

Harvesting the production potential of land – farm case studies

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Farmer attitudes to soil fertility and soil analysis

- Dairy (40) Tillage (40) Drystock (40)
 - Proportion soil sampled in last 3 years
 - 100% 29 (25) (14) 75% 9 (15) (1)
 - 50% 1 (0) (6) 0% 0 (0) (19)
 - Importance of soil sampling
 - Essential 30 (40) (11)
 - Very important 7 (0) (7)
 - Fairly important 2 (0) (13)
 - Not important 1 (0) (9)

Farmer attitudes to soil fertility and soil analysis

- Dairy farmers (40 surveyed)
 - Is fertiliser programmed to individual fields
 - Yes 15 (29) (11) No 8 (0) (12)
 - Sometimes 17 (11) (17)
 - Impact of Nitrates
 - A lot 9 (28) (9)
 - Some 10 (8) (12)
 - Very little 13 (0) (7)
 - None 8 (0) (12)

Case Studies

- Semi abandoned land
 - Representing understocked land
- Conacre
 - Representing lands which are let annually
- Dairy farm
 - Representing cost/regulation conscious developing farm
- New conacre
 - Representing tillage farmer attempting to maintain area against greater competition for lands

Soil Analysis Report (Feb 2008) semi abandoned study farm

Field Name	Field Area	Lime req. (t/ha)	Soil P (mg/kg)	Soil K (mg/kg)
Field 1	4.48	5.00	2.2	124
Field 2	3.31	6.25	3.1	139
Field 3	2.19	6.25	4.1	110
Field 4	3.53	2.5	3.7	101
Field 5	4.21	3.75	1.9	84
Field 6	3.46	6.25	2.8	138
Field 7	2.34	0	2.0	80

Soil Analysis Report (Oct 2011) semi abandoned study farm

Field Name	Field Area	Lime req. (t/ha)	Soil P (mg/kg)	Soil K (mg/kg)
Field 1	4.48	3.75	6.0	96
Field 2	3.31	0	9.7	108
Field 3	2.19	0	5.9	78
Field 4	3.53	0	3.0	63
Field 5	4.21	0	6.2	55
Field 6	3.46	0	4.4	74
Field 7	2.34	0	2.0	36

Costs (€) incurred in bringing semi abandoned farm to full yield potential.

Item	Total cost (€)
Reseed entire farm	15,080
Tidy hedgerows	1,600
Repair boundary fences	1,200
Clean drains	5,040
Lime	2,415
Increase P soil fertility	8,000
Total cost for 23.4 ha	33,335
Cost/ha	1,425
Cost/year over 10 years	3,335
Cost/ha/yr	143

Soil Analysis Report (Sept 2010) “run down” tillage study farm

Field Name	Lime req. (t/ha)	Soil P (mg/kg)	Soil K (mg/kg)
Field 1	6.25	5.4	96
Field 2	2.50	4.4	77
Field 3	5.00	3.2	129
Field 4	5.00	4.5	87
Field 5	2.50	3.5	100
Field 6	2.50	6.2	107
Field 7	7.50	3.8	113

Soil Analysis Report (Dec 2012) “run down” tillage study farm

Field Name	Lime req. (t/ha)	Soil P (mg/kg)	Soil K (mg/kg)
Field 1	0	8.6	117
Field 2	3.75	7.0	111
Field 3	3.75	4.9	135
Field 4	0	4.5	<30
Field 5	0	11.0	81
Field 6	0	7.7	117
Field 7	0	9.1	120

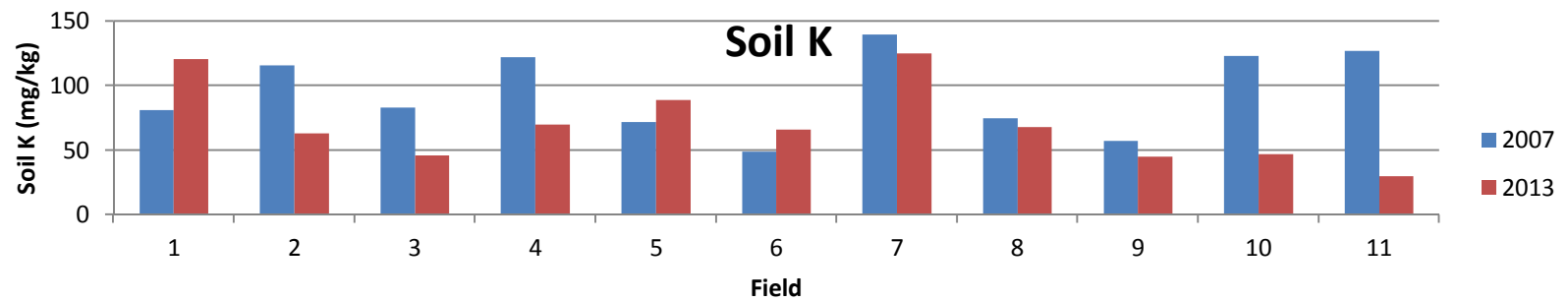
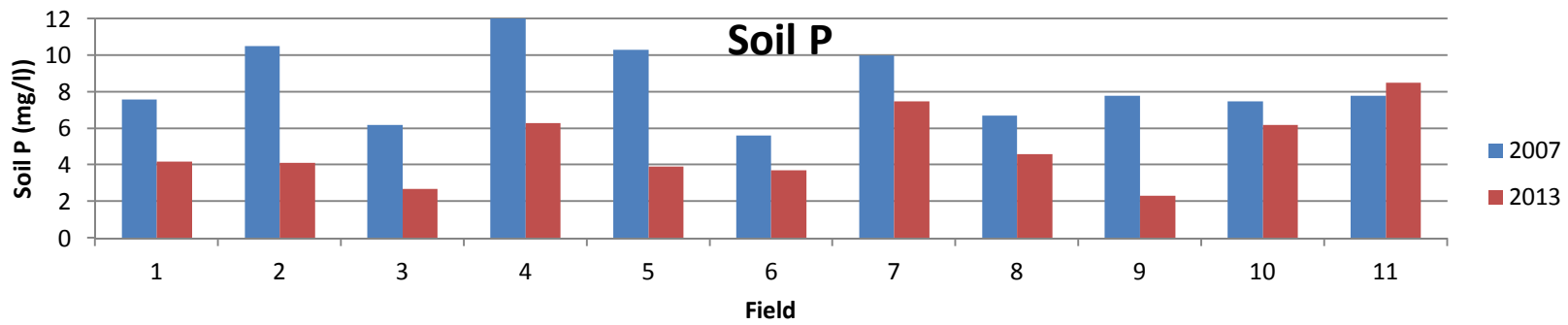
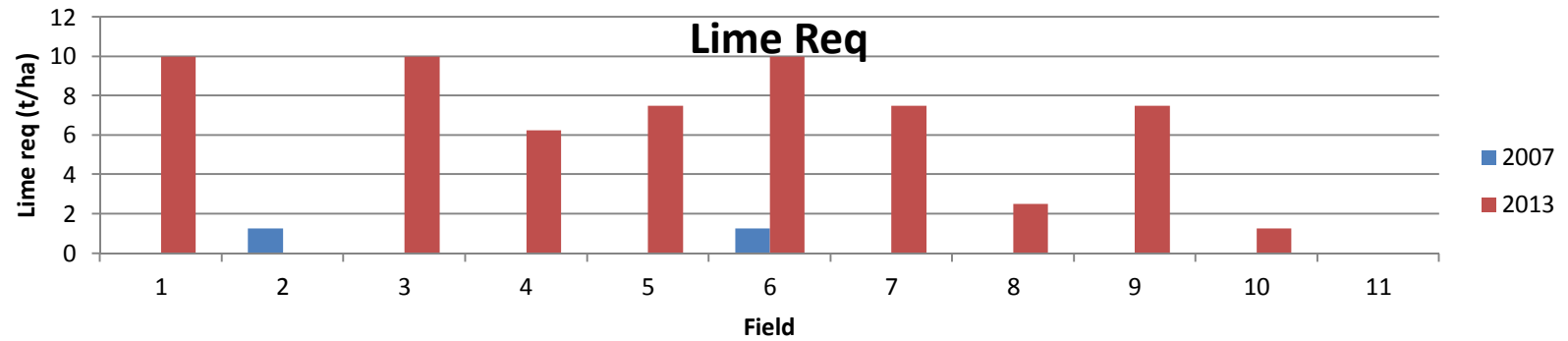
Soil Analysis Report (Dec 2007) Dairy study farm

Field Name	Field Area	Lime req. (t/ha)	Soil P (mg/kg)	Soil K (mg/kg)
Field 1	6.3	0	7.6	81
Field 2	6.03	1.25	10.5	116
Field 3	2.31	0	6.2	83
Field 4	3.82	0	21.9	122
Field 5	2.52	0	10.3	72
Field 6	1.86	1.25	5.6	49
Field 7	5.85	0	10.0	140
Field 8	5.12	0	6.7	75
Field 9	3.79	0	7.8	57
Field 10	3.19	0	7.5	123
Field 11	5.10	0	7.8	127

Soil Analysis Report (Mar 2013) Dairy study farm

Field Name	Field Area	Lime req. (t/ha)	Soil P (mg/kg)	Soil K (mg/kg)
Field 1	6.3	10.00	4.2	121
Field 2	6.03	0	4.1	63
Field 3	2.31	10.00	2.7	46
Field 4	3.82	6.25	6.3	70
Field 5	2.52	7.50	3.9	89
Field 6	1.86	10.00	3.7	66
Field 7	5.85	7.5	7.5	125
Field 8	5.12	2.5	4.6	68
Field 9	3.79	7.5	2.3	45
Field 10	3.19	1.25	6.2	47
Field 11	5.10	0	8.5	<30

Comparison of lime requirement, soil test P and soil test K in 2007 and 2013 on dairy study farm.



Soil Analysis Report (Mar 2013) On newly acquired lands for a tillage farmer

Field Name	Lime req. (t/ha)	Soil P (mg/kg)	Soil K (mg/kg)
Field 1	5.00	5.8	<30
Field 2	0	11.9	43
Field 3	0	30+	39
Field 4	3.75	5.1	95
Field 5	8.75	2.7	138
Field 6	1.25	9.6	214
Field 7	2.50	7.9	66
Field 8	0	14.2	87
Field 9	8.75	6.0	67
Field 10	1.25	4.3	63
Field 11	0	7.9	87
Field 12	0	30+	42
Field 13	5.00	9.1	<30
Field 14	7.5	3.0	134
Field 15	11.25	3.1	126
Field 16	16.25	3.0	84

Discussion.

- It is a well established fact that there is a lot of underutilised land in this country.
- Current rental prices for land confirms demand for land exceeds supply.
- Underutilised land can be brought into production with proper management.
- Need incentives to make land available.

Conclusions

- All lands gave yield responses to fertiliser usage.
- Frequent soil analysis is important
- Substantial potential for improved production on farms with poor soil fertility.