLY NITROGEN

6

SIMPLE FERTILISER PLAN

EVERYTHING DEPENDS ON THE SOIL pH BEING RIGHT

SPREAD LIME

1

P & K - GRAZING

The amount of P & K required will depend on the amount of grass utilised

1.1 P & K
UPTAKE OF P & K IS DRIVEN BY GRASS UTILISED

	P (kg/ha)	K (kg/ha)
1 t/ha of grass DM	4	30
15 t/ha of grass DM	60	450
80% utilisation → 12 t/ha of utilised grass DM	48	360
Retention by the animal (i.e. not excreted in dung and urine)	40 %	10 %
Nutrient removal by grazing animals (Soil Fertility Maintenance)	19	36
Soil Index 2 (above maintenance)	+ 10	+ 30
Soil Index 1 (above maintenance)	+ 20	+ 60

1.2 P & K GRAZING VS. CUTTING

Intake by cow
4 kg P
30 kg K

Removal from field
1.6 kg P
3 kg K

1 t/ha grass

40% of P
10% of K

60% of P
90% of K

CUTTING removes…

2.5 x P
10 x K

more than GRAZING

Harvested
4 kg P
30 kg K

Removal from field
4 kg P
30 kg K

1 t/ha grass

100% of P
100% of K

1.3 P & K TIMING OF P & K

P on Peaty Soils ?
- Little and often across the year
- No build-up

Maintenance

Build-up

50-75 % of P

Drip feed

Drip feed

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

Extra P

Extra K

2

P & K - SILAGE

Cutting takes more P and K out of the field than grazing

-

Grow silage as a crop

2.1 Silage
GROW SILAGE AS A CROP

	P (kg/ha)	K (kg/ha)
1 t/ha of grass DM for silage	3.5	25
First Cut (5 t/ha of grass DM)	18	125
Second Cut (4 t/ha of grass DM)	14	100

Every 1 t/ha of DM that is baled removes:

2.5 kg more P

25 kg more K

than if the same grass were grazed

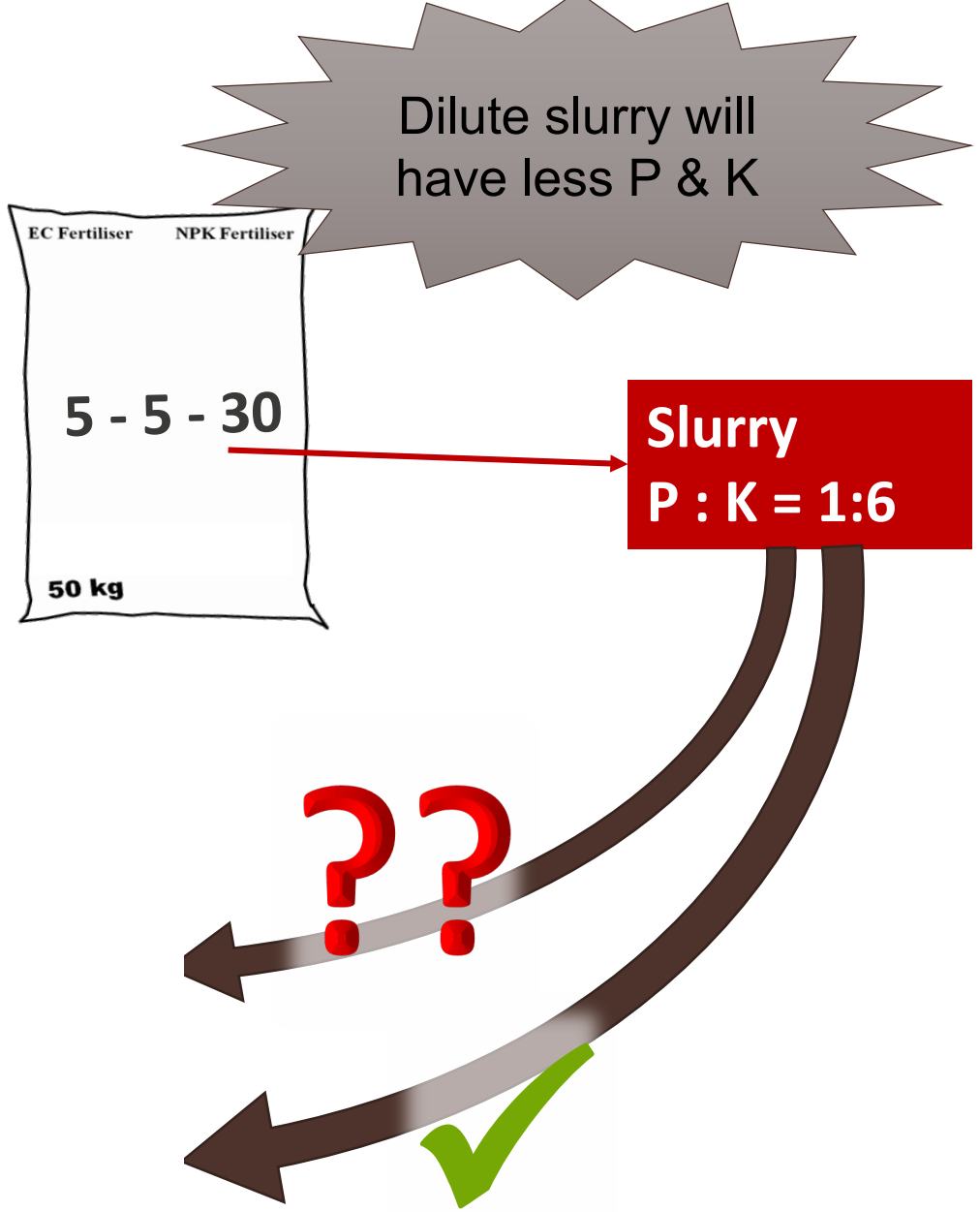
3

SLURRY

Slurry has a better P & K balance for silage than for grazing

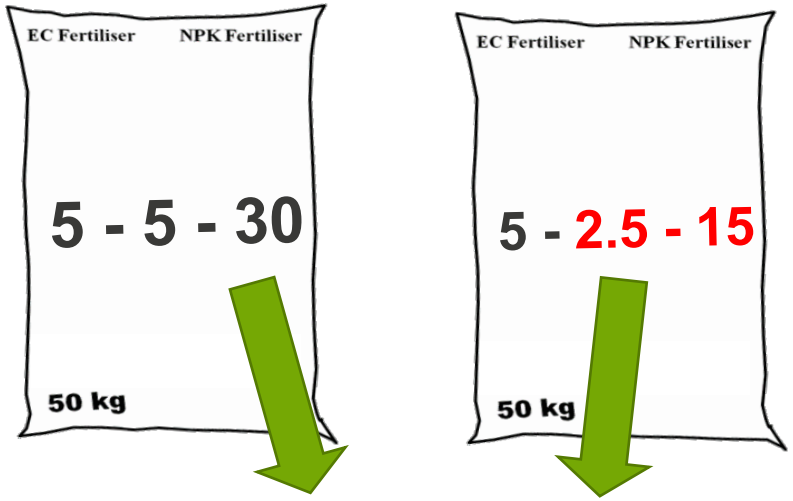
3.1 Slurry
SLURRY VALUE AND P & K BALANCE

1,000 gallons
"Thick" slurry



	P (kg/ha)	K (kg/ha)
Grazing	19	36
Silage (First Cut)	18	125

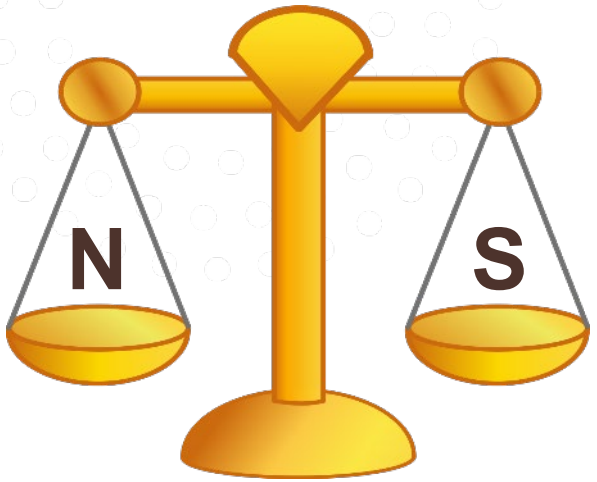
3.2 Slurry
SLURRY FOR SILAGE



	P (kg/ha)	K (kg/ha)	'Thick' Slurry	'Watery' Slurry
First Cut (5 t/ha of grass DM)	18	125	3,500 *gals/acre*	7,000 *gals/acre*
Second Cut (4 t/ha of grass DM)	14	100	2,500 *gals/acre*	5,000 *gals/acre*
Slurry per 1,000 kg/ha of surplus grass			700 *gals/acre*	1,500 *gals/acre*
Bales offset per 1,000 gallons			4 bales	2 bales

4

SULPHUR



Sulphur has an important role in balance with Nitrogen

4.1 Sulphur
BALANCING NITROGEN AND SULPHUR

Nitrogen (N) & Sulphur (S)

- ✓ interact very closely in PROTEIN in the grass
- ✓ behave very similarly in soil

12 : 1

N : S

5

EARLY NITROGEN

Early Nitrogen is an important driver of early spring growth…
… on responsive soils and swards…

5.1 Early Nitrogen
YES / NO / MAYBE ?????

How early should N be spread

- ✓ Early spring N will grow less grass than N spread in late spring & summer – scope for efficiency

BUT..... Early grass is very valuable

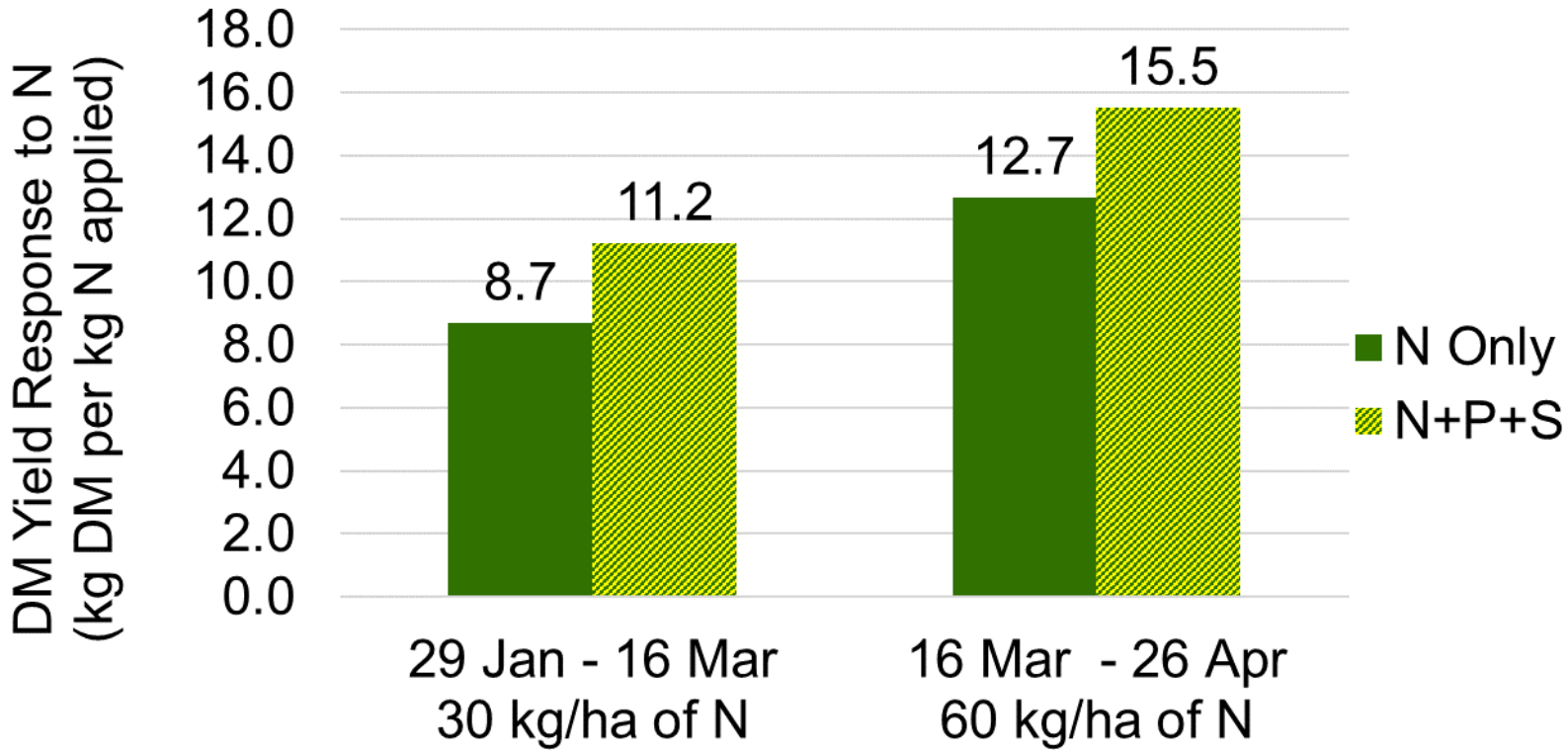
Target Early N if:

- ☑ Ryegrass swards
- ☑ Drier Soils
- ☑ Soils that allow early turnout in most years

When to Spread:

- ☑ Soil Temp 5 °C & rising
- ☑ Soil & Rainfall

Teagasc Moorepark, Unpublished data, Spring 2018



6

SIMPLE FERTILISER PLAN

Put a simple fertiliser plan in place

6.1 Fertiliser Plan
KEEP IT SIMPLE

A "backbone" Programme

- Simple plan for each round across the year
- Focus on priorities within key periods
  - *Early P*
  - *N & S balance*
- Good fit for the average situation on the grazing block
- As uniform as possible across the farm
- Simple to follow & implement

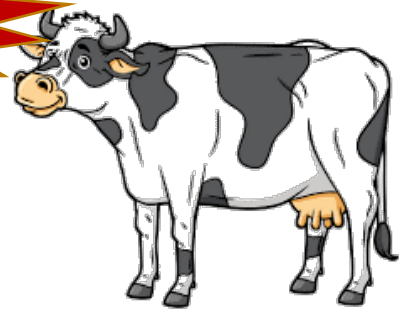
Make SIMPLE changes

- Don't ignore where adjustments are required
- One or two simple adjustments at key timings

6.2 Fertiliser Plan
SIMPLE ANNUAL PLAN

Tailor to your own soils & farm

Cross-check with Nitrates



Fertiliser targets **N-P-K-S** **250 – 20 – 40 – 20**

Timing	Fert	Bags /acre	N	P	K	S
Jan/Feb	Urea	0.5	*30*	-	-	-
March	18-6-12+S	1.8	*40*	*12*	*24*	*8*
April	Urea	0.9	*50*	-	-	-
May	N + S	*N Rate guided by growth & demand*	*40*			*6*
Jun	NPK		*23*	*4*	*8*	
Jul	N + S		*22*			*6*
Aug	NPK		*23*	*4*	*8*	
Sep	N		*22*			
Total			**250**	**20**	**40**	**20**

Extra P

Extra K

Teagasc Agriculture and Food Development Authority

Grassland AGRO

IN SUMMARY……..

1. **Grass utilised drives requirements for P and K**
2. **Front load P in the spring to stimulate early grass growth**
3. **Apply K late in the year where high K applications are required**
4. **Slurry is best suited to low K soils, silage and paddocks cut for surplus grass**
5. **Balance N with S 12 N : 1 S**
6. **Early N will drive spring grass. Target the right fields & soil conditions**
7. **Simple fertiliser plan. Backbone Plan + Simple switches**