

The Keythorpe Herd Today

- 350 Autumn calving Holstein cows 7,500 8,000 lts
- 160 < 250 Spring calving Holstein cows being bred to New Zealand genetics 5,500 – 6,000 lts



Paddock Grazing Turn- out 18/02/15





Infrastructure Key





Grass Silage

ucerne

Establishment Quality Protein No Fertiliser Requirement

Red Clover

Established in the spring

Suppresses weeds

Builds fertility

Fodder beet

- High yielding
- High energy
- High digestibility





Triticale



Oats

- Cover crop
- Wholecrop
- Grain





Australia

USA

2

Sustainable Milk Production The vital role of Soil for Feed Integrity

Sweden







Albrecht soil analysis



Glenside

Soil Analysis Result

Bioscence Buording Biological Productivity

01653/12

Index

CONTROL ID

Custo	mer;			Farm:	CRE WILL FARMIN	Advisor:	Ian Roberton	01653/12
FieldT	D: PAD	DOCK 1	HalAc	0		Sample No.	023800	
	-					Sample Date:	03/03/2015	
Lrop: Lotal i	ychange Canacity		40 NO:	-4631	4	Report Date:	GO(01/19G0	
Collois	dal Organic Matter %	and the second sec	1.81					
Sail Ty	pe: Potentially an over-	saturated soll.	4.50	Thosphores	1			
R	IRON	p.p.m.	79.90	a second second				
A	MANGANE	SE p.p.m.	111.00	1 .				
c	COPPER	p.p.m.	2.00					
E	CHLORIDE	p.p.m.	4.00	and it	-			
2	IODINE	p.p.m.	10.00	Call D.M.	-			
	MOLYBOEN	UM p.p.m.	0.80	Sulphote-S				
_	CDBALI	p.p.m.	0.80				_	
BASE	SATURATION PERCENT			Bearon		_		
area .	and experiments ensuring			Int				
DESIRED Ca: Mg RAIIO			68-12	Margane	-	Sector Se		Statement of the
ALCH	IM		93.2		_			
AGN	ESIUM		2.48	Copper				
OTAS	SIUM		1.99	Zinc				
SODIU	M		0,78	100.00				
DTHER	BASES		1.60	Chioride				
EXCH/	Soil Sample		0.00	Cobalt	_			
pir or			1.4	N. Arter			-	
	CALCIUM	Desired Value	4496					
12	kg/ha	Value Found	6093	1				
c		Deficit/Surplus	=1597	India				
	1			-	10000		14.4	-
A	MAGNESIUM	Desired Value	439		Very Low	Low Desi	red High	Excess
÷.	kg/ha	Value Found	94					
		Dencityadipias	-384			BASE SATUR	AHON	
1.1	POTASSIUM	Desired Value	380			DESIRED	0-	
10	kg/ha	Value Found	253					Mg
0	1 mile	Deficit/Surplus	-127					1155
				695		1		Section and
N	SODIUM					10		ĸ
	kg/ha	Value Found	58		- No - V			.3%
5					- 10 V			1.000
-			_					1
	NUROGEN							10
A	ag/ha	ENH						
	1000				1	- N		
N	NUS IN				1			Other
	Start in							8%
	and a second					V	1	
	Sulphate (503)	And the Frederick				1	1	
	sgrina	Value Found	28					H
10								876
- C. I			· · · · ·					
N	and the strength	Ter manufactor			Ca	FOUND		
	anosonate (P205)	Desired value	128		93%	1.50000		
5	ke/ha	Deficit/Surplus	-65					
	- A	and the second s						
_	1 DOUGLASS					1	100	
_	MURGANP				1		1	
			- 1. A. 1					
	TOTAL PHOSPHORUS :	as ppm:	1190	1			A	
T.	TTAL MILISIPATION	e Bar bains	1100	1.1				
0	I WINCPHOSPHORUS I	12-12-5 08/ INC	4123				-	
	SULFUR ppm		512			0		
T	Sand Street				V.			Mg
	TOTALK kg/ha		2310		1			2%
	IUTAL Ca kg/ha		115114			6		
L	Sector addition					1		. К
2	IUTAL Mg kg/ha		2596			-	Other	Na 2%
5	TOTAL Na belles		122				0% 2%	1%
	is instant of the		142	-				
	Standard index t	a ISO/IEC 17025-2005	1			Stan	dard index to ISO/IEC	017025-2005
1.1	IK instan	1 645				Section	1 Hat	- Bod
Phosphate 14 1		1				Phosphate (More	and o	. Fid
otass	ium 128	2-				Potassium	0	
Magne	sium 39	1	2			Magnesium	0	
H	3.1					Calcium		
-						Organic Matter	3.1	
-						Building will	7.1	



Soil Analysis Result

Boosting Biological Productivity

CONTROL D \$1090

-Bioscence

ustom	HE.			Fami sa	CKERCHOLOGHNILL	Advisor	Jan Roberton	01653/12
eld (.D	MOW MEAD	OWSTOP	Itta/Ac	0		Sample No.	023300	
-		- N				Barracke Date	GB/03/2016	
otal E	echange Capacity		Lat-No. (2.6)	46.32		Report Date	06-017/900	
ol Typ	al Organic Matter % e: Dark coloured tands S	andy Loam	3.52			4 4 4		
T	BORON	p.p.m.	100	Phosphorus				
A	MANGANESE	p.p.m. p.p.m.	157.00					
¢	COPPER	p.p.m.	1.80					
s	CHLORIDE	p.p.m.	22.60	CHIOM	2			
	IODINE MOLVEDENI I	10.0 m	640	No. of Concession, Name	1 1			
	COBALT	p.p.m.	0.30					
ASE S	TURATION PERCENT.		0	the on		T I I		
FEIRFI	CA MERATIO		04-10	gross		1 1 1	1 1 1	-
	ROLIND		66.23	Maggines		THE T	T T	
AGNE	SIUM		23.32	Copper			111 1 20 4	
OTASS	NUM.		3.94	Zinc				
THER	BASES		3.06	Chioride				
XCHA	NGEABLE HYDROGEN		908	Columb				
	211 miles	and the second	1	Milyb denom				
121	kg/ha	Value Found	3433	1				
c		Defit Pr/Su pilus	-6940					
	Contraction of the			and a	Vara Jose	lan -	frant Minth Pro	
A	MAGNESILIM kg/ta	Desired Value Value Found	390 784		ind out		the rear to	
Ŧ		Deficit/Surplus	+ 39.4	1		BASE SATUR	ATON	
1	and a second sec	Accession of				MERPIN		
1	POTASSIUM htt/ha	Desired Value Value Found	340			DESIGE		
0	-	Deficit/Sumplus	190			-	-	12%
		4		Ca 68%		1		
N	SODIUM	Service 1	1.00					×
5	NE/TA	Value Found	197					3%
		4	-					
12/1	NITROG EN	1000			Y	4		1%
A	Ng/ha	ENR			1			
	NO ₂ N				1	1		-
	and the				1			0 Bier
1	Sulphate (503)		1				X	
	kg/ha	Value Found	40			-	- /	н
0		1011	1					8%
	A DECEMBER OF		6	ľ		- Ball		
	phospitelle (P205)	Desiled Value	1238			FOUND	22%	
5	XR/Ini	Deficit/Surplus	187				- /	
		Post of the start		54	a 1%-			
	MORGAN P				1 /			
	and the second second second		- 23 ⁻				A	
τ.	TOTAL PHO SPHORUS as a	Aprin :	2012					K
	TOTAL PHO SPHORUS as P	20, kg/ha	4607			R		
	SULFUR pom		967		X			Na 3%
Ŧ	TOTAL K Ag/ha		9078	din .)	0	ther
A					1			574
4	converse all/ca	3276				H		
\$	TOTAL Mg kg/ha	15728			-	9%		
	TOTAL Na kg/ha		302					
-	Randard Index to 10				Stan	dard index is ISO/IIC 17	025-2005	
Life makes Mig 7. Inde			8			Southern Web	Man	index
Phosphate 36 3					Phosphete (Mory	gan) G	1	
195 24 Magnesium 342 5					Magnesium	d d	-	
н	6	1111				Calcium		112
-						O ganic Matter	6	
	4	11.1				outer pH	6.0	1.1.1.1

Soil Chromatography

100m 426

Irregular lines and rays indicate good biological activity between the zones

Periferal biology zone Proteic organic matter zone

Internal mineral

zone

O Rey

Renewables



The Soil Food Web

The Productivity of our soil can never be great than the plant food element which is in least supply for...

Yield & Quality

Tonnes of dry matter per hectare

Mineral dense food

tDM/ha







Growing Top Soil



Soil Penetrometer

Air vital for soil health



74,000 tonnes of N are above every hectare

ANNALSEN WAR WARD OF A TAK BUILD WAR AND DE AND DE AND STATISTICAL



Cover Crops

- Maximising photosynthesis
- Feeding and protecting soil biology



Mob Graving

- Maximising plant
 exudates
- Building organic matter





Plant Diversity





Compost

- Carbon source
- Chelating minerals
- A live fertilizer
- 10x more effective than FYM

Foliar feeds

- Carbon source
- Mineral suspensions
- Energy sources
- Competitive exclusion with good biology
- Urea is an amine



Keythorpe Farms fertiliser programme 2015



- Molasses
- Liquid sea weed or fish
- Epson salts
- Sulphur
- Boron
- Humates??

The Quality and Integrity of the feed we produce on farm is a result of the way we manage Our Soils.





Conclusions

- The management of our soils has a direct impact on the Integrity of the food we produce.
- Soil biology and Plant Diversity will build Resilience and Efficiency in our farming systems and increase the Nutrient Density of the food we produce.
- Farmers have a massive opportunity to Multiply Soil Biology using compost and foliar feeds.
- Plants grown in high biological soils are Less Prone to Disease and Pest attack.
- Excessive use of soluble fertilizers and chemicals will Shut Down biological functions reducing the nutrient density of the food produced
- 1st generation GM technology is Mummifying soil biology, burning off organic matter and producing Empty Calories that can not feed the world.

Biological Farming is the Future



Recommendations

- Know your Base saturation levels in your soils and adopt an appropriate fertiliser policy.
- Feed and nurture Soil Biology as a priority.
- Use Plant and Soil Microbe Diversity to improved feed quality and build Resilience in our soils and farming systems.
- Maximise on farm manures to make Live Mineral Rich Fertilizers.
- Collaborate with Arable Farmers to secure our future.
- **Question** the integrity of any bought in feeds.
- Influence the Decision on the 1st generation of GM technology being grown in the UK

Biological Farming Can Out Preform Chemical Agriculture And Produce Higher Integrity Feed.

