

**The Northland Dairy Development Trust
&
The Northland Agricultural Research Farm**

‘Profitable Production’

Field Day – 27th November 2019

Project funders

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NARF Farm Manager:	Kelvin Horton
NDDT Science Manager:	Chris Boom, AgFirst Northland
NDDT Coordinator:	Kim Robinson, AgFirst Northland

PROGRAMME

- 10am** - Welcome
- 10:10** – Making Dairy Loveable Again – John Roche
- 10:50** – N, S, K Response Trial Update
- 11am** – NARF Trial 2018/19 Results – Chris Boom
- 11:20** – Profitable Production – Jane Kay
- Noon** – Lunch – thanks to Farm Source Kaitaia
- 12:40** – The Gray Farming System – Amy Weston
- 2pm** – Wrap-up and Feedback

Visit the Northland Dairy Development Trust website for further information and updates from these projects

www.nddt.nz

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Acknowledgements

Thanks to the funders and sponsors who have made this project possible. Special thanks to the NDDT trustees and NARF committee members who have given of their time and energy to make this project happen.

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Dairying in a Variable Climate Project – NARF

Chris Boom (NDDT Science Manager, AgFirst Northland) – November 2019

This trial is being run by the Northland Dairy Development Trust (NDDT) in conjunction with the Northland Agricultural Research Farm (NARF). The project is funded by DairyNZ, Ministry of Primary Industries (Sustainable Farming Fund) and Hine Rangi Trust with support from commercial sponsors.

Summary

A farm systems experiment conducted at the Northland Agricultural Research Farm (NARF) has been investigating the use of palm kernel extract (PKE) and other supplements on farm production, profitability and environmental measures. This project compares a farm that does not import any supplement (**Pasture Only farm**, 2.7 cows/ha) with a farm that only imports PKE (**PKE Only farm**, 3.1 cows/ha) and a farm that imports PKE and other supplements (**PKE Plus Farm**, 3.1 cows/ha). PKE is fed on the PKE Only and PKE Plus farms when pasture supply is limiting. Other supplements are fed to the PKE Plus farm when milk fat evaluation index (FEI) levels indicate no further PKE can be fed without incurring penalties.

This project commenced in June 2018 and will finish in May 2021. Climatic conditions to date have been fairly average with some challenge from wet conditions during early spring and dry conditions during late summer/autumn.

Milk production in the 2018/19 season was 1,008, 1,238 & 1,314 kg MS/ha for the Pasture Only, PKE Only and PKE Plus treatments respectively. Feeding of PKE was constrained by milk FEI during summer and autumn, but not during spring. PKE fed totalled 748 and 769 kg DM/cow on the PKE Only and PKE Plus farms respectively. In addition to PKE, PKE Plus cows received 228 kg/cow DDG and 54 kg DM/cow baleage (purchased). Comparing milk production and supplementation between farms provides a calculation of the response rate to supplements. This shows a response of 100 g MS/kg DM PKE fed on the PKE Only farm and a response rate of 94 g MS/kg PKE, DDG & baleage fed on the PKE Plus farm.

Financial analysis for the 2018/19 season takes into account labour and other costs associated with each farm. With a milk price of \$6.35/kg MS, farm operating profit (EBIRT) was \$3,064, \$3,365 and \$3,055/ha for the Pasture Only, PKE Only and PKE Plus farms respectively. These results show a financial advantage to putting PKE into the farm system compared to the Pasture Only farm, however this advantage disappeared when other higher priced supplements were added when milk FEI constrained feeding more PKE, illustrating the point that higher production does not always lead to higher profit.

Pasture covers were low during early spring 2019 due to relatively poor growing conditions and pasture utilisation. PKE was fed on the two PKE farms and all of the baleage on hand was used on the Pasture Only farm. With falling body condition scores on the Pasture Only farm during early September, all cows were placed on once a day milking for four weeks. In addition, in mid-September eight cows were culled out of the Pasture Only farm due to poor body condition.

Milk production for the 2019/20 season to date (19th November) is 419, 593 and 642 kg MS/ha for the Pasture Only, PKE Only and PKE Plus farms respectively. Imported supplement used to date totalled 518 and 636 kg DM/cow for the PKE Only and PKE Plus farms respectively. Three-week submission rate was 90%, 83% and 81% for the Pasture Only, PKE Only and PKE Plus farms respectively.

Background

This project is conducting a farm systems experiment that compares three different management strategies within a variable climate and constraints of milk fat evaluation index (FEI). The farm systems study is being

conducted at the Northland Agricultural Research Farm (NARF), commenced in June 2018 and will run for three years.

Data collected will allow examination of the effects of these systems on milk production, farm operating profit, environmental sustainability, cow welfare, labour, and capital requirements. This project will assist farmers in developing more profitable, less vulnerable, and lower impact farming systems.

Farmlet structure

All farms are self-contained farm systems. Land area allocated to each farm is 28 ha with paddocks allocated so pasture growth potential is similar across farms. Silage can be made when there is a pasture surplus and fed when pasture supply below feed demand.

The three farm systems are:

1. *Pasture Only – 2.7 cows/ha*

A simple pasture only farm system. Silage is made when pasture surpluses occur and fed back as required.

2. *PKE Only – 3.1 cows/ha*

PKE is fed when pasture grazing residuals fall below acceptable pasture feeding levels while maintaining ideal grazing rotation length. PKE is not used to create a pasture surplus for conservation. PKE use is constrained by the need to keep the milk fat evaluation index (FEI) within the acceptable limits set by Fonterra.

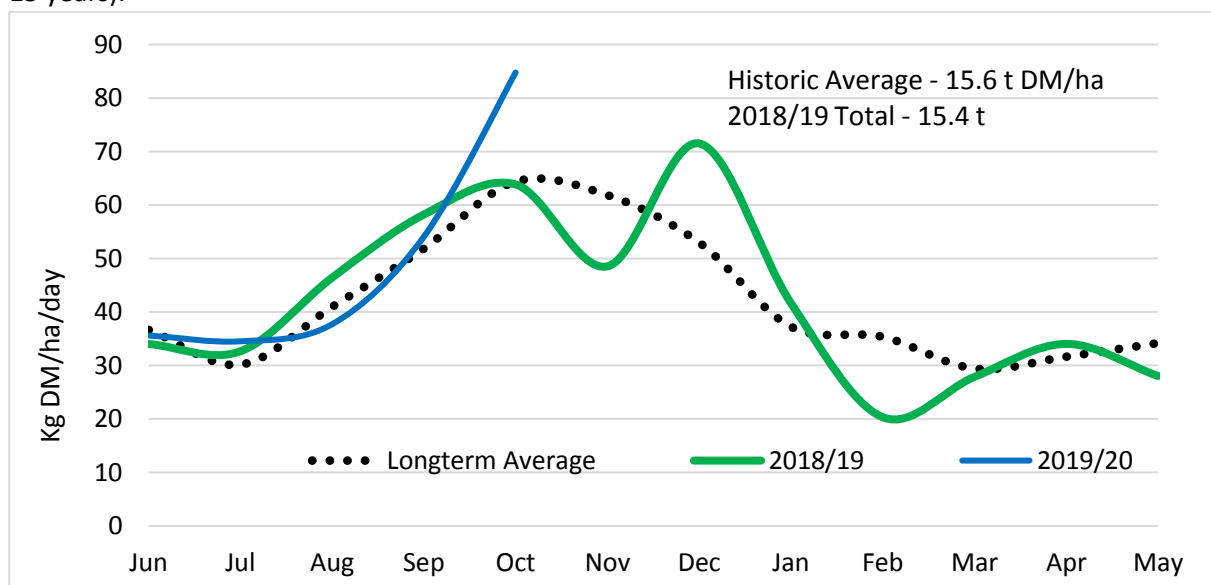
3. *PKE Plus – 3.1 cows/ha*

Supplements are fed when pasture grazing residuals fall below acceptable pasture feeding levels. PKE is used first until milk FEI limits are reached and then an alternative spot market feed sources are used.

Pasture Growth

Pasture growth during the 2018/19 season and 2019/20 to date are shown in the graph below. It was dry during the first part of November and again during February and March. Overall pasture growth to date has been similar to historical average.

Figure 1. Calculated pasture growth rates at NARF (average of three farmlets) and historical average (previous 15 years).



Pasture Covers

Average farm pasture covers are shown in Figures 2 & 3. Pasture cover was higher on the Pasture Only farm than the other farms through summer and autumn 2019, likely due to the lower stocking rate. Higher covers in October 2018 also allowed more area to be closed-up for silage on the Pasture Only farm than the other farms. Pasture cover was higher on the Pasture Only farm than the other farms through most of summer and autumn, due to lower stocking rate and earlier drying off.

During spring 2019 pasture covers were relatively low compared to the average of the previous four seasons, due to poor growing conditions and poor pasture utilisation.

Figure 2. Average farm pasture cover for the 2018/19 season compared with the average of the previous three seasons.

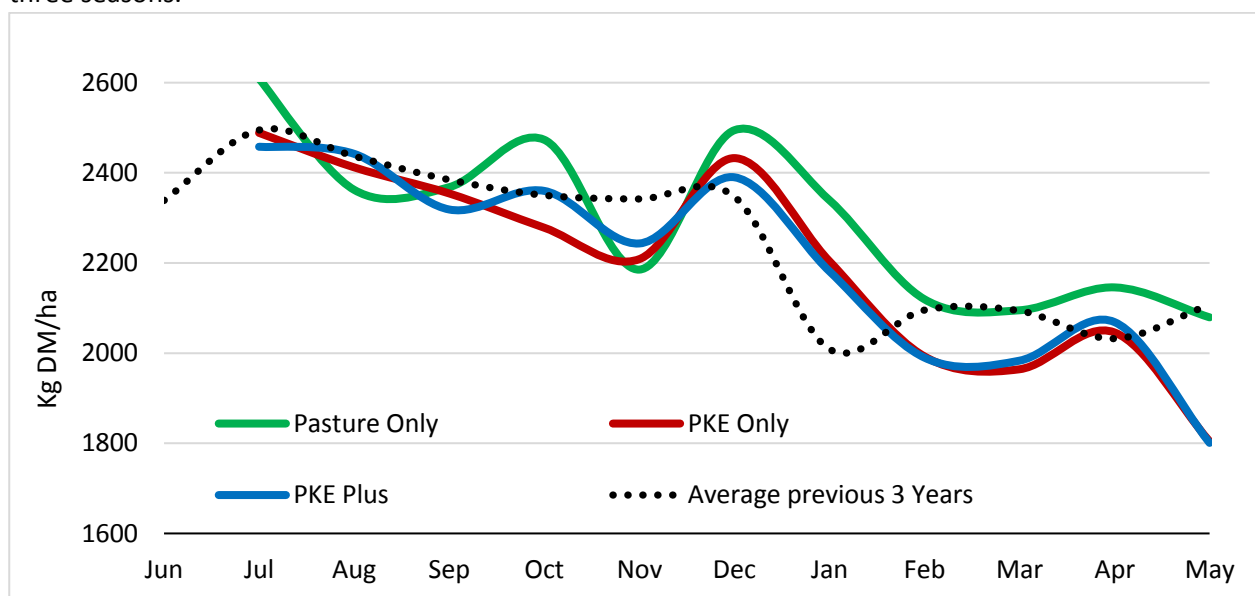
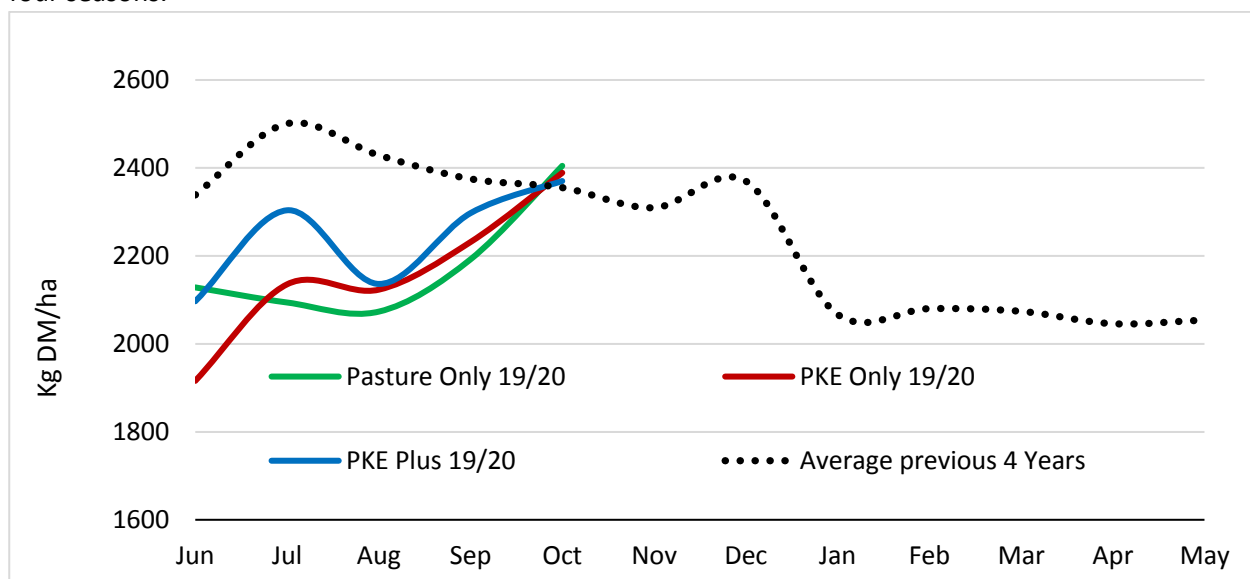


Figure 3. Average farm pasture cover for the 2019/20 season compared with the average of the previous four seasons.



Supplement Use

Table 1 shows the supplement fed during the 2018/19 season along with area cut for silage. The PKE feeding level was constrained by milk FEI through much of summer and autumn. During this period, feeding was generally 2 – 3.5 kg DM PKE/cow/day.

For the 2019/20 season, imported supplement used to date (19th November 2019) has been 518 and 636 kg DM/cow for the PKE Only and PKE Plus farms respectively. The Pasture Only farm has fed 162 kg DM/cow of silage (carried over from previous season).

Table 1. Supplements fed during 2018/19 season (kg DM/cow), price of supplements landed (¢/kg DM) and % of farm cut for silage and calculated pasture eaten (t DM/ha)

	Supplement	Kg DM/cow	Cost of Supplement ¢/kg DM	% of Farm Cut for Silage
Pasture Only Farm	Grass Silage (home-made)	567	14.7	38%
PKE Only Farm	Grass Silage (home-made)	249	14.7	24%
	PKE	748	29.2	
	Total	997		
PKE Plus Farm	Grass Silage (home-made)	166	14.7	26%
	PKE	769	29.2	
	DDG	228	61.9	
	Grass Silage (purchased)	54	31.1	
	Total	1,212		

Milk Production and Mating

Table 2 and 3 show the milk production and mating results. Submission and empty rate differences between farms are not considered significant.

Table 2. Milk solids production per ha and per cow for 2018/19 season, mating 3-week submission and empty rate.

	Kg MS/ha	Kg MS/cow	3-week submission rate	Empty Rate
Pasture Only Farm	1,008	376	93%	9%
PKE Only Farm	1,238	408	84%	11%
PKE Plus Farm	1,314	428	91%	6%

Table 3. Milk solids production per ha and per cow for 2019/20 season to date (19th November) and mating 3-week submission rate.

	Kg MS/ha	Kg MS/cow	3-week submission rate
Pasture Only Farm	419	154	90%
PKE Only Farm	593	189	83%
PKE Plus Farm	642	204	81%

Responses to PKE

Comparing milk production on the two PKE supplemented farms with the Pasture Only farm provides a calculation of milk solids (MS) response to supplement. This shows a response to PKE feeding on the PKE Only farm of 100 g MS/kg DM PKE fed. This compares to an average of 122 g MS/kg DM PKE fed during the previous three seasons. The PKE Plus farm showed a response of 94 g MS/kg supplement (mainly PKE) when compared to the Pasture Only farm, however the response to the additional supplement used compared to the PKE Only farm is only 80 g MS/kg DM additional supplement.

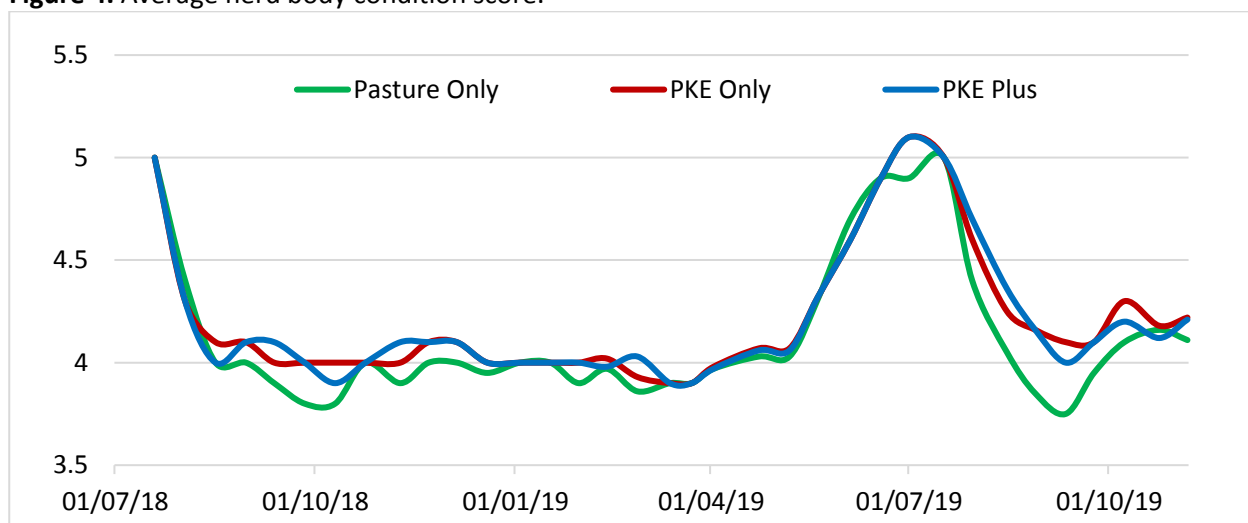
Table 4. Supplement response calculation for the 2018/19 season

	Pasture Only farm	PKE Only farm	PKE Plus farm
Total Milk Production (kg MS)	28,235	34,678	36,789
Total PKE fed (t DM)	-	64.3	66.2
Other purchased supplements (t DM)	-	-	24.7
Supplement Response g/kg DM supplement		100	94

Body Condition Score

Body condition score (BSC) has been assessed fortnightly. The Pasture Only farm tended to have a lower condition score during spring and summer than the other farms. Earlier drying-off allowed the Pasture Only cows to regain condition faster during May. To manage BSC any cows at 3.5 BSC are placed on Once a Day (OAD) milking. A significant portion of Pasture Only farm cows were on OAD prior and during mating 2018. During spring 2019 all cows on the Pasture Only farm were placed on OAD for at least 4 weeks. In comparison only a handful of cows from the PKE Only and PKE Plus farms were placed on OAD.

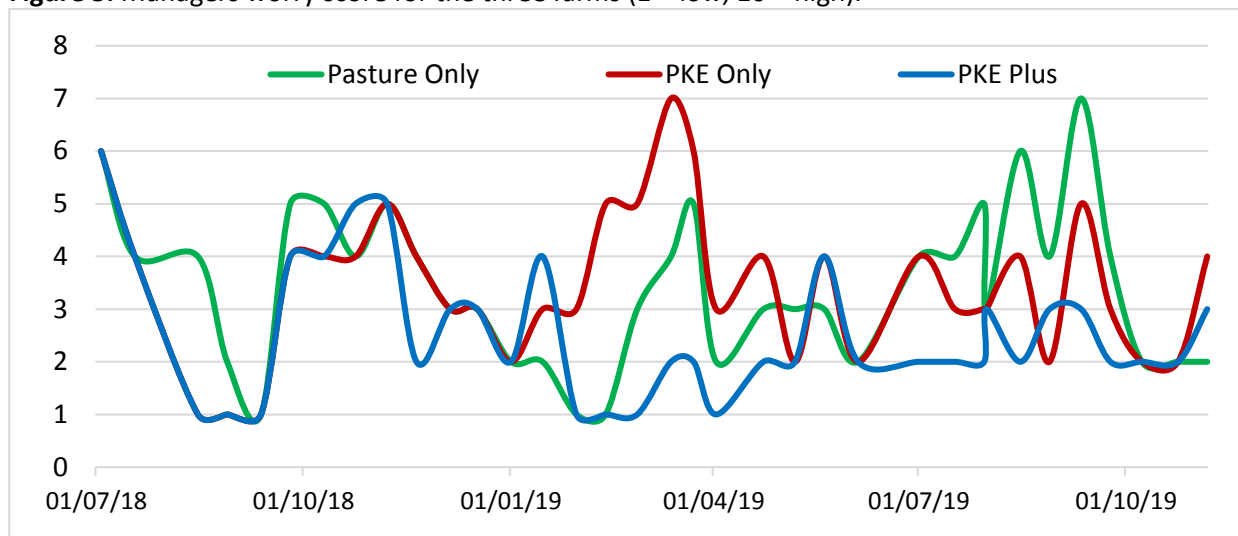
Figure 4. Average herd body condition score.



Worry Score

A worry score has been assessed fortnightly. This relates to the concern the manager has about cows and feed supply. The Pasture Only farm has had a higher worry score during late winter/spring in both years, when there was no ability to bring in additional feed. In contrast the PKE Only farm had the higher score during summer/autumn due to milk FEI limits constraining feeding of PKE during this period.

Figure 5. Managers worry score for the three farms (1 = low, 10 = high).



Differences in Labour & Machinery

Time spent doing tasks on each individual farm has been calculated, over and above farm operations that are common to all farms. The table below shows this additional time required by NARF staff for feeding out and moving cows to and from the feed pad. It should be recognized that additional time spent feeding and shifting cows was based on mobs of 75 – 90 cows, this may be different with larger mobs. These results have been used to adjust the allocation of labour and vehicle expenses within the financial analysis.

Table 5. Additional labour and tractor time for each farm for feeding supplements in the 2018/19 season.

	Additional Tractor Hours	Additional Labour Hours
Pasture Only farm	55	55
PKE Only farm	90	247
PKE Plus farm	100	338

Financial Results for 2018/19 Season

The financial results for the three farms have been calculated and are shown in Table 6. The income is based on a milk price of \$6.35/kg MS. Fonterra share dividend is not included. Expenses are based on actual expenses with some adjustments for labour and administration to compensate for extraordinary expenses involved in running the research farm. Records of additional labour and tractor time for each farm has been used to adjust the vehicle, R&M and depreciation expenses.

Farm operating expenses/kg MS were lowest on the Pasture Only farm and highest on the PKE Plus farm. Using a milk price of \$6.35/kg MS the farm operating profit was highest on the PKE Only farm, while being similar on the other two farms. If milk price was below \$5.00/kg MS then the Pasture Only farm would have the highest operating profit. With a milk price between \$5.00/kg MS and \$10.40/kg MS the PKE Only farm would have been the most profitable. Over \$10.40/kg MS the PKE Plus farm would have been the most profitable.

For the PKE Only farm, each dollar spent on purchasing PKE an additional \$0.83 was added to farm expenses. On the PKE Plus farm this was \$0.70 on top of each dollar spent on purchasing supplement.

Financial results for the 2018/19 season indicate that there was an advantage to putting PKE into the farm system, however this advantage disappeared when PKE was substituted with higher priced supplements due to milk FEI constraining PKE feeding levels.

Table 6. 2018/19 season income, expenses and operating profit for the three NARF farms.

Financial Summary 2018/19	Pasture Only Farm	PKE Only Farm	PKE Plus Farm
Income	\$/ha	\$/ha	\$/ha
Income from milk (\$6.35/kg MS)	\$6,403	\$7,864	\$8,343
Dividends	\$34	\$34	\$34
Income from stock sales	\$587	\$666	\$674
Total Income	\$7,024	\$8,564	\$9,051
Expenses			
Wages	\$1,221	\$1,427	\$1,638
Animal Health	\$215	\$241	\$243
Breeding Expenses	\$226	\$255	\$258
Shed expenses	\$82	\$90	\$91
Electricity	\$211	\$234	\$236
Grazing	\$408	\$462	\$468
Calf rearing	\$123	\$140	\$141
Silage Making	\$185	\$109	\$100
PKE		\$671	\$690
DDG			\$444
Purchased Silage			\$51
Nitrogen/Fert	\$167	\$178	\$178
Regrassing	\$118	\$118	\$118
Weed and Pest	\$30	\$30	\$30
Vehicle Expenses	\$150	\$202	\$216
R&M General	\$196	\$264	\$283
R&M Effluent	\$52	\$82	\$82
Administration	\$129	\$132	\$132
Rates and Insurance	\$119	\$121	\$122
Depreciation	\$330	\$445	\$476
Total Operating Expenses	\$3,960	\$5,199	\$5,996
Farm Working Expenses/kg MS	\$3.60	\$3.83	\$4.20
Operating Profit			
Operating Profit at \$6.35	\$3,064	\$3,365	\$3,055
Alternative Milk Prices - \$/kg MS			
Operating Profit at \$4.00	\$661	\$420	-\$66
Operating Profit at \$6.00	\$2,678	\$2,897	\$2,561
Operating Profit at \$8.00	\$4,694	\$5,374	\$5,189

Thanks to the NARF staff for making this project happen, being Kate Reed, Kelvin Horton and Johan Van den Berg. Special thanks to NDDT trustees and NARF committee members for their support and commitment in proposing and overseeing this project.

Profitable Production

Jane Kay, Kieran McCahon, Mark Neal, John Roche (DairyNZ) and Chris Boom (AgFirst)

Main points:

- Marginal milk is the additional milksolids produced when changes are made to a farm system (e.g. increased stocking rate or more supplementary feeds fed).
- The cost of the marginal milk produced determines whether the changes made to the system generate more profit
 - If the cost of the marginal milk is less than the milk price – they ARE increasing profit
 - If the cost of the marginal milk is more than the milk price – they are NOT increasing profit
- The cost of the marginal milk depends on:
 - The milksolids response to the system change(s)
 - The costs associated with the system change(s) For example: buying and feeding supplement, increasing cow numbers, AND additional system-level costs that are rarely accounted for in incomplete marginal analyses.
- In 2018/19 at NARF increasing stocking rate and feeding supplements increased milk production by:
 - 231 kg MS/ha for the PKE farm compared with the Pasture Only farm
 - 306 kg MS/ha for the PKE PLUS farm compared with the Pasture Only farm
 - 75 kg MS/ha for the PKE PLUS farm compared with the PKE farm
- The milksolids response was:
 - 100 g MS/kg DM PKE for the PKE farm compared with the Pasture Only farm
 - 94 g MS/kg DM supplement for the PKE PLUS farm compared with the Pasture Only farm
 - 80 g MS/kg DM supplement for the PKE PLUS farm compared with the PKE farm
- The cost of the marginal milk was:
 - \$5.33 /kg MS for the extra milk produced in the PKE farm compared with Pasture Only farm
 - \$6.61/kg MS for the extra milk produced in the PKE PLUS farm compared with the Pasture Only farm
 - \$10.51/kg MS for the extra milk produced in the PKE PLUS farm compared with the PKE farm

Summary:

Supplement use in a variable climate is a three-year research programme funded by DairyNZ and the Ministry for Primary Industries through their *Sustainable Food and Fibres Futures* programme. The project will compare three farm systems with different supplement use on production, profit and environmental impact. The three farm systems are:

1. **Pasture-Only Farm** - No imported supplement - 2.7 cows/ha
2. **PKE Only Farm** - PKE fed to fill feed deficits within milk FEI limits - 3.1 cows/ha
3. **PKE Plus Farm** - PKE fed until milk FEI limits and then alternative supplements fed to fill feed deficits - 3.1 cows/ha.

Preliminary results from the 2018-19 season (Year 1) have been collated to provide preliminary estimates for the milksolids response to supplementary feeds, the cost of marginal milk, and the profitability of feeding PKE to within the FEI limits or feeding PKE to within the FEI limits and then feeding alternative supplements. The alternative supplements included pasture silage and Dried Distillers Grain (DDG).

Milksolids response:

For the 2018/19 season, the Pasture Only treatment produced 1,008 kg MS per ha (Table 1).

Increasing stocking rate from 2.7 to 3.1 cow/ha and feeding PKE to fill feed deficits resulted in:

- greater per cow production (32 kg MS/cow) and
- greater per ha production (231 kg MS/ha; Table 1).

Increasing stocking rate from 2.7 to 3.1 cow/ha and feeding PKE plus alternative supplementary feeds (pasture silage and DDG) to fill feed deficits resulted in:

- greater per cow production (52 kg MS/cow) and
- greater per ha production (306 kg MS/ha; Table 1).

Maintaining stocking rate at 3.1 cows/ha but increasing the allowance of supplementary feed/cow by purchasing alternative supplements (pasture silage and DDG) in addition to PKE resulted in:

- greater per cow production (20 kg MS/cow) and
- greater per ha production (75 kg MS/ha; Table 1).

Table 1. Milksolids production for 2018/19 season for the Pasture Only, Pasture and PKE, and Pasture and PKE PLUS alternative supplements farms.

	Pasture Only	PKE	PKE PLUS
Per hectare (kg MS/ha)	1,008	1,239	1,314
Per cow (kg MS/cow)	376	408	428

The Pasture Only farm harvested silage but did not purchase any supplements.

The PKE farm fed 2.3 t DM PKE/ha (748 kg DM/cow or 813 kg PKE fresh/cow).

The PKE PLUS farm fed 2.4 t DM PKE/ha (769 kg DM/cow or 836 kg PKE fresh/cow), 0.7 t DM DDG (228 kg DM/cow or 251 kg DDG fresh/cow) and 0.2 t DM pasture silage (49 kg DM/cow).

Based on these feed inputs, the milksolids response to the increased supplement fed in the PKE and PKE PLUS farms compared with the Pasture Only farm was 100 g MS/kg DM for the PKE farm, and 94 g MS/kg DM for the PKE PLUS farm (Table 2 and Figure 1). When we compare the milksolids response of offering additional supplements in the PKE PLUS compared with the PKE farm, the milksolids response was 80 g MS/kg DM (Table 2 and Figure 1).

Table 2. Milksolids response to additional supplement fed in the PKE and PKE PLUS farms.

	PKE vs. Pasture Only	PKE PLUS vs. Pasture Only	PKE PLUS vs PKE
Milksolids response to supplement (g MS/kg DM)	100	94	80

Cost of marginal milk

Operating expenses per hectare increased when supplementary feeds were incorporated into the system.

- The Pasture Only farm had operating expenses of \$3,960,014 (\$3.93/kg MS).
- Feeding 2.3 t DM PKE to the PKE farm increased operating expenses by \$1,239/ha to \$5,199/ha (\$4.19/kg MS).
- Feeding the alternative supplements to the PKE PLUS farm increased operating expenses by an additional \$796/ha to \$5,996/ha (\$4.56/kg MS).

The cost of the additional (marginal) milk can be calculated from the extra milk produced divided by the extra cost of producing this milk.

- For the PKE farm, the average cost of the marginal milk was \$5.39, so at a milk price of \$6.35, the extra milk produced from increasing stocking rate and feeding PKE to fill feed deficits returned approximately \$1/kg MS.
- For the PKE PLUS farm, the cost of the marginal milk produced compared with the Pasture Only farm was \$6.66, so at a milk price of \$6.35, the extra milk was not adding to profit.
- When we compare the marginal milk produced by the PLE PLUS farm above that produced by the PKE farm, the cost was \$10.56/kg MS. This means at a milk price of \$6.35, the extra milk produced from feeding the alternative supplements (PKE, DDG and pasture silage) was not adding to profit. The extra milk actually reduced profit in the business by \$4.21 for every kg MS produced. For this marginal milk to be profitable (i.e. cost less than \$6.35/kg MS), it would require an average milksolids response of greater than 140 g MS/kg DM, almost double what was achieved in this study.

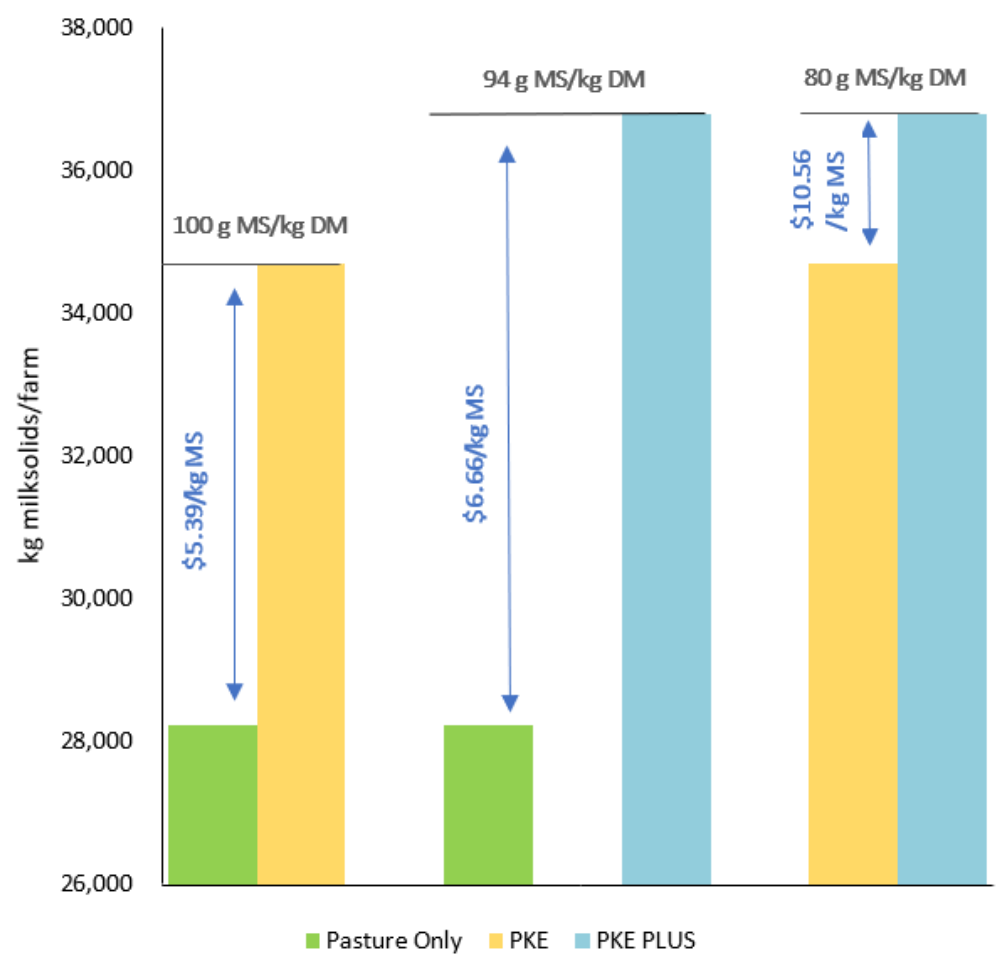
Summary:

The 100 g MS/kg DM response to increased stocking rate and feeding PKE in 2018/19 is less than previous years at NARF, which ranged from 106 g MS/kg DM to 140 g MS/kg DM, and averaged 122 g MS/kg DM. These high milksolids responses (compared with a national average from the last 12 years of DairyBase of 80 g MS/kg DM supplement) are potentially due to greater responses from feeding supplement when pastures are kikuyu-dominant (i.e., lower energy) compared with ryegrass-dominant systems, and due to very good decision rules being followed in the farms (i.e., no pasture wasted).

The lower MS response with the additional supplement fed; 80 g MS/kg DM in the PKE PLUS farm, is consistent with a diminishing response to supplements, as more supplementary feeds are incorporated into the system without increasing stocking rate. The high cost of the marginal milk in the PKE PLUS farm reflects the lower milksolids response and the high cost of DDGs, making this system the least profitable of the three farms (\$2,893/ha operating profit).

At a \$6.35 milk price, and with a higher than average MS response of 100 g/kg DM, the PKE Only farm was only slightly more profitable than the Pasture Only farm, (\$3,203/ha vs. \$3,032/ha operating profit, respectively).

Figure 1. Milksolids response to supplement fed (kg MS/kg DM; grey text), and cost of marginal milk (\$/kg MS; blue text) for Pasture Only vs. PKE, Pasture Only vs. PKE PLUS and PKE vs PKE PLUS.



West Road Farms Summary

- Heather and Dave Gray (Owner directors)
- Area: 245 Ha Effective, 231Ha +34 Ha calf block + 90 Ha leased R2s and Bulls
- 40 aside Herringbone shed Protrack drafting PPL in-shed feed system
- Contour: Flat
- Soils: Heavy clay 170Ha, Sandy Peat 130 Ha.
- Fertility: Olson P 30-50, K levels 10-15
- Subdivision: 130 paddocks, 2 wire electric

West Road Team

Simon Whitaker (Manager)

Mellissa Wallace (Calves)

Mark Bridgford (Assistant Manager)

Sydney Jones (Senior Assistant)

Dave Pulvera

Danilo Sisa

Karla Frost (Consultant)

Herd

- Closed Herd, no bought in stock, LIC bred
- 660 Jersey X gene marked BW115/47 PW165/67
- Calving, all spring Heifers 10th June Cows 20th June
- AB heifers fixed time mating Jersey AB
- Cows 5-week AB then own bulls 3 weeks, then short gestation AB
- Bottom 15% herd to Hereford short gestation AB
- All A2A2 Bulls
- Replacements R2s 160, R1s 160.

VISION

An efficient, attractive well-maintained farm that is high-producing and profitable, providing a satisfying and rewarding workplace.

To achieve this vision, we need:

- A management plan to make it happen - **Planning**
- Good open honest communication - **Communication**
- Good organisation - **Implementation**
- To work well as a team - **Team work**
- Clearly defined responsibilities - **Accountability**

PRIMARY GOALS OF THE BUSINESS

- To operate to industry best-practice standards.
- To achieve high production by efficiently harvesting pasture grown.
- To operate a profitable business.
- To provide a rewarding and enjoyable place to work.
- To improve farm facilities, pasture, drainage, shelter and appearance.
- To provide a supportive environment where people can advance their careers.
- To allow the farm owners to retain an investment in dairying while following other interests.

2019-2020 Season to Date:

Production: Season to date + 15%

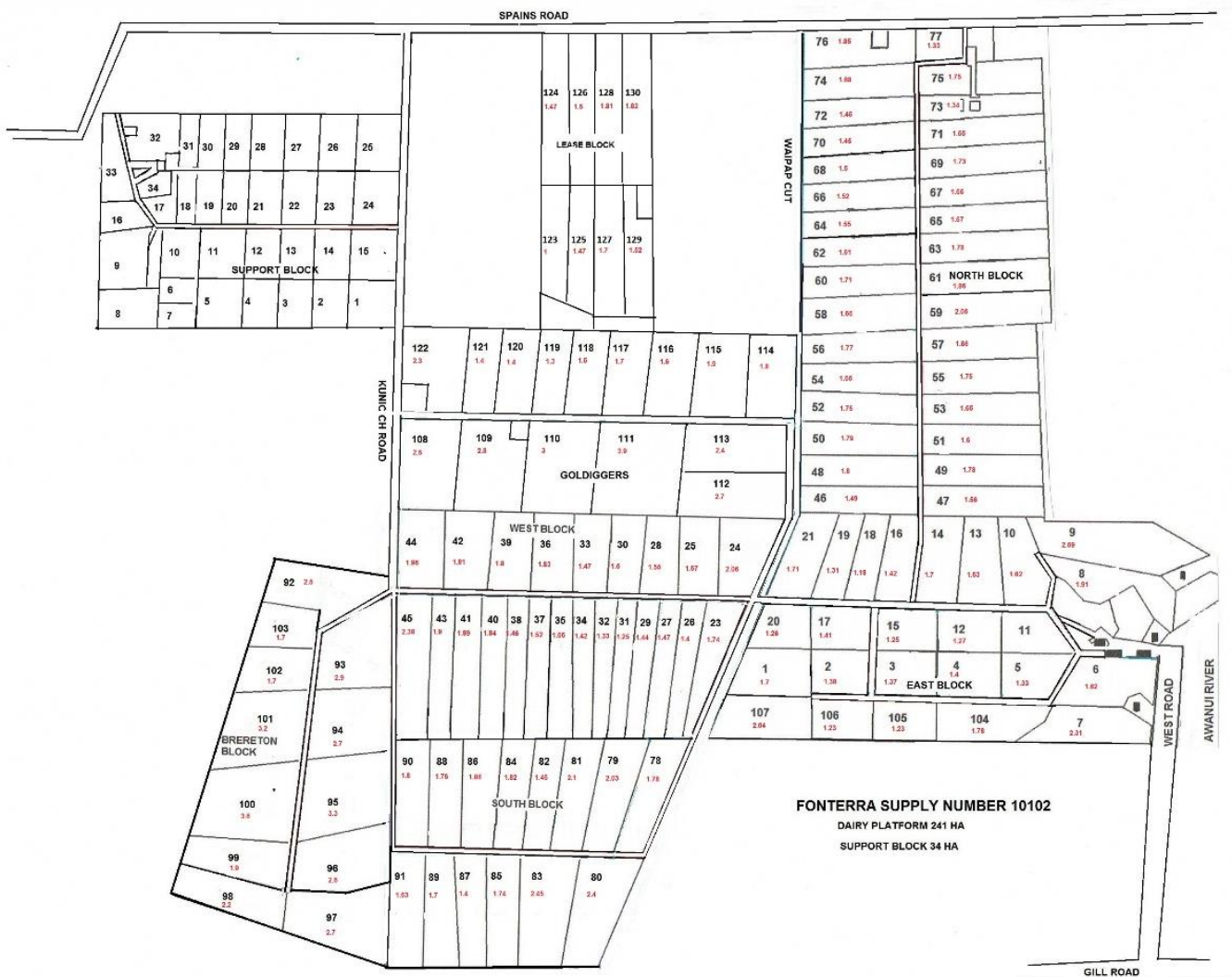
Daily +20%

Looking good for 300,000kgMs + (normally double production to 20 Nov – 154,000)

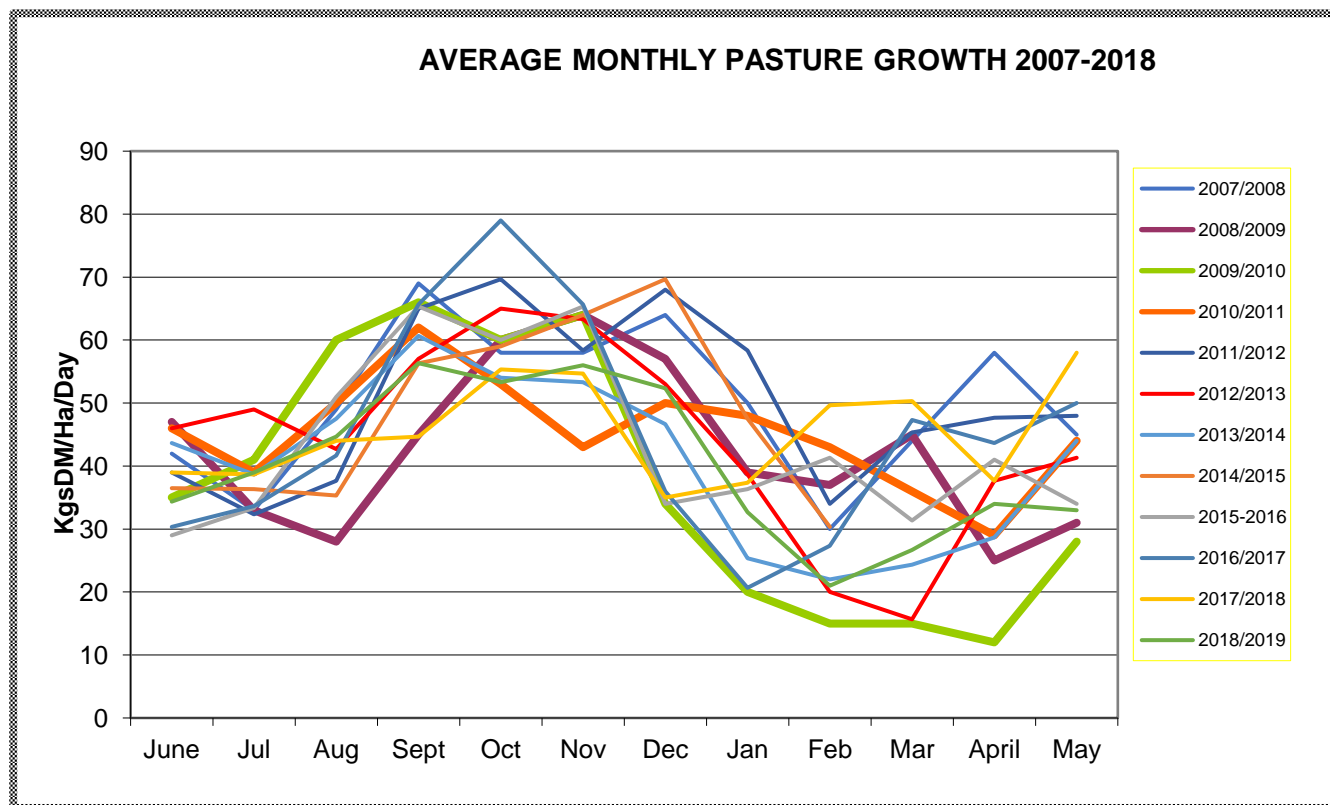
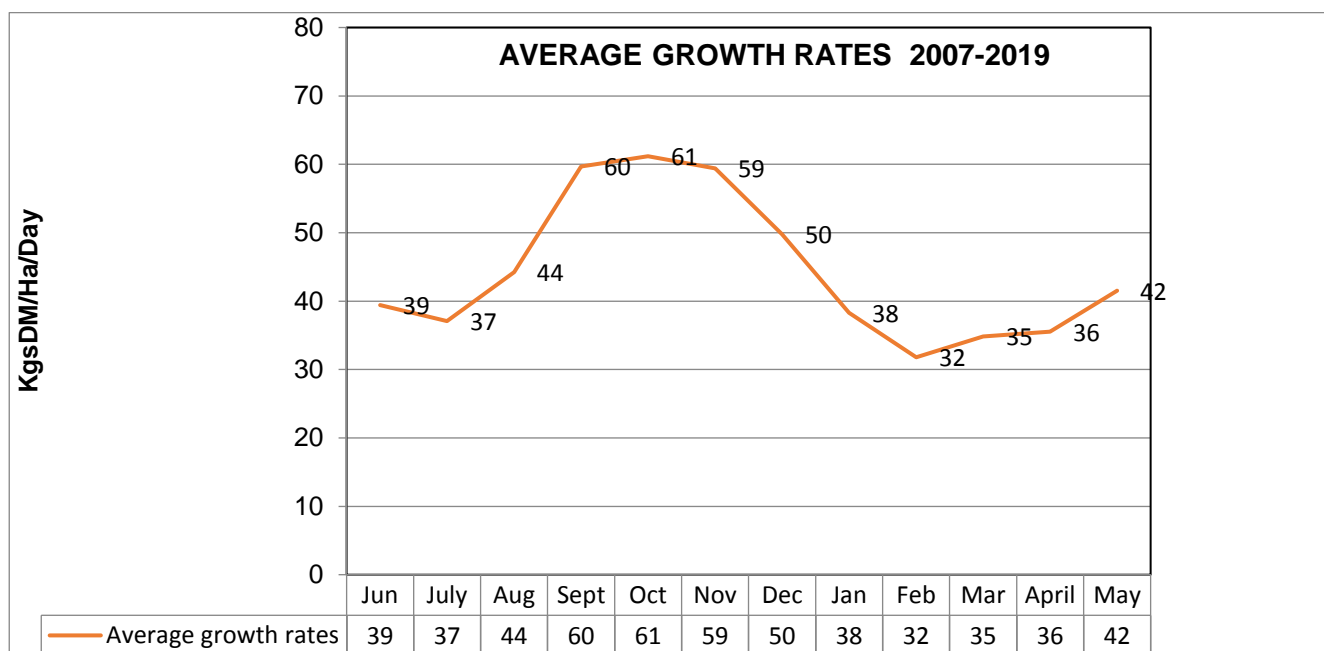
	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019
Milksolids	292803	288516	291719	299831	270910	278131
Cows milked	730	730	730	730	630	630
Eff Hectares	231	231	231	231	231	231
Per cow	401	394	399	410	430	441
Per Hectare	1273	1254	1268	1304	1173	1209
Pasture eaten	12.38	13.12	14.25	13.00	12.93	11.95
PKE tons eaten	729	583	526	729	584	810
Surplus/Ha	\$4,484	\$336	\$1,895	\$4,539	\$3,868	\$1,937
Milk income/kilo	\$7.46	\$4.28	\$3.87	\$6.11	\$6.74	\$6.40

(The total supplements used in 2018-2019, 810 tons made up of 570 PKE 120 Soybean hull and 120 tons DDGS.)

Farm Map:



Pasture Growth Rates – West Road Farms



Feedback Form

‘Profitable Production’ Field Day

27th November 2019

Are you a:

Farm Owner		Share Milker/Manager		Farm Staff	
Rural Professional		Tutor/Student		Other	

How did you hear about this event - tick one or more

Email		Text messaging		Website	
DairyNZ staff		Word of mouth		Other	

	No	Slightly	OK	Pretty good	Highly
Was the day beneficial?					

	No	Not really	OK	Pretty good	Yes
Was the day well run?					

	No	Probably not	Maybe	Yes	Definitely
Will you recommend other NDDT days?					

	No	Slightly	Somewhat	Yes	Definitely
Are you motivated to put in place messages from today's event?					

Things you will change as a result of coming today:

Any comments and recommendations you can make?

Research ideas that NDDT could undertake?

Thanks for coming - NDDT Trustees and NARF Committee