1st International Seminar (Ecuador)

Designing Profitable Dairy Businesses for the Next Decade

1ER SEMINARIO INTERNACIONAL
DISEÑANDO NEGOCIOS LECHEROS RENTABLES PARA LA PRÓXIMA DÉCADA

Rethinking your Dairy Business Profitability

What drives profit and which ratios to monitor?

David Beca

March 2019

Semagro Confianza y Seguridad para avanzar
pasteurizadora QUITO S.A. Tradición lechera
InterGenetics HACEMOS VACAS
zoetis
VeteLAB Diagnóstico Veterinario
DeLaval
FLORALP
MONTANA
corporación maresa
AGRICOM Pastures for Profit
KLINE IRRIGATION
Nestlé
fertisa
winavena
ZURICH
agrarPROJEKT Laboratory Services & Consultancy

Key characteristics of dairy business

Few genuinely fixed costs and high proportion of variable costs

Need to drive a wedge between revenue and expenses to optimise profit…with **'Profit' defined as 'Return on Capital'**

So…need to continuously push revenue up while reducing the average unit cost of production

So…need to increase output off fewer inputs

KEY RATIOS

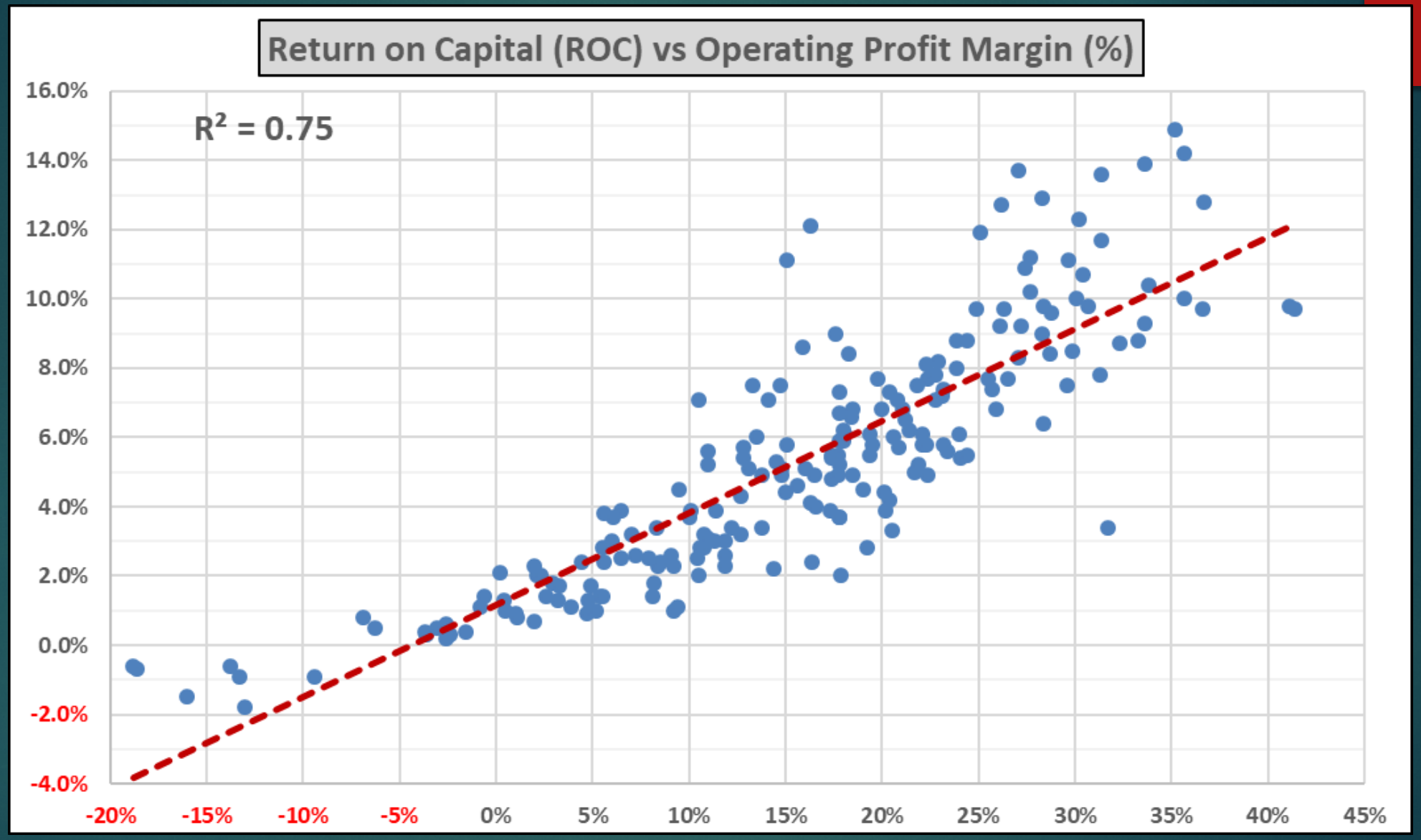
Operating Profit margin – as high as possible

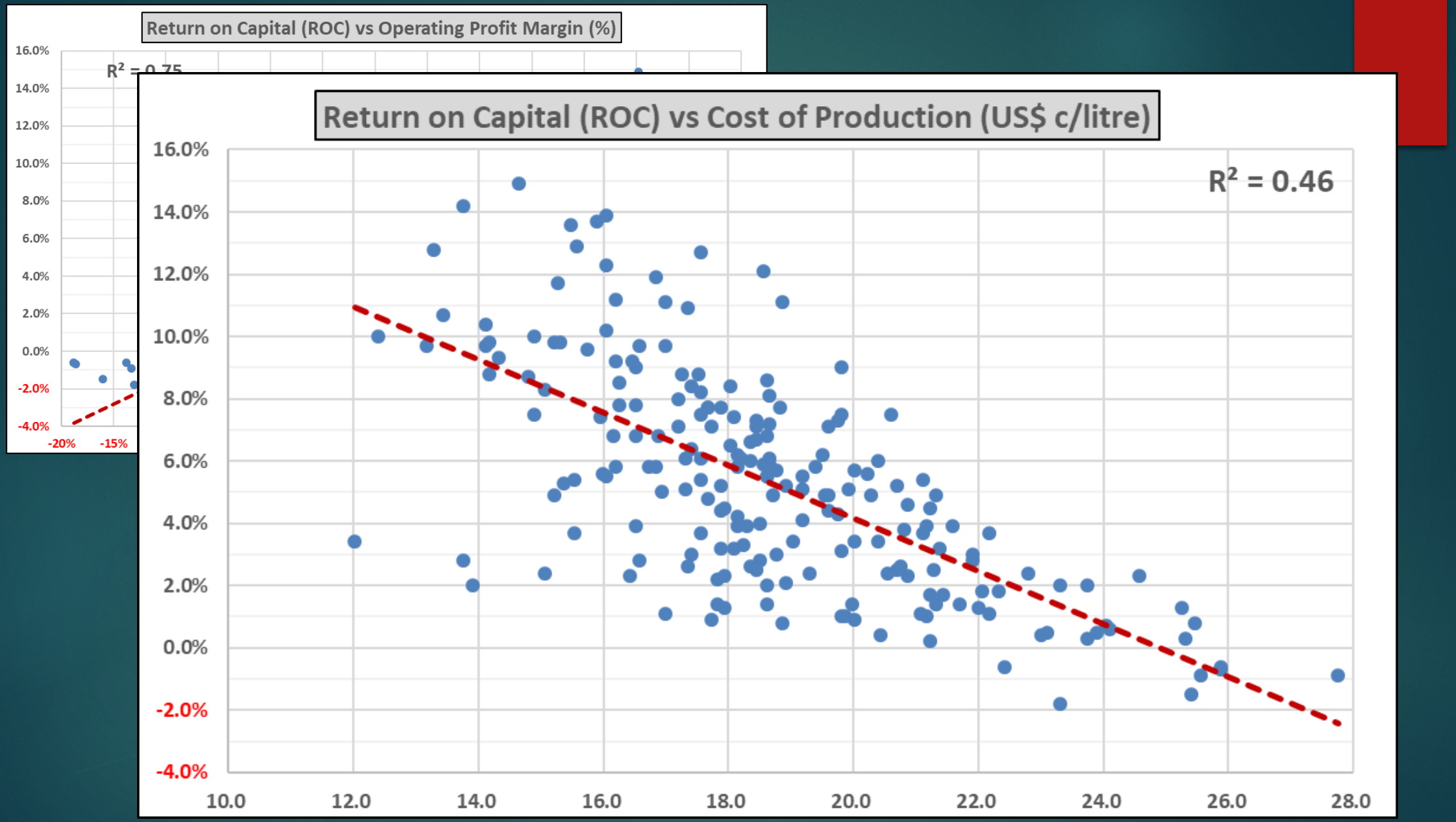
Cost of production – as low as possible

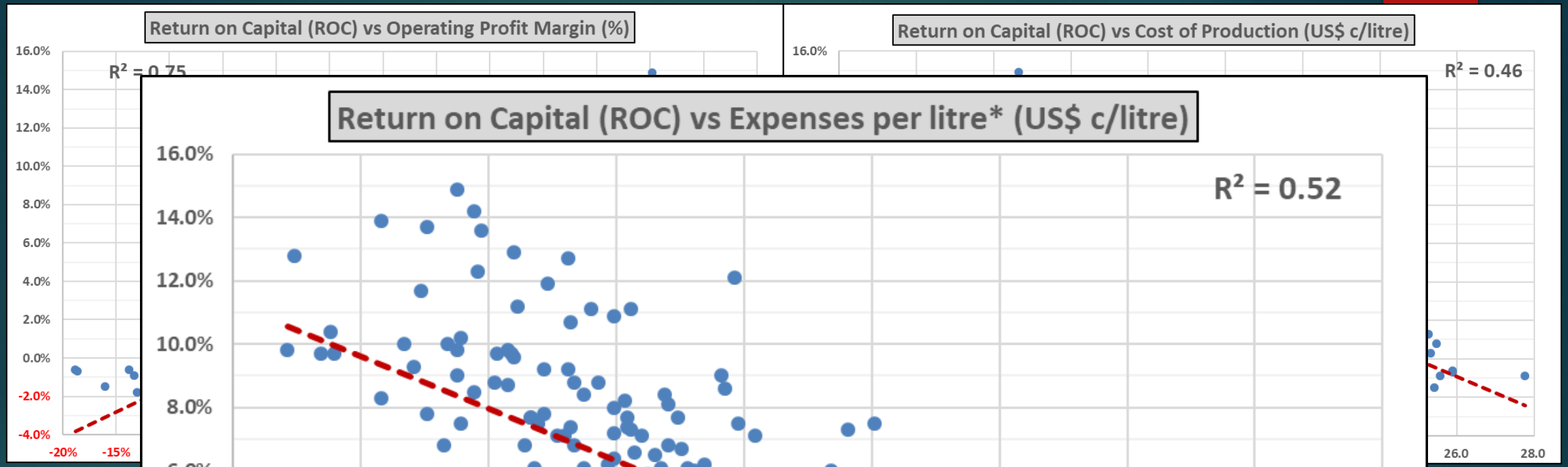
(Operating) **Expenses per kg milk** – as low as possible

Cost of Production (COP) Calculation

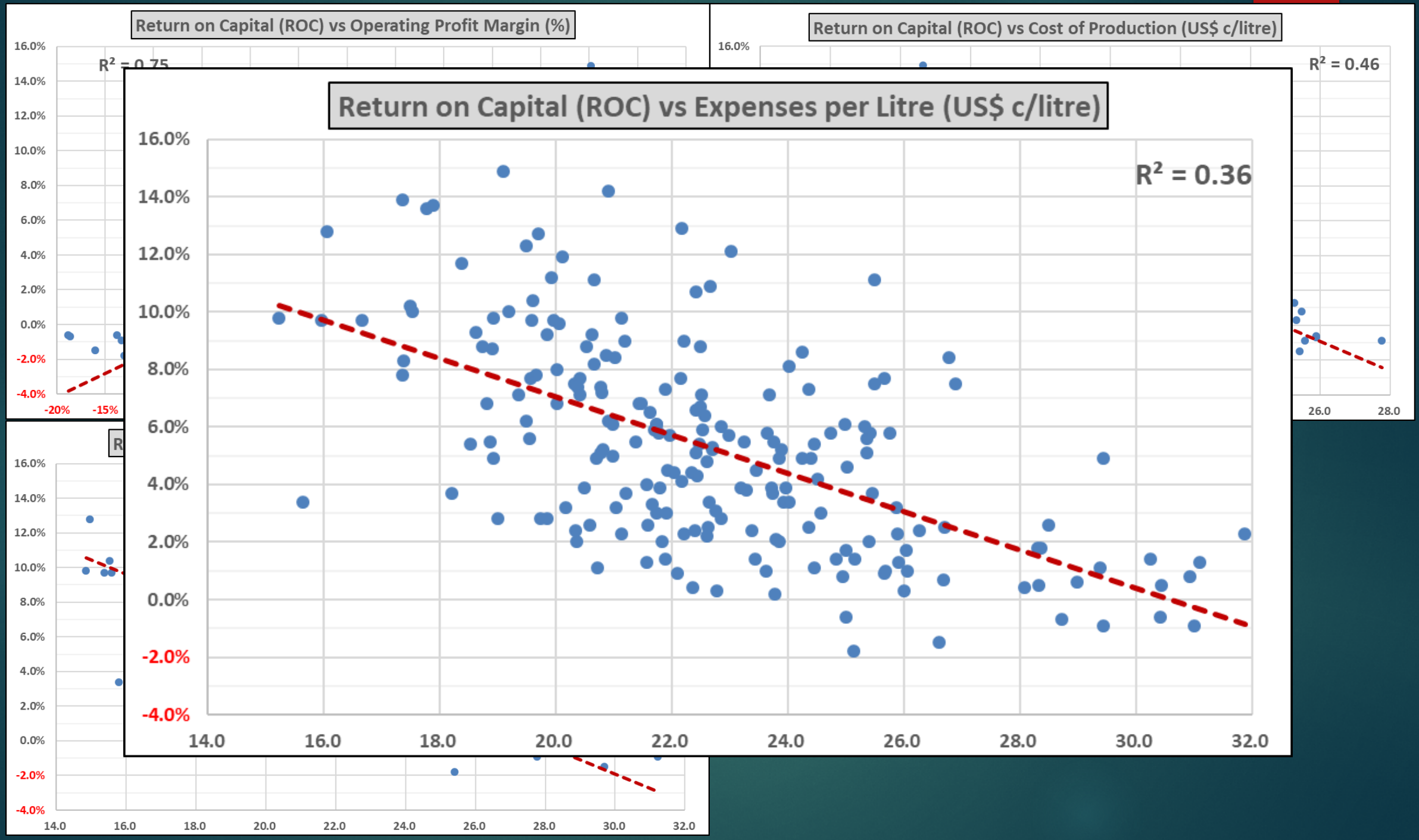
CALCULATION OF COST OF PRODUCTION		
Operating Profit Calculation	**$ / kgMS**	**Cents / Litre**
Milk Revenue (= Milk Price)	$ 4.71	33.0
Livestock Revenue	$ 0.39	2.7
Other Revenue	$ 0.04	0.3
Total Revenue	**$ 5.14**	**36.0**
Direct Operating Expenses	$ 3.71	26.0
Indirect Operating Expenses	$ 0.50	3.5
Depreciation	$ 0.21	1.5
Total Expenses (excl. leases/interest)	**$ 4.43**	**31.0**
OPERATING PROFIT (LOSS)	**$ 0.71**	**5.0**
Cost of Production Calculation	**$ / kgMS**	**Cents / Litre**
Total Expenses	$ 4.43	31.0
Minus Livestock Revenue	$ 0.39	2.7
Minus Other Revenue	$ 0.04	0.3
Equals **COST of PRODUCTION**	**$ 4.00**	**28.0**
Compare with **Milk Price**	$ 4.71	33.0
Variance	**$ 0.71**	**5.0**

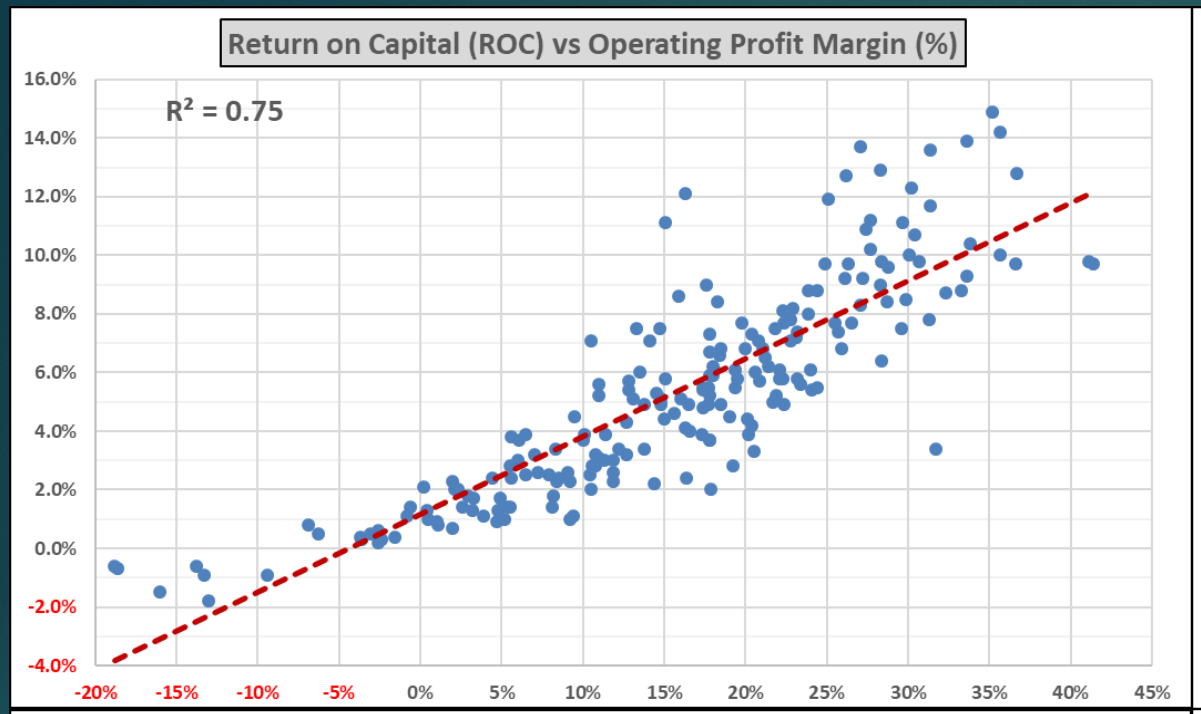

Return on Capital (ROC) vs Operating Profit Margin (%)
R² = 0.75
16.0%
14.0%
12.0%
10.0%
8.0%
6.0%
4.0%
2.0%
0.0%
-2.0%
-4.0%
-20%
-15%
-10%
-5%
0%
5%
10%
15%
20%
25%
30%
35%
40%
45%

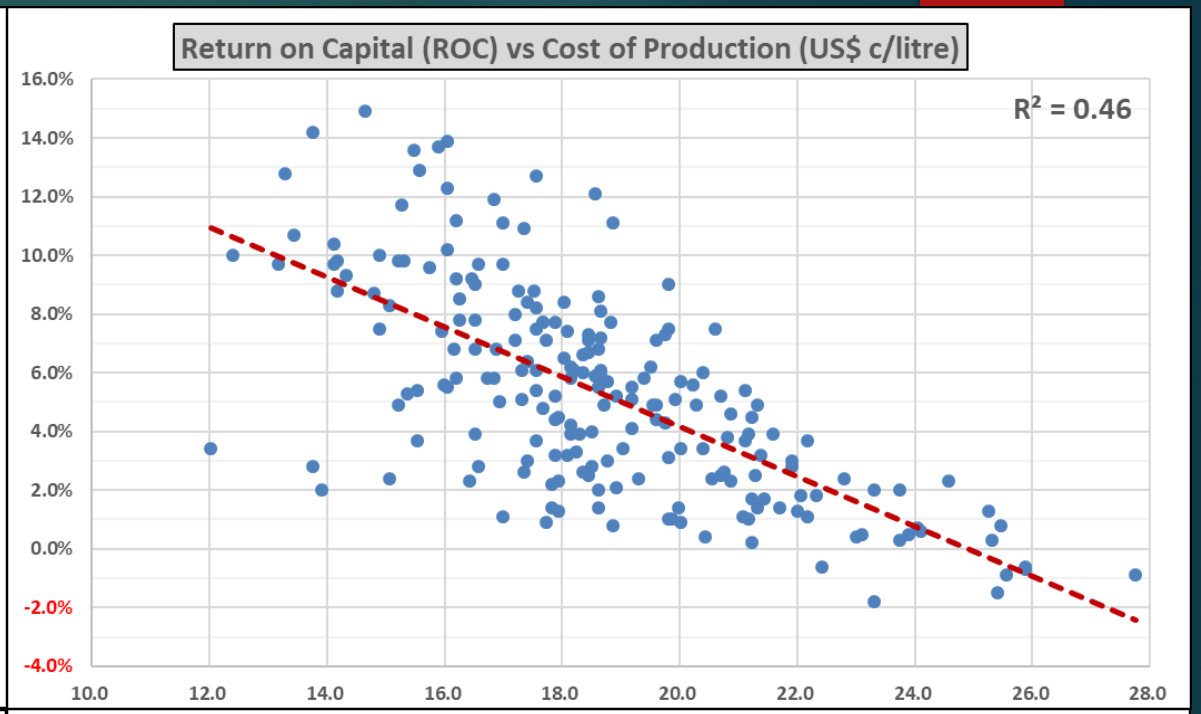

Return on Capital (ROC) vs Operating Profit Margin (%)
16.0%
14.0%
12.0%
10.0%
8.0%
6.0%
4.0%
2.0%
0.0%
-2.0%
-4.0%
-20%
-15%
Return on Capital (ROC) vs Cost of Production (US$ c/litre)
R² = 0.46
16.0%
14.0%
12.0%
10.0%
8.0%
6.0%
4.0%
2.0%
0.0%
-2.0%
-4.0%
10.0
12.0
14.0
16.0
18.0
20.0
22.0
24.0
26.0
28.0

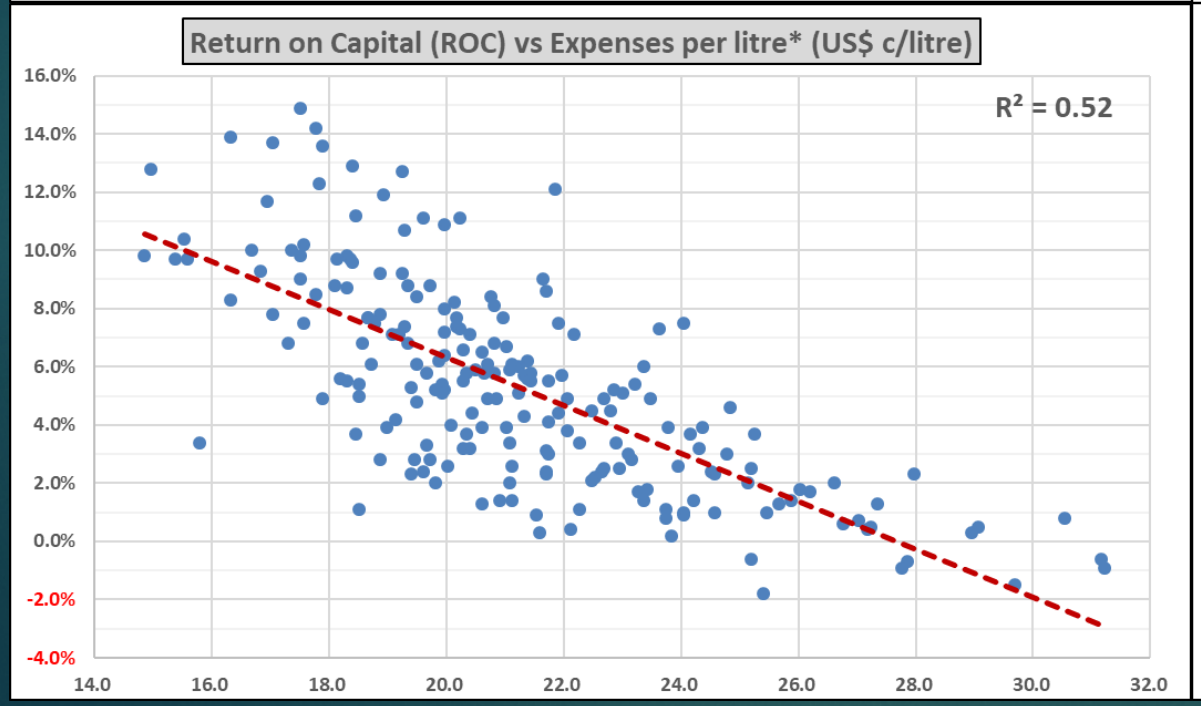

Return on Capital (ROC) vs Operating Profit Margin (%)
Return on Capital (ROC) vs Cost of Production (US$ c/litre)
R² = 0.46
26.0
28.0

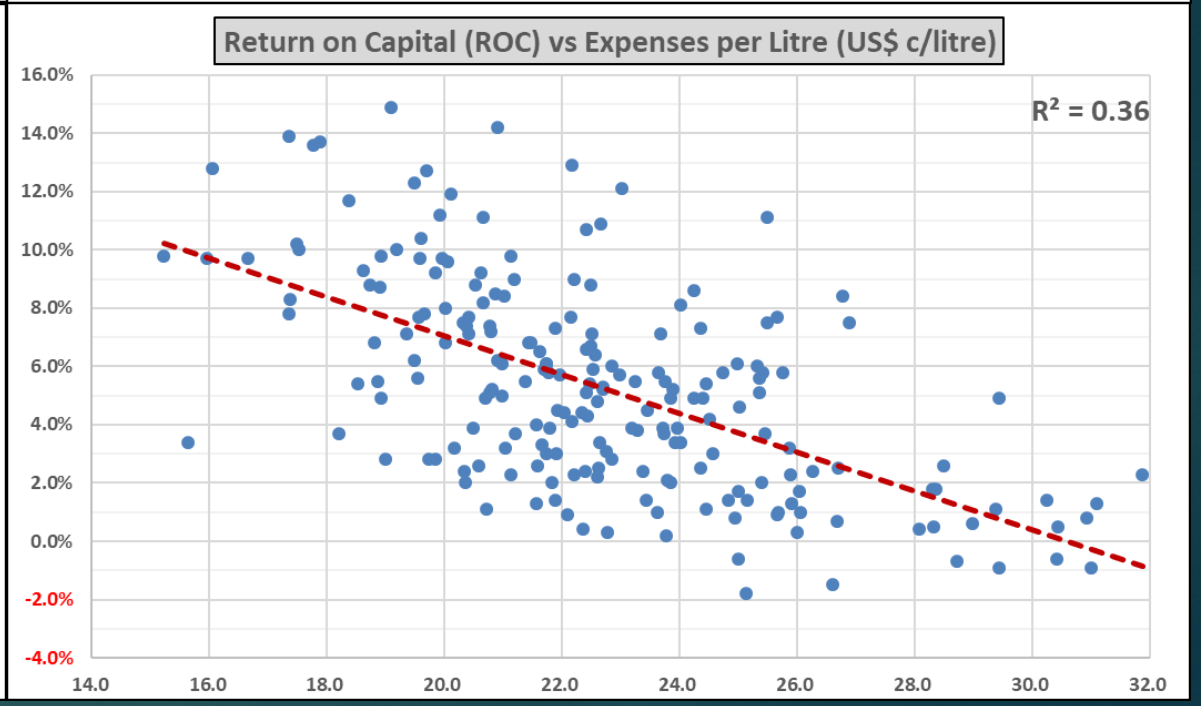
Return on Capital (ROC) vs Expenses per litre* (US$ c/litre)
R² = 0.52
16.0%
14.0%
12.0%
10.0%
8.0%
6.0%
4.0%
2.0%
0.0%
-2.0%
-4.0%
14.0
16.0
18.0
20.0
22.0
24.0
26.0
28.0
30.0
32.0


Return on Capital (ROC) vs Operating Profit Margin (%)
Return on Capital (ROC) vs Cost of Production (US$ c/litre)
Return on Capital (ROC) vs Expenses per Litre (US$ c/litre)
R² = 0.36
R² = 0.46
16.0%
14.0%
12.0%
10.0%
8.0%
6.0%
4.0%
2.0%
0.0%
-2.0%
-4.0%
14.0
16.0
18.0
20.0
22.0
24.0
26.0
28.0
30.0
32.0


Return on Capital (ROC) vs Operating Profit Margin (%)
R² = 0.75
16.0%
14.0%
12.0%
10.0%
8.0%
6.0%
4.0%
2.0%
0.0%
-2.0%
-4.0%
-20%
-15%
-10%
-5%
0%
5%
10%
15%
20%
25%
30%
35%
40%
45%


Return on Capital (ROC) vs Cost of Production (US$ c/litre)
R² = 0.46
16.0%
14.0%
12.0%
10.0%
8.0%
6.0%
4.0%
2.0%
0.0%
-2.0%
-4.0%
10.0
12.0
14.0
16.0
18.0
20.0
22.0
24.0
26.0
28.0


Return on Capital (ROC) vs Expenses per litre* (US$ c/litre)
R² = 0.52
16.0%
14.0%
12.0%
10.0%
8.0%
6.0%
4.0%
2.0%
0.0%
-2.0%
-4.0%
14.0
16.0
18.0
20.0
22.0
24.0
26.0
28.0
30.0
32.0


Return on Capital (ROC) vs Expenses per Litre (US$ c/litre)
R² = 0.36
16.0%
14.0%
12.0%
10.0%
8.0%
6.0%
4.0%
2.0%
0.0%
-2.0%
-4.0%
14.0
16.0
18.0
20.0
22.0
24.0
26.0
28.0
30.0
32.0

Data source

207 sets of dairy farm data from 5 States including Victoria, Tasmania, South Australia, Western Australia & southern New South Wales

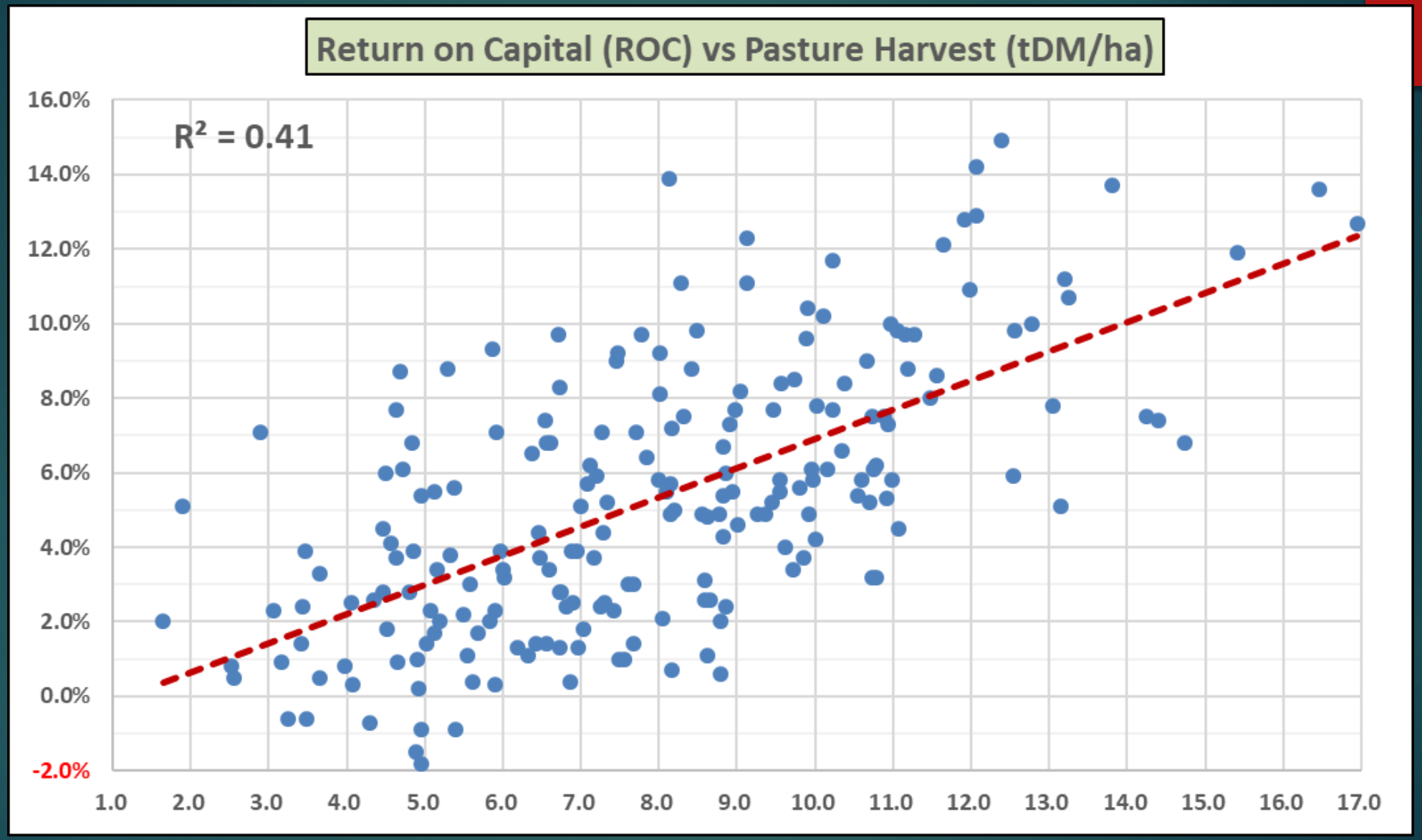
All data processed through Red Sky including industry projects data from Tasmania (DPIWE), South Australia (PIRSA) and Western Australia (DAFWA)

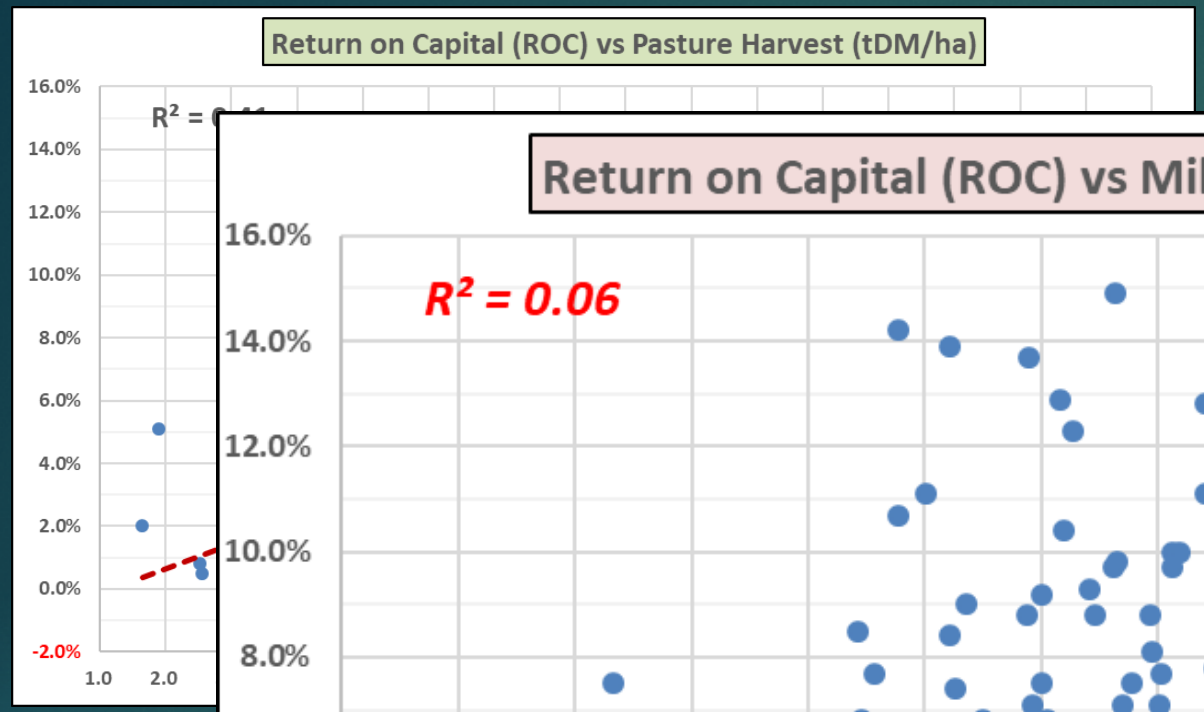
Data from 2005/06; year of sound milk prices, and weather within reasonable norms

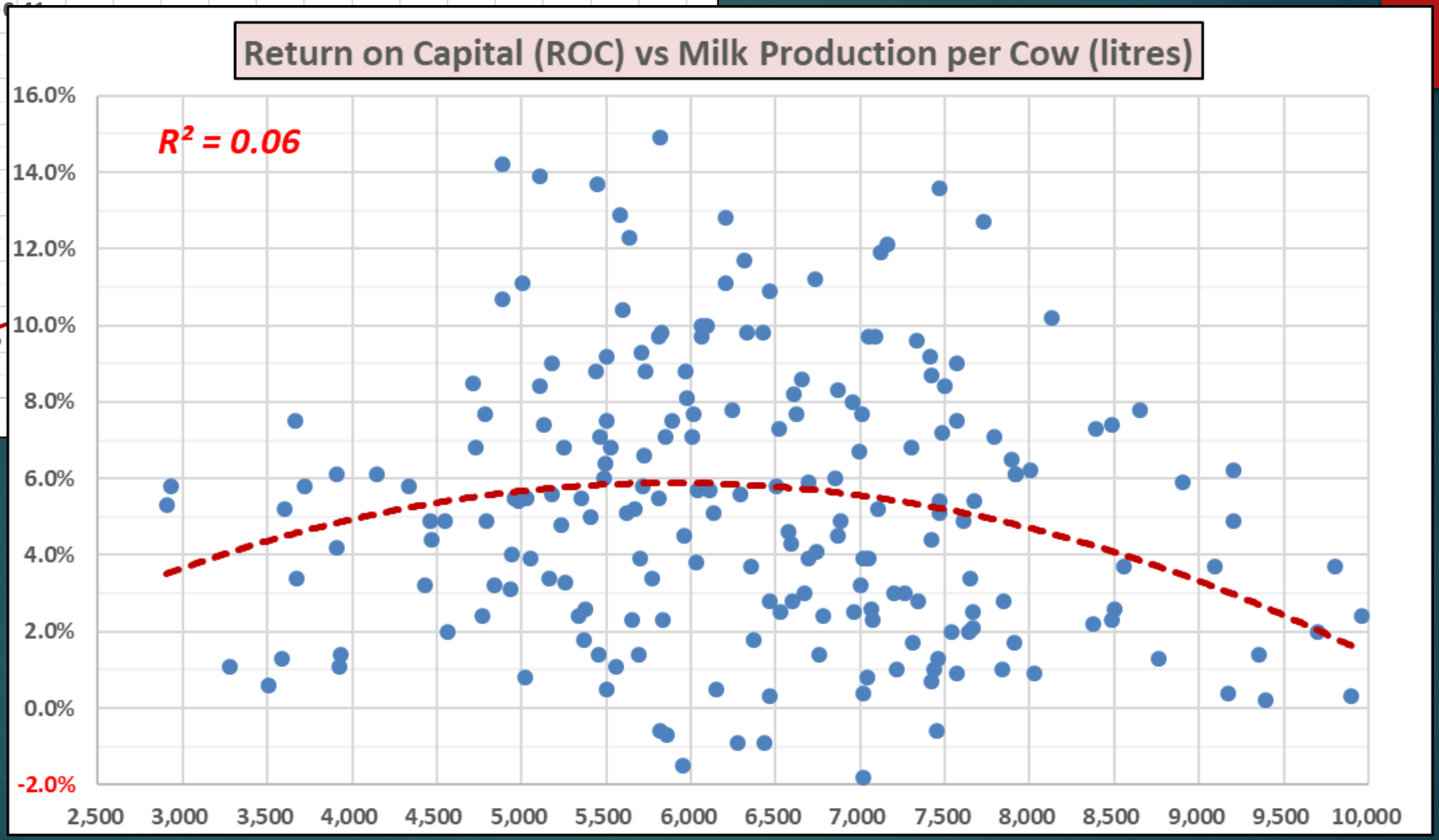
Wide range of farm systems from almost ‘all’ pasture and under 4,000 litres/cow through to highly intensive farm systems and over 9,000 litres/cow

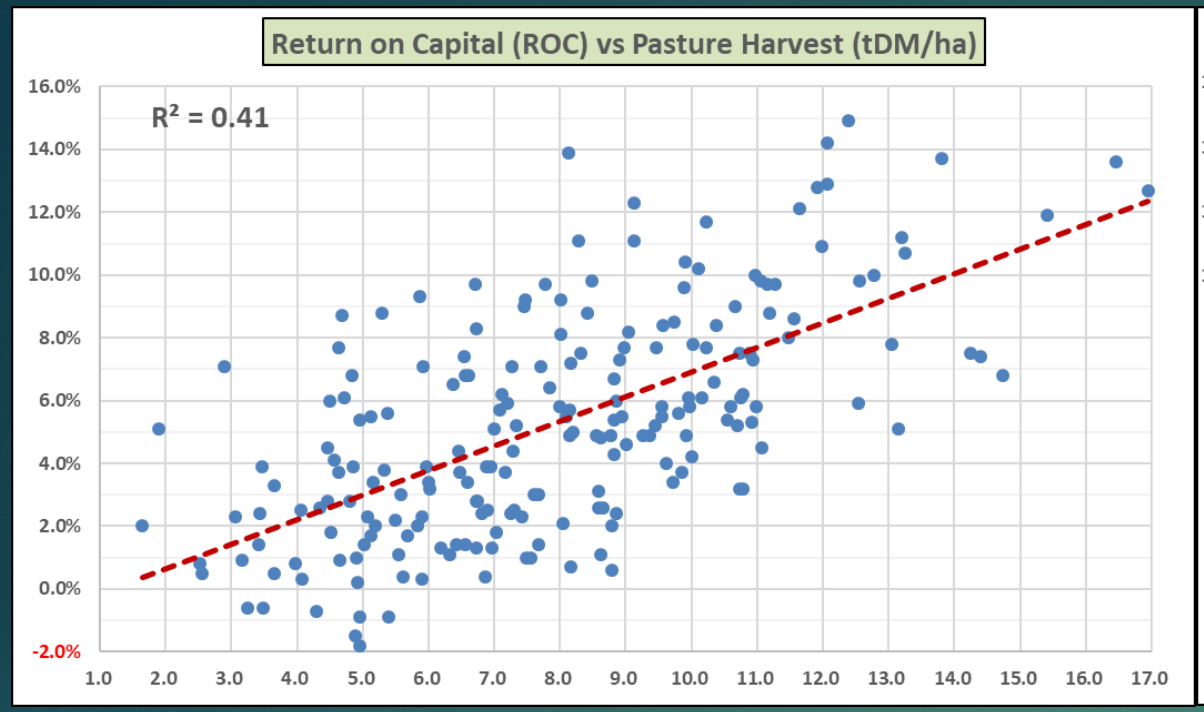
What are the key OUTPUTS

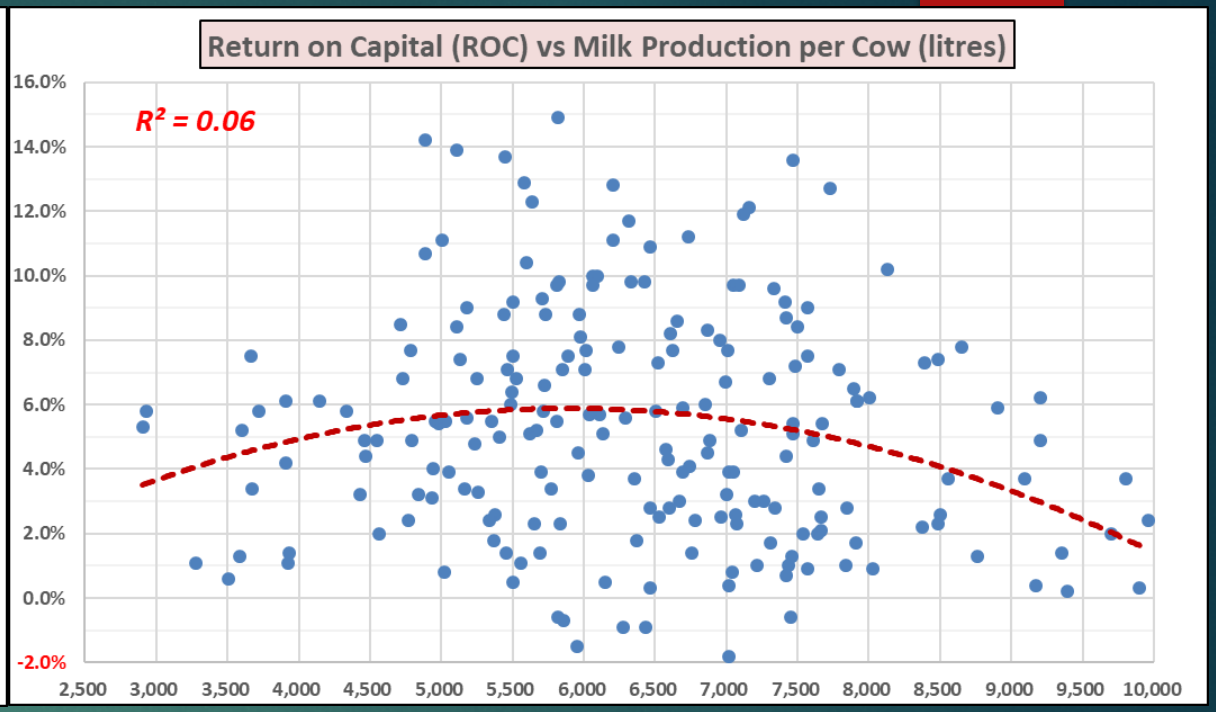
Pasture and not milk is the key output


Return on Capital (ROC) vs Pasture Harvest (tDM/ha)
R² = 0.41
16.0%
14.0%
12.0%
10.0%
8.0%
6.0%
4.0%
2.0%
0.0%
-2.0%
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
10.0
11.0
12.0
13.0
14.0
15.0
16.0
17.0


Return on Capital (ROC) vs Pasture Harvest (tDM/ha)
16.0%
14.0%
12.0%
10.0%
8.0%
6.0%
4.0%
2.0%
0.0%
-2.0%
1.0
2.0


Return on Capital (ROC) vs Milk Production per Cow (litres)
R² = 0.06
16.0%
14.0%
12.0%
10.0%
8.0%
6.0%
4.0%
2.0%
0.0%
-2.0%
2,500
3,000
3,500
4,000
4,500
5,000
5,500
6,000
6,500
7,000
7,500
8,000
8,500
9,000
9,500
10,000

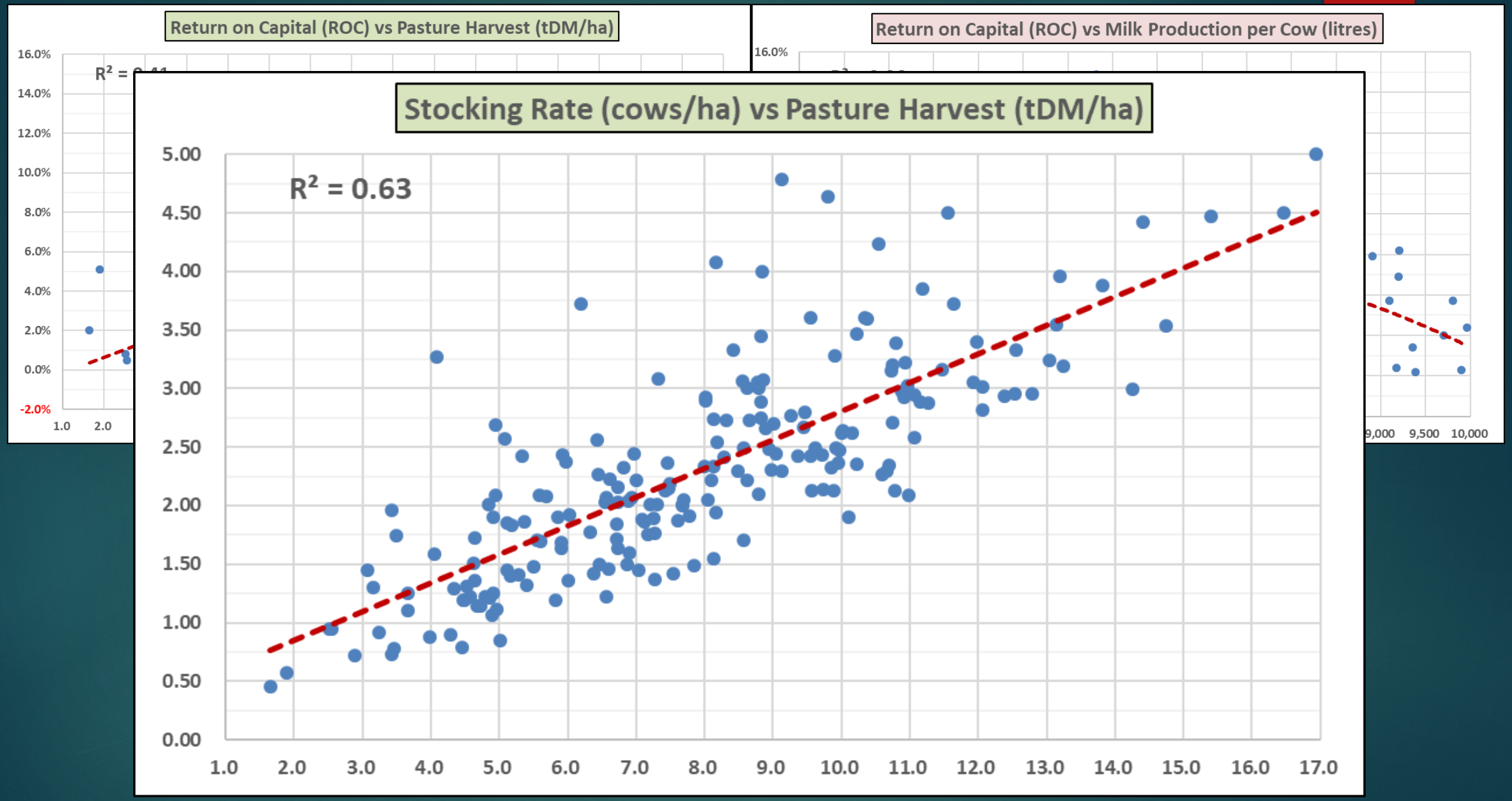

Return on Capital (ROC) vs Pasture Harvest (tDM/ha)
R² = 0.41
16.0%
14.0%
12.0%
10.0%
8.0%
6.0%
4.0%
2.0%
0.0%
-2.0%
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
10.0
11.0
12.0
13.0
14.0
15.0
16.0
17.0


Return on Capital (ROC) vs Milk Production per Cow (litres)
R² = 0.06
16.0%
14.0%
12.0%
10.0%
8.0%
6.0%
4.0%
2.0%
0.0%
-2.0%
2,500
3,000
3,500
4,000
4,500
5,000
5,500
6,000
6,500
7,000
7,500
8,000
8,500
9,000
9,500
10,000

What are the key OUTPUTS

Pasture and not milk is the key output

To optimise pasture harvest then stocking rate (cows/hectare) needs to be relatively high


Return on Capital (ROC) vs Pasture Harvest (tDM/ha)
Return on Capital (ROC) vs Milk Production per Cow (litres)
Stocking Rate (cows/ha) vs Pasture Harvest (tDM/ha)
R² = 0.63
16.0%
14.0%
12.0%
10.0%
8.0%
6.0%
4.0%
2.0%
0.0%
-2.0%
5.00
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
10.0
11.0
12.0
13.0
14.0
15.0
16.0
17.0
9,000
9,500
10,000

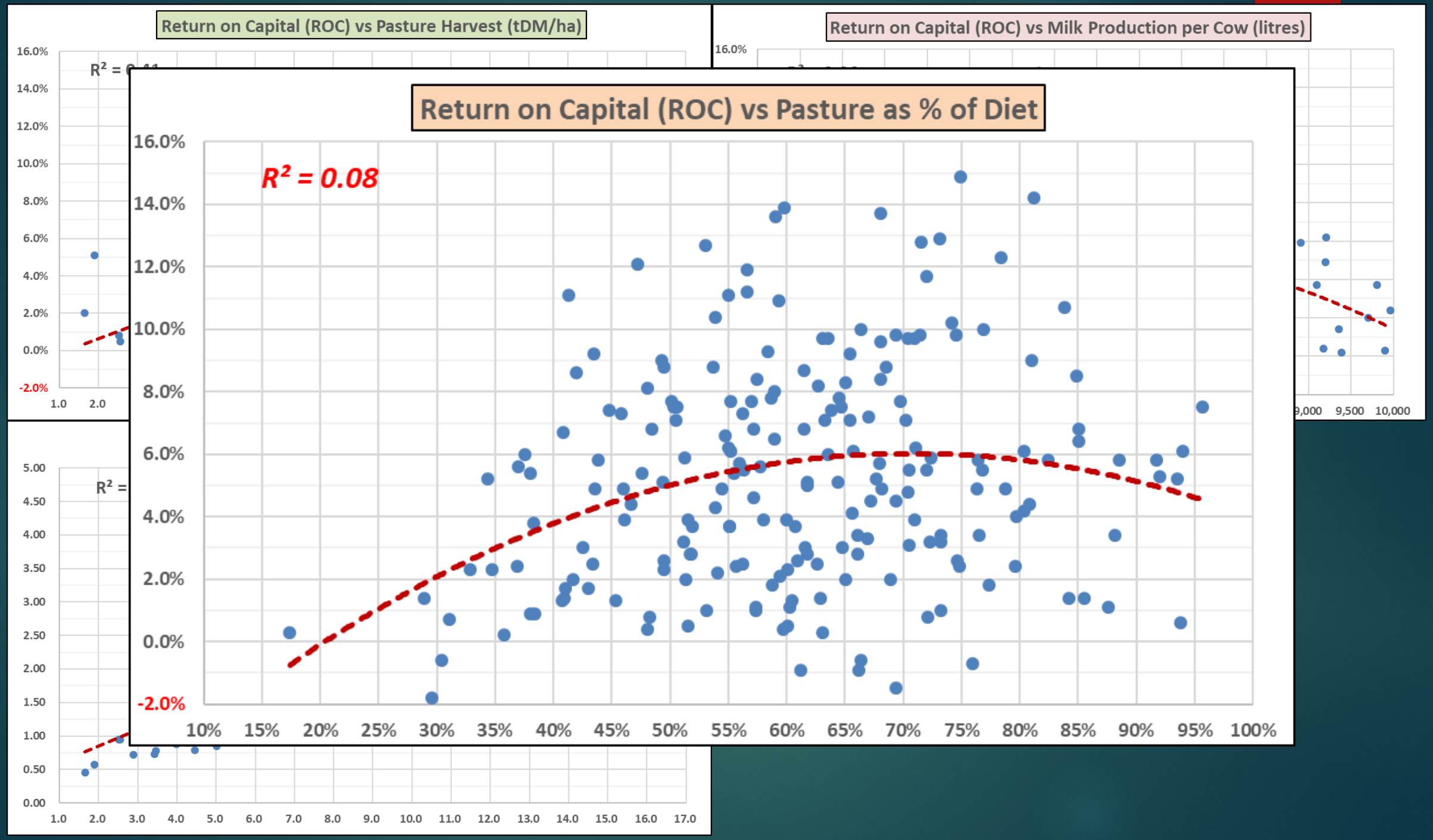
What are the key OUTPUTS

Pasture and not milk is the key output

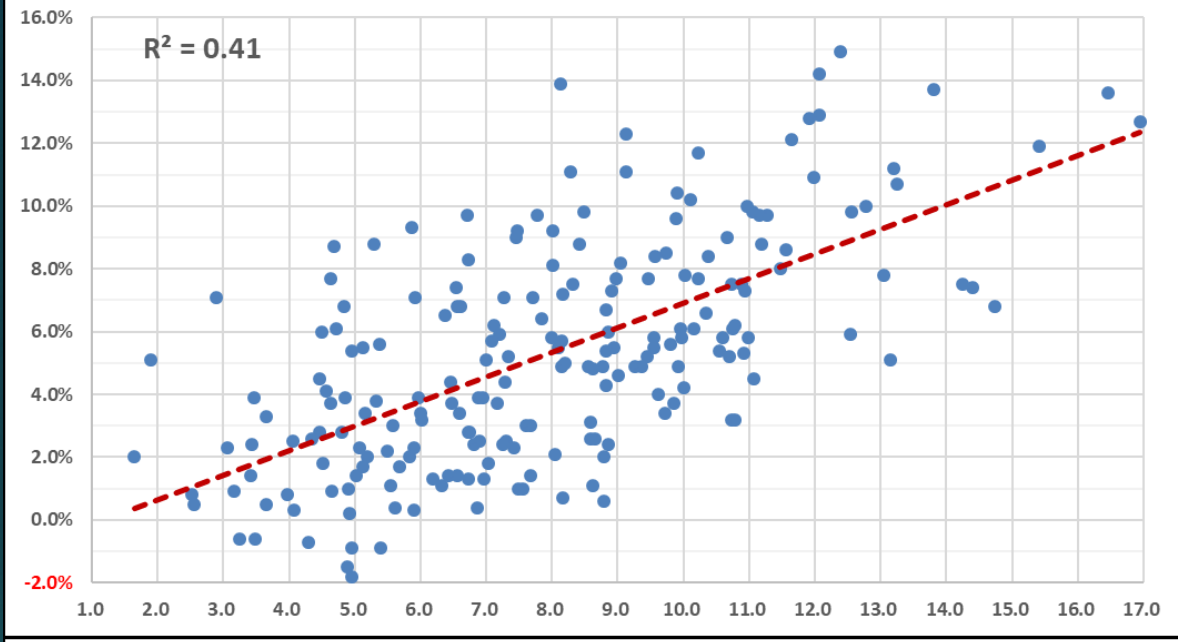
To optimise pasture harvest…stocking rate (cows/hectare) needs to be relatively high

…so a lot of milk is produced per hectare from a comparatively high stocking rate and moderate levels of milk production per cow

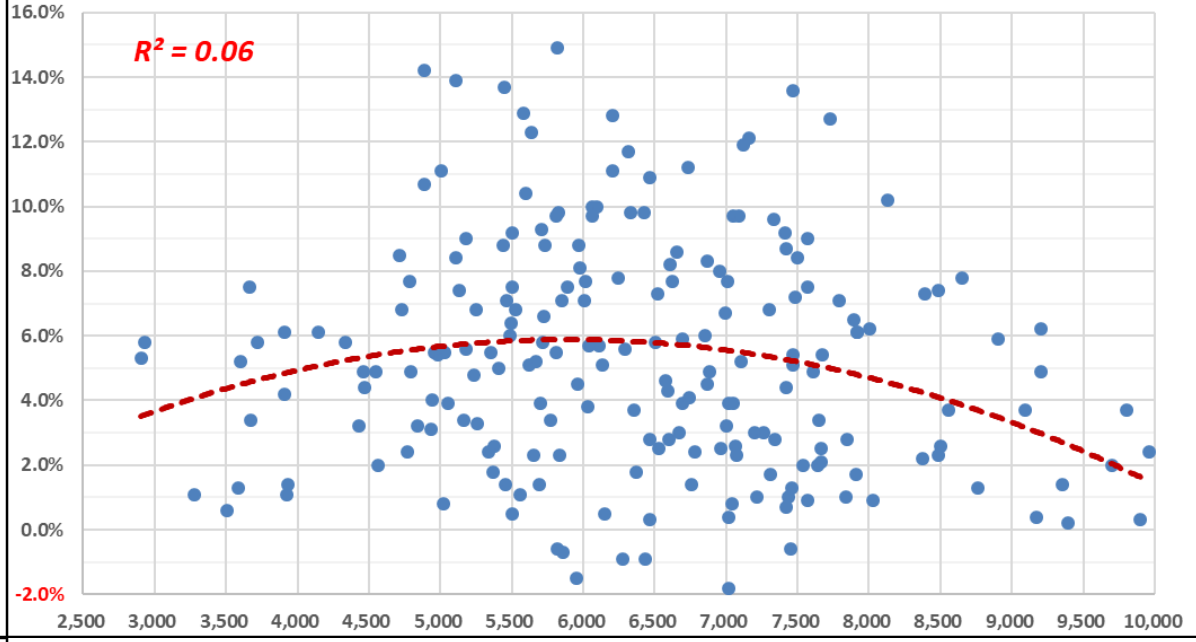
The farm system needs to be one where pasture comprises a high percent of the diet


Return on Capital (ROC) vs Pasture Harvest (tDM/ha)
Return on Capital (ROC) vs Milk Production per Cow (litres)
Return on Capital (ROC) vs Pasture as % of Diet
R² = 0.08
16.0%
14.0%
12.0%
10.0%
8.0%
6.0%
4.0%
2.0%
0.0%
-2.0%
10% 15% 20% 25% 30% 35% 40% 45% 50% 55% 60% 65% 70% 75% 80% 85% 90% 95% 100%
9,000 9,500 10,000
5.00 4.50 4.00 3.50 3.00 2.50 2.00 1.50 1.00 0.50 0.00
1.0 2.0 3.0 4.0 5.0 6.0 7.0 8.0 9.0 10.0 11.0 12.0 13.0 14.0 15.0 16.0 17.0

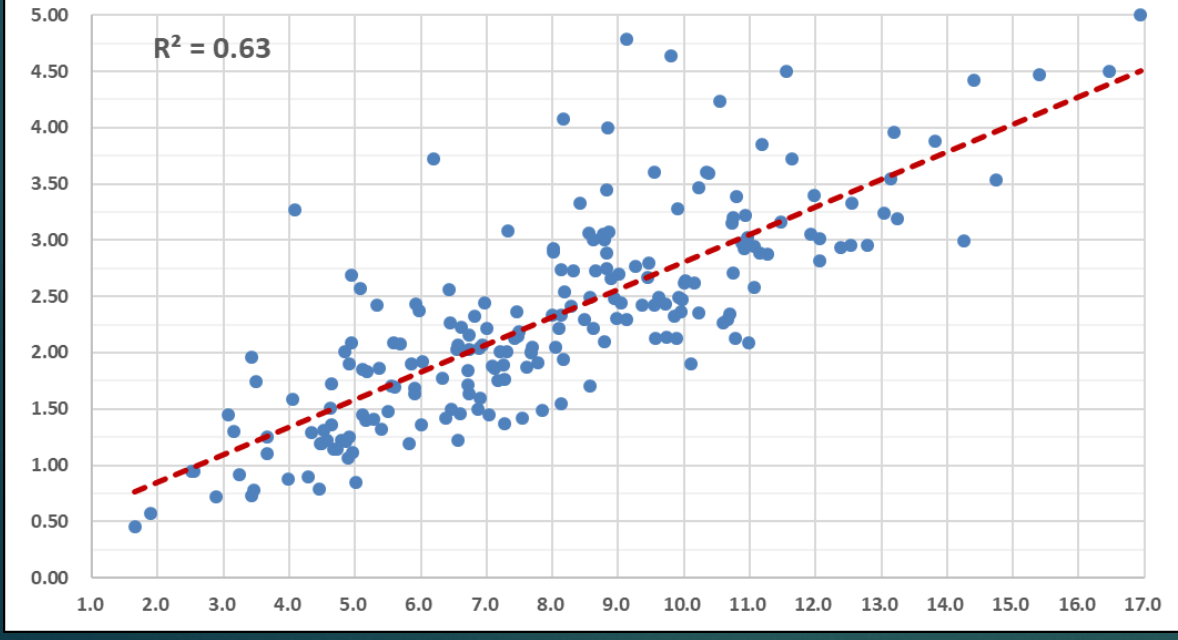
Return on Capital (ROC) vs Pasture Harvest (tDM/ha)



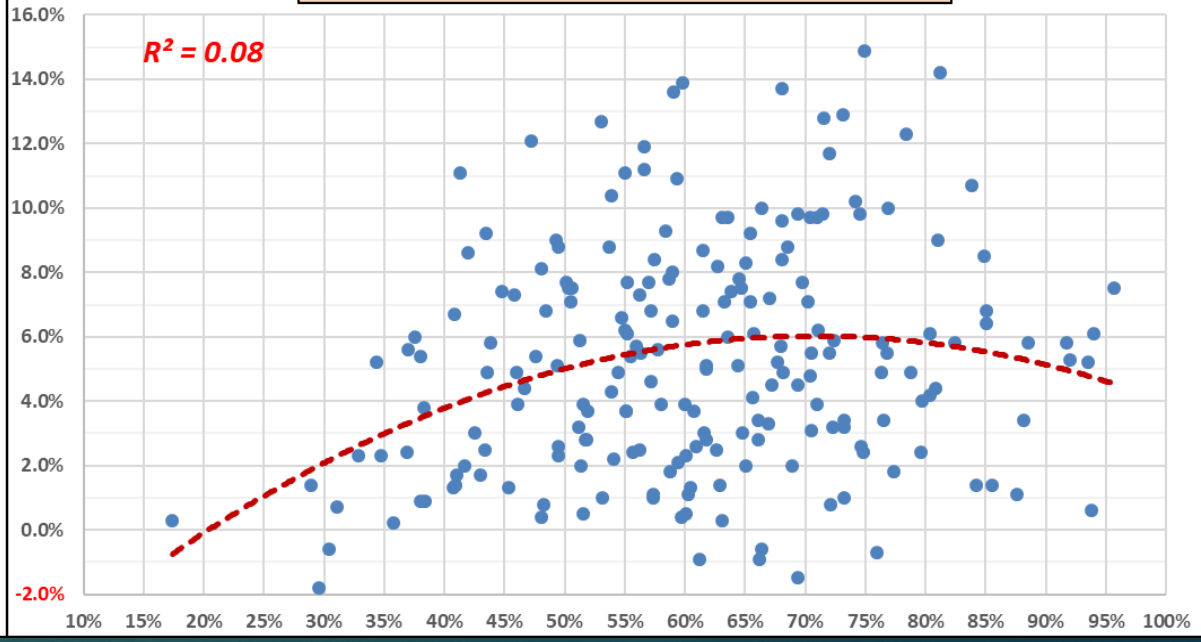
Return on Capital (ROC) vs Milk Production per Cow (litres)



Stocking Rate (cows/ha) vs Pasture Harvest (tDM/ha)



Return on Capital (ROC) vs Pasture as % of Diet



What are the key OUTPUTS

Pasture and not milk is the key output

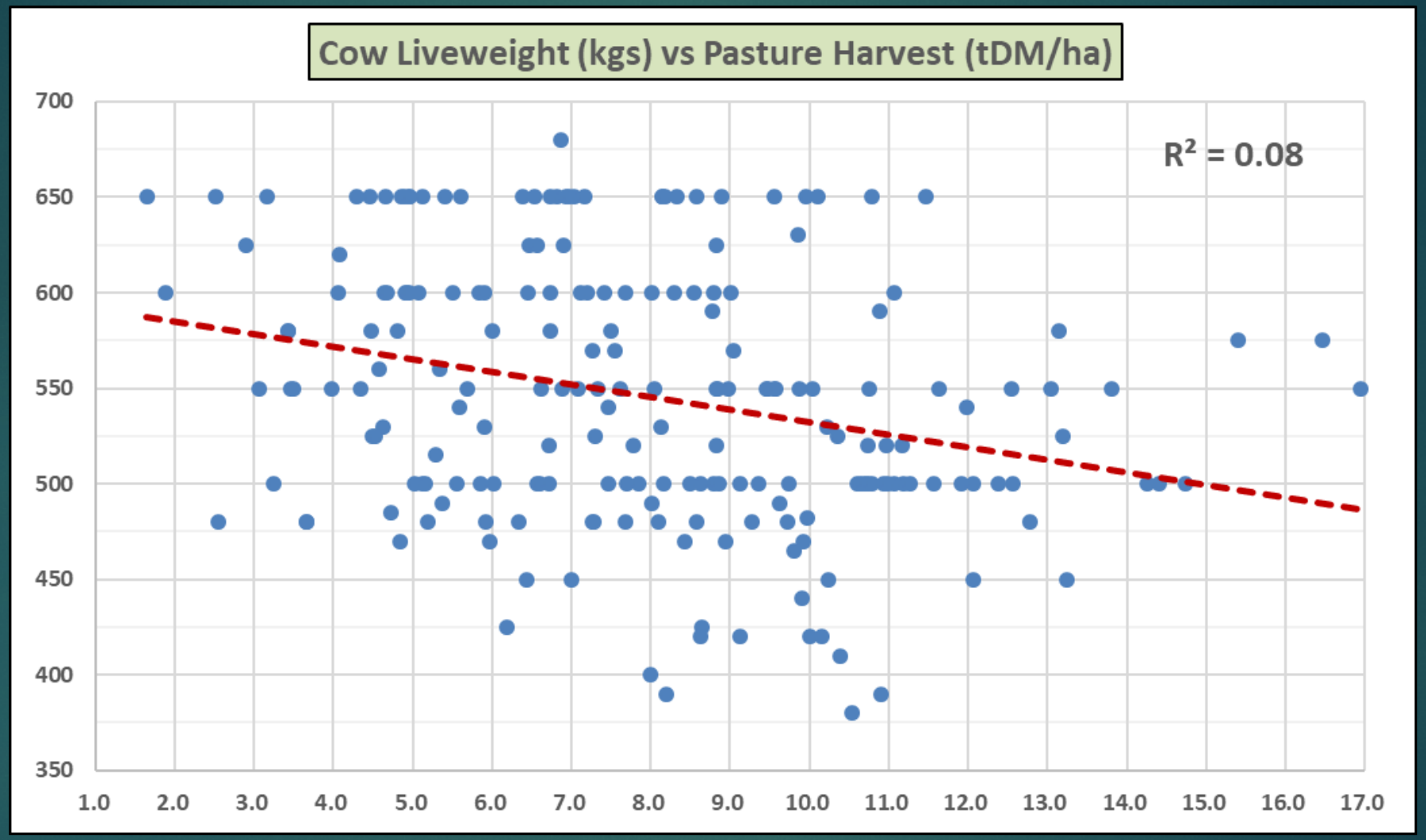
To optimise pasture harvest…stocking rate (cows/hectare) needs to be relatively high

…so a lot of milk is produced per hectare from a comparatively high stocking rate and moderate levels of milk production per cow

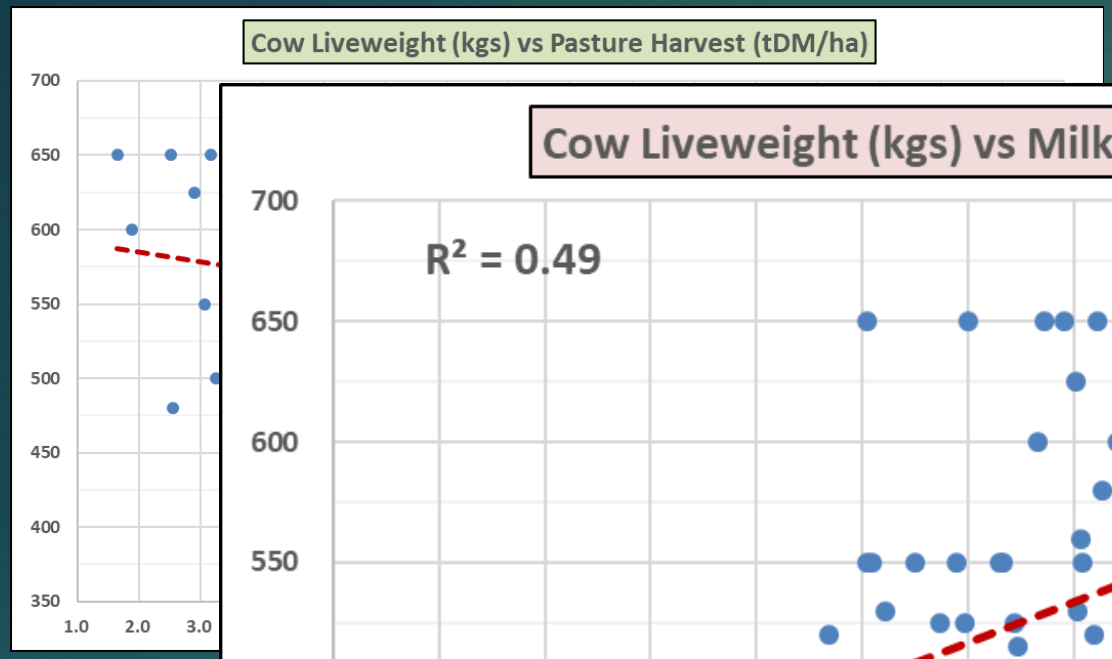
The farm system needs to be one where pasture comprises a high percent of the diet

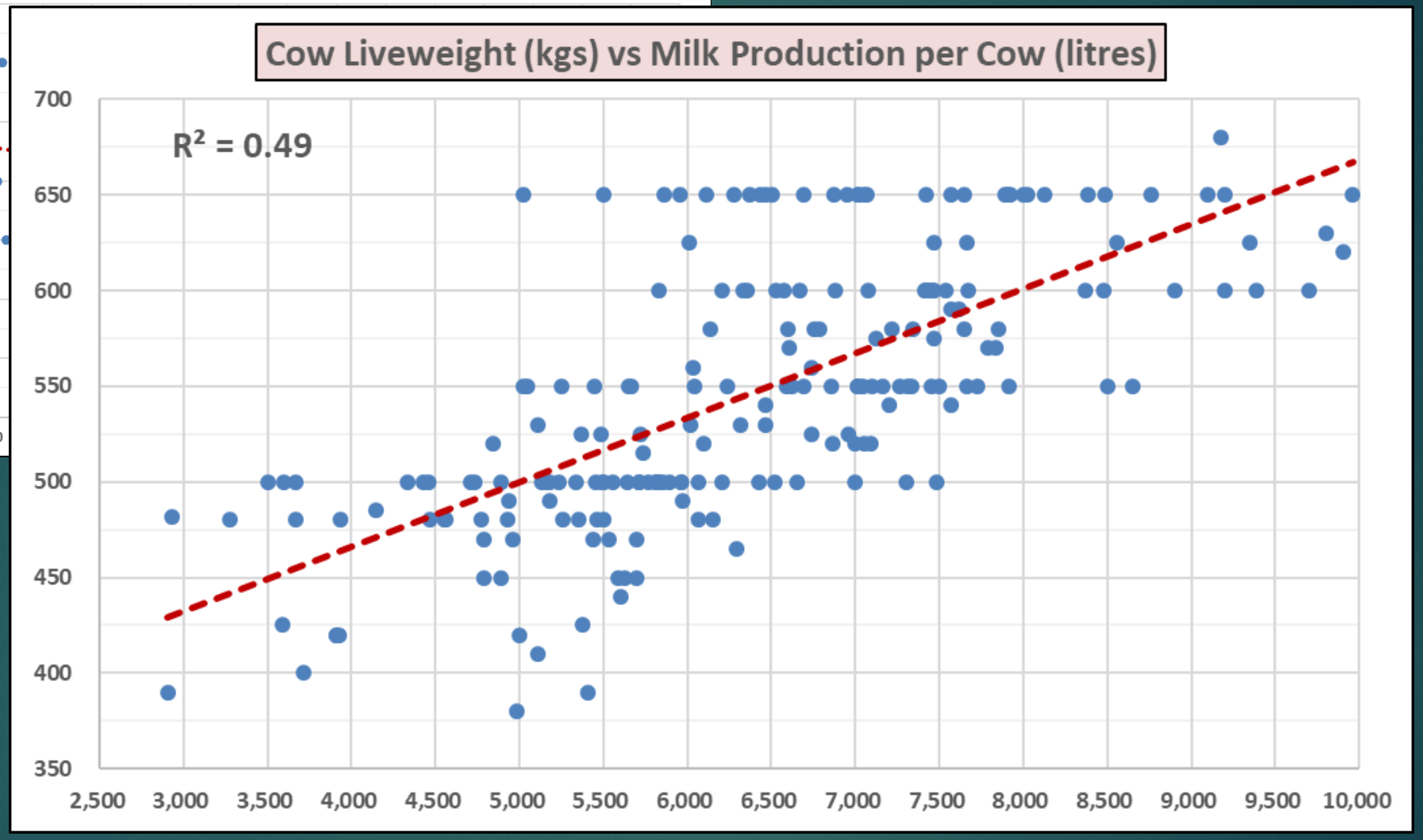
The cow type needs to be one that thrives in a relatively highly stocked situation with a high proportion of pasture in the diet

Cow Size infers Cow Type

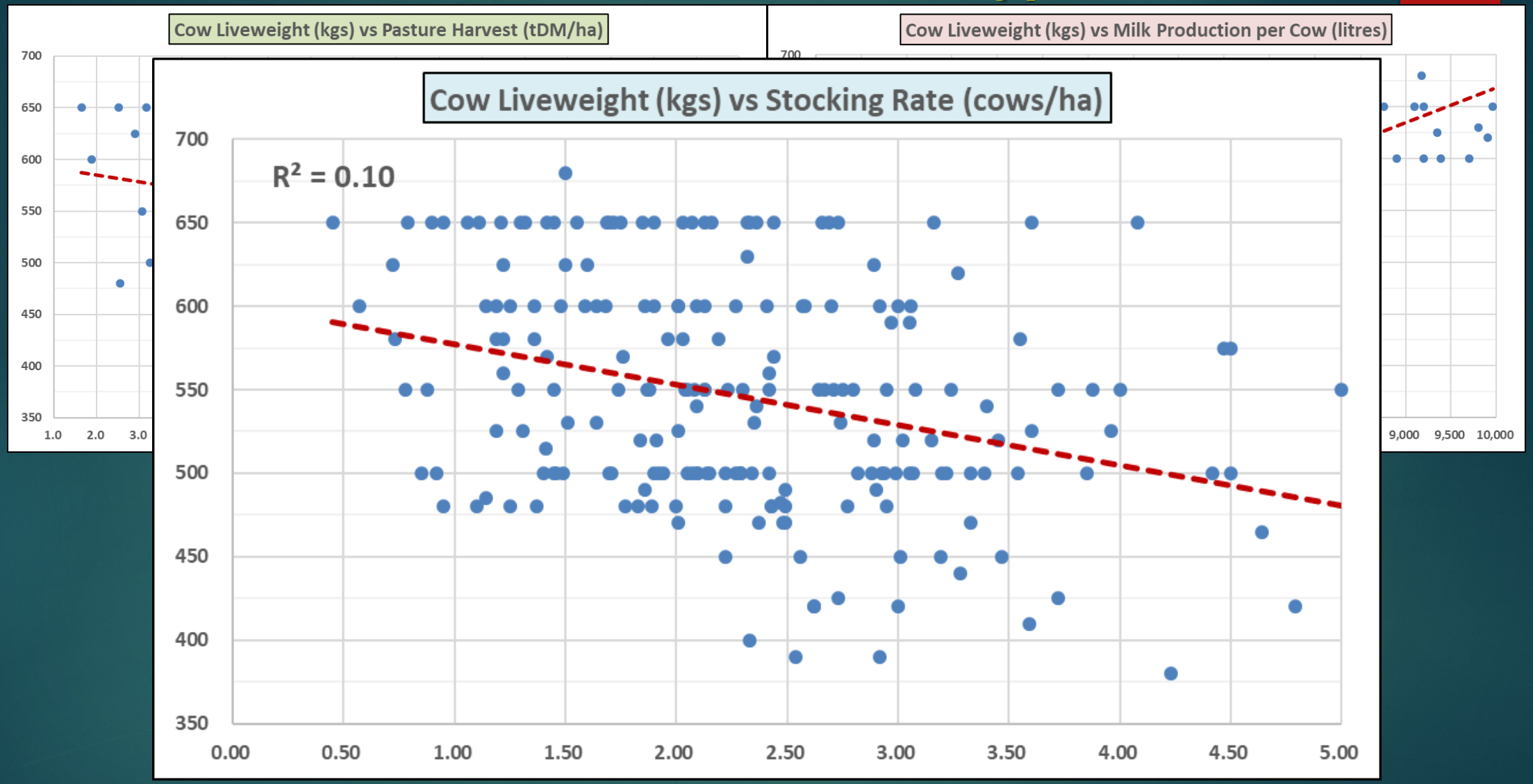


Cow Size infers Cow Type

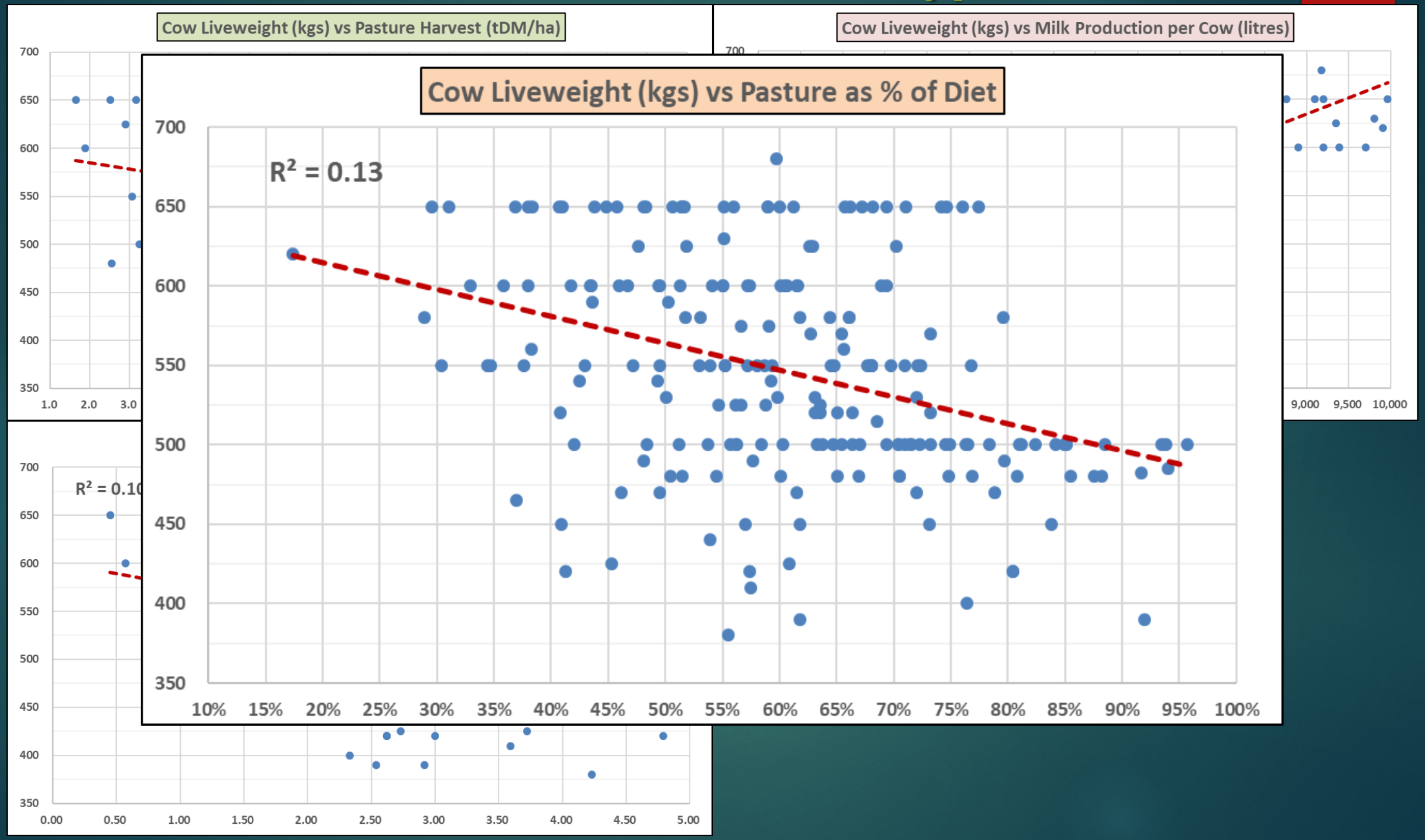




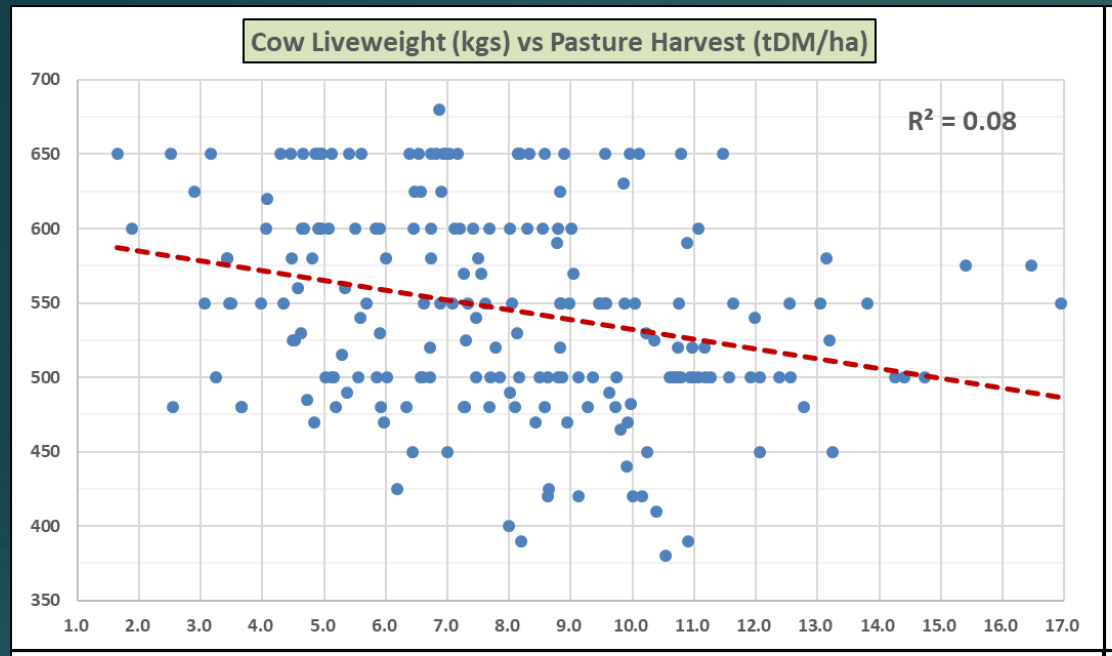
Cow Size infers Cow Type

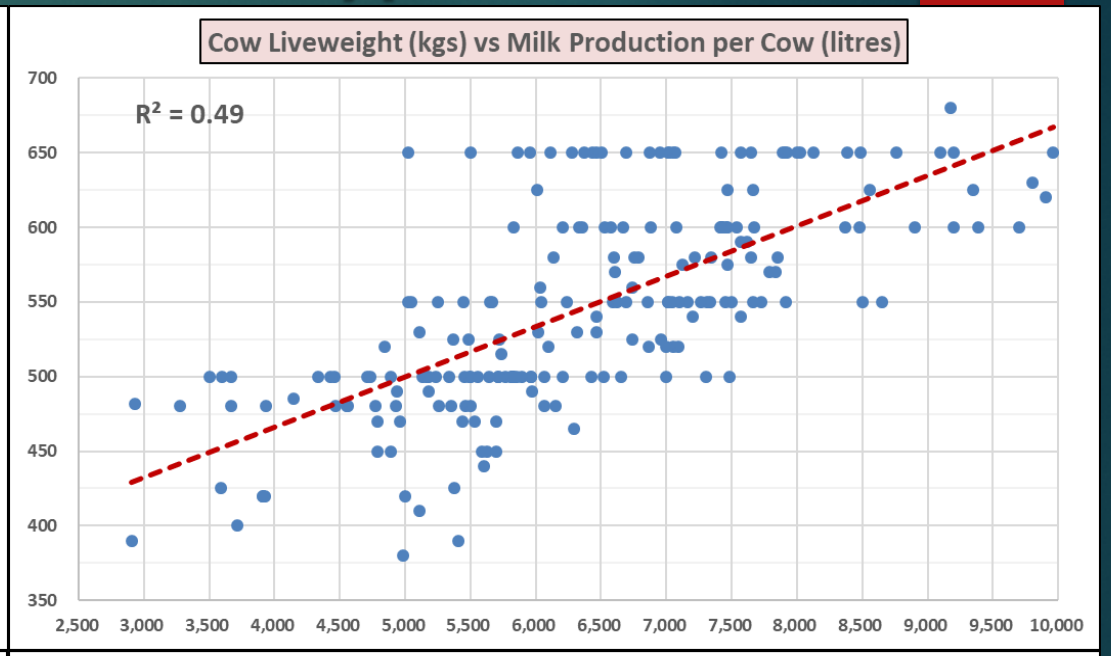


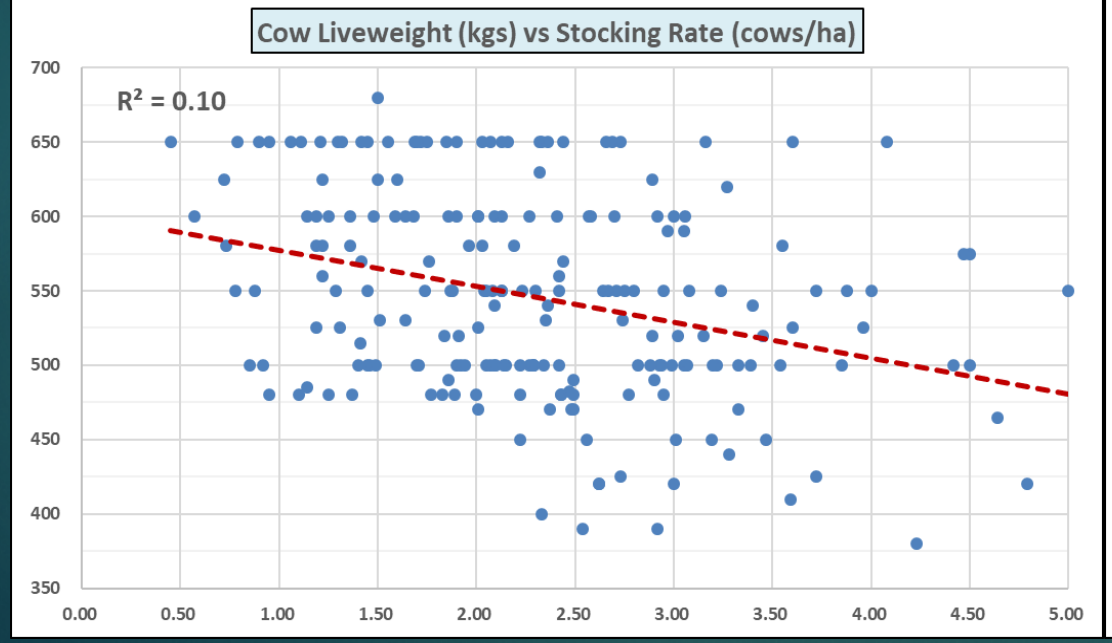
Cow Size infers Cow Type

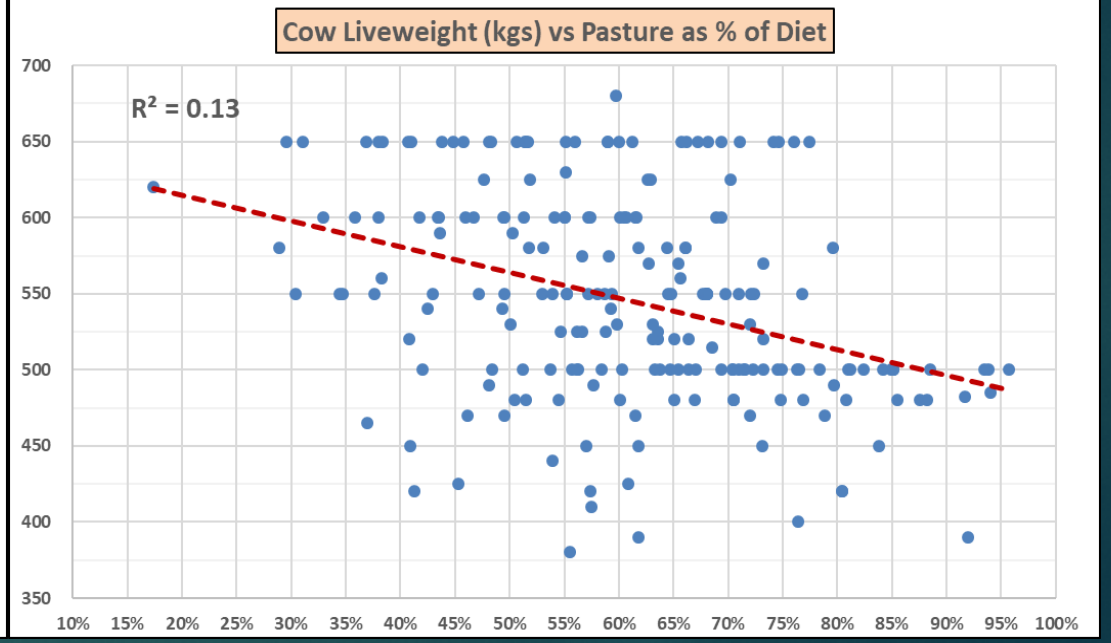


Cow Size infers Cow Type



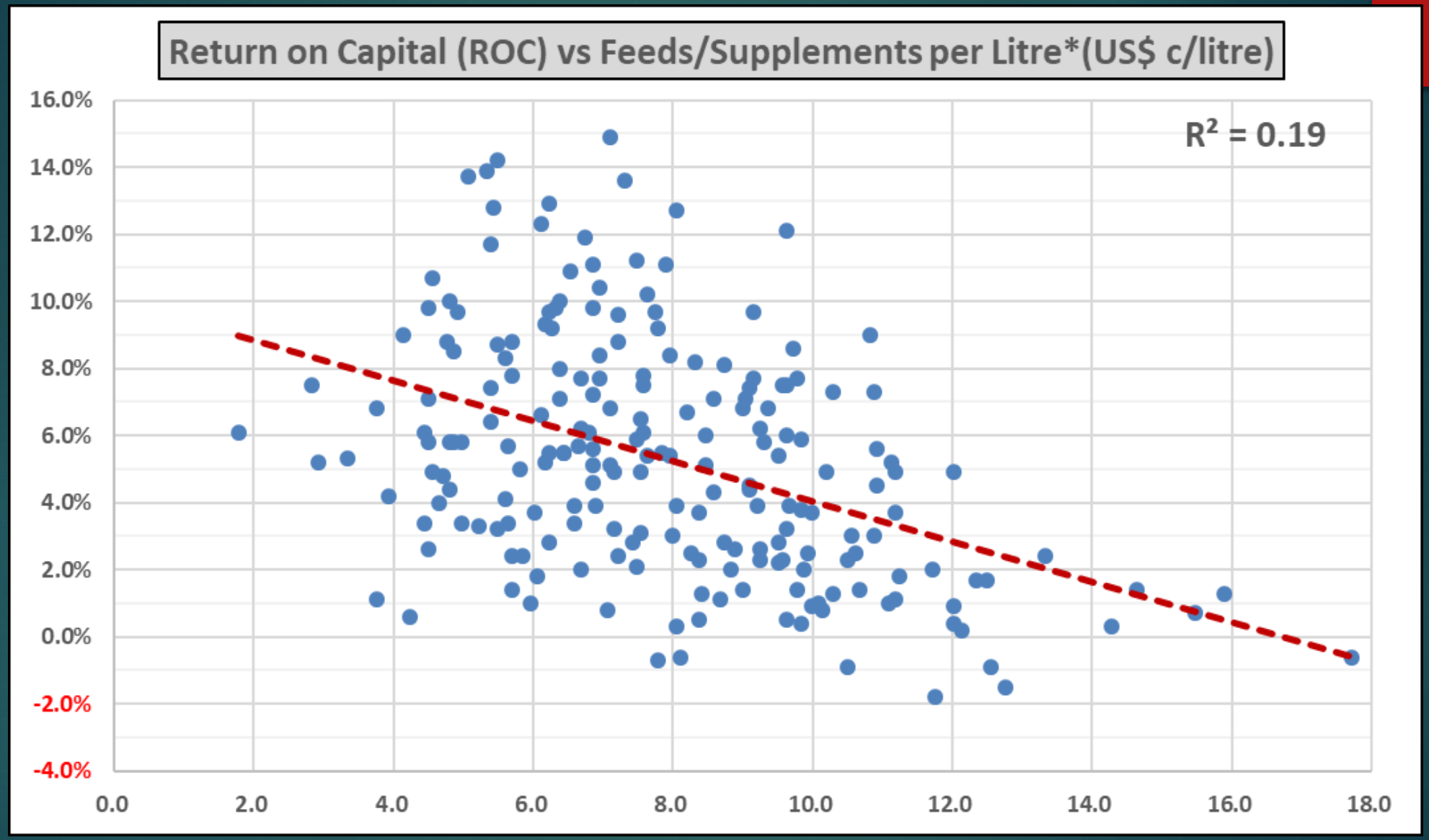


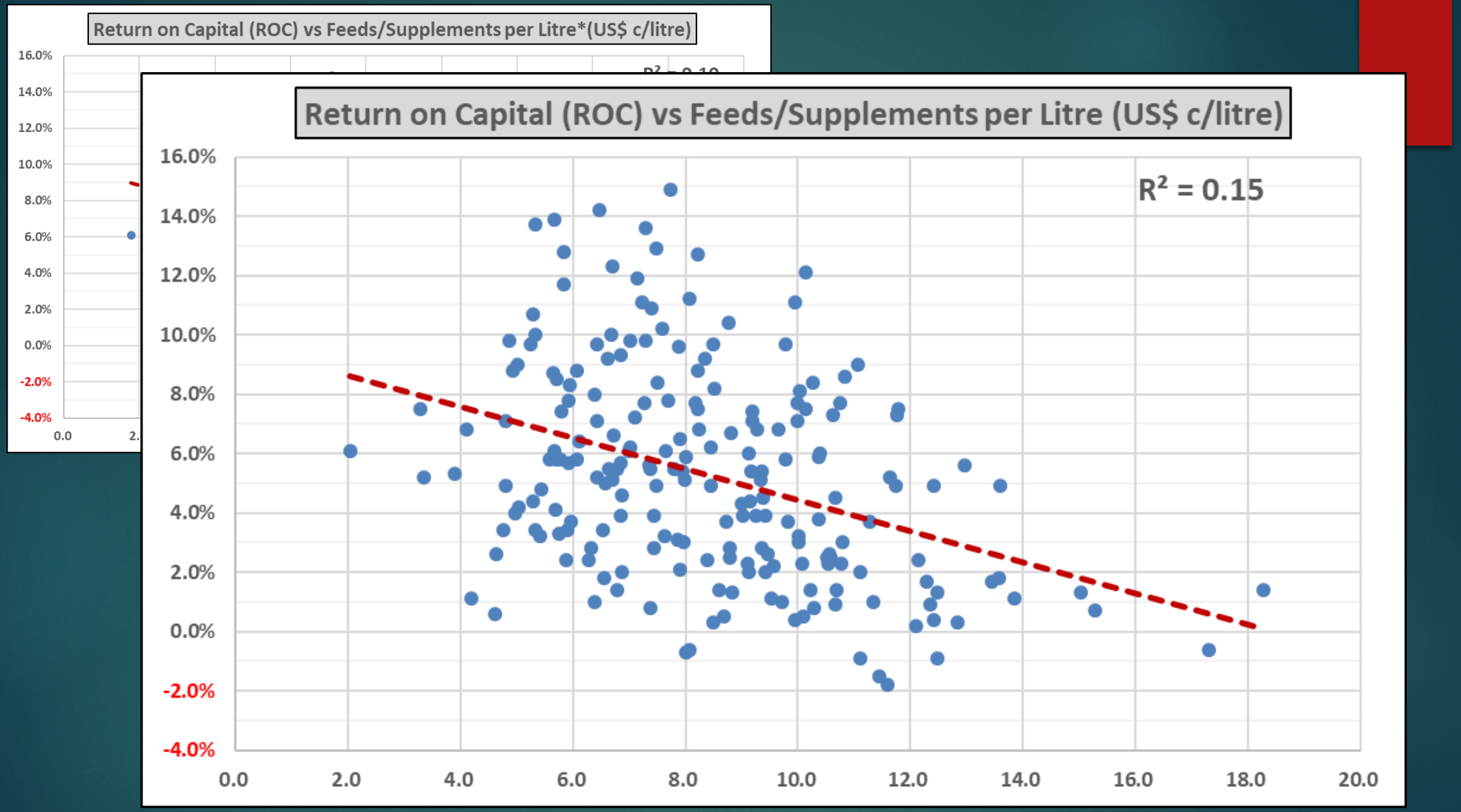




What are the key INPUTS

Low supplemented feed costs per litre

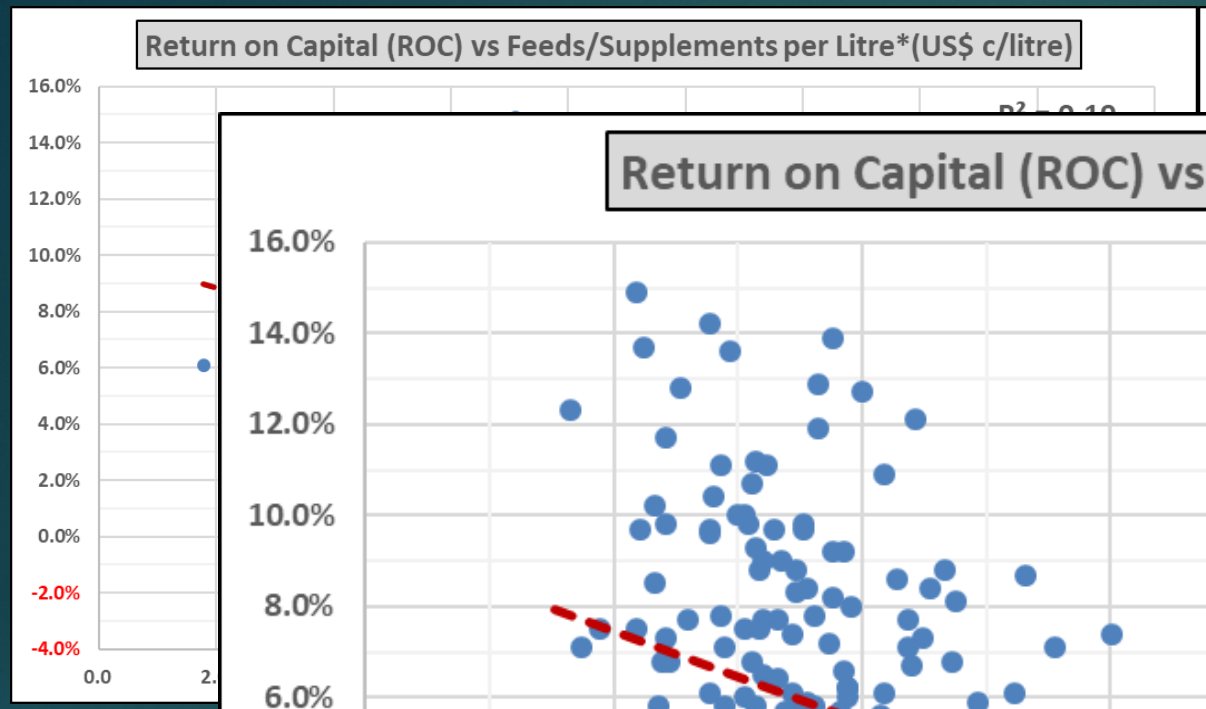

Return on Capital (ROC) vs Feeds/Supplements per Litre*(US$ c/litre)
R² = 0.19
16.0%
14.0%
12.0%
10.0%
8.0%
6.0%
4.0%
2.0%
0.0%
-2.0%
-4.0%
0.0
2.0
4.0
6.0
8.0
10.0
12.0
14.0
16.0
18.0

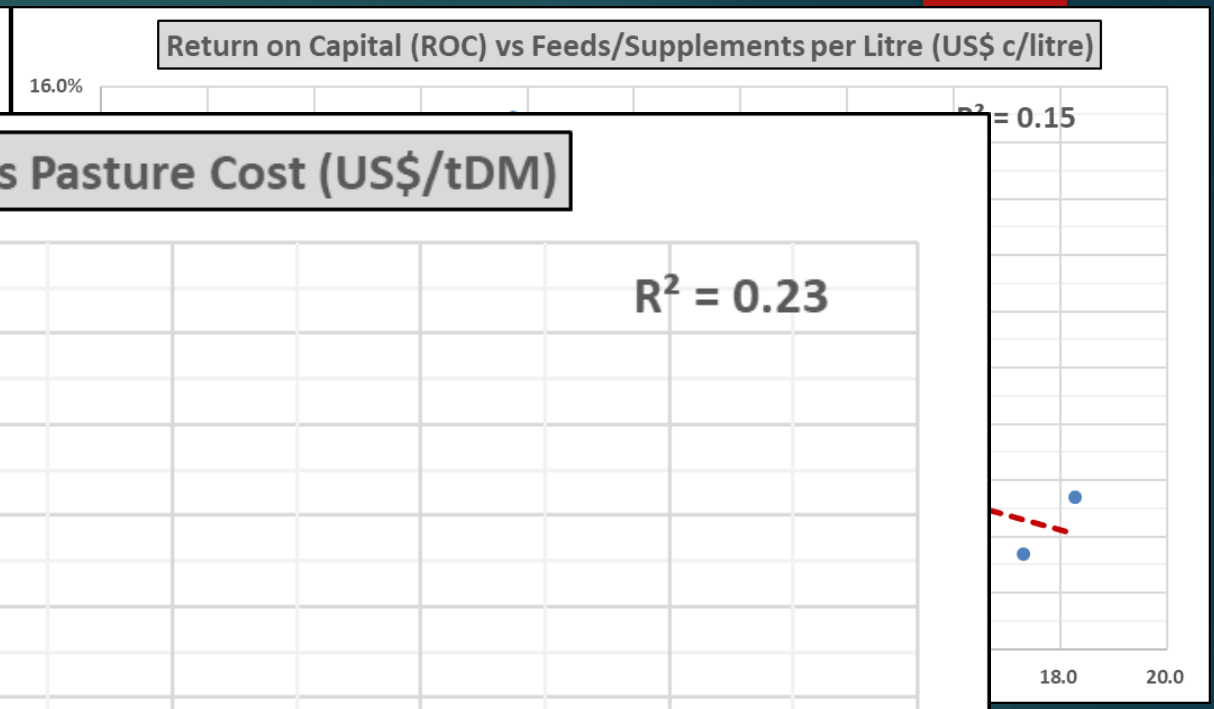

Return on Capital (ROC) vs Feeds/Supplements per Litre (US$ c/litre)
R² = 0.15
16.0%
14.0%
12.0%
10.0%
8.0%
6.0%
4.0%
2.0%
0.0%
-2.0%
-4.0%
0.0
2.0
4.0
6.0
8.0
10.0
12.0
14.0
16.0
18.0
20.0

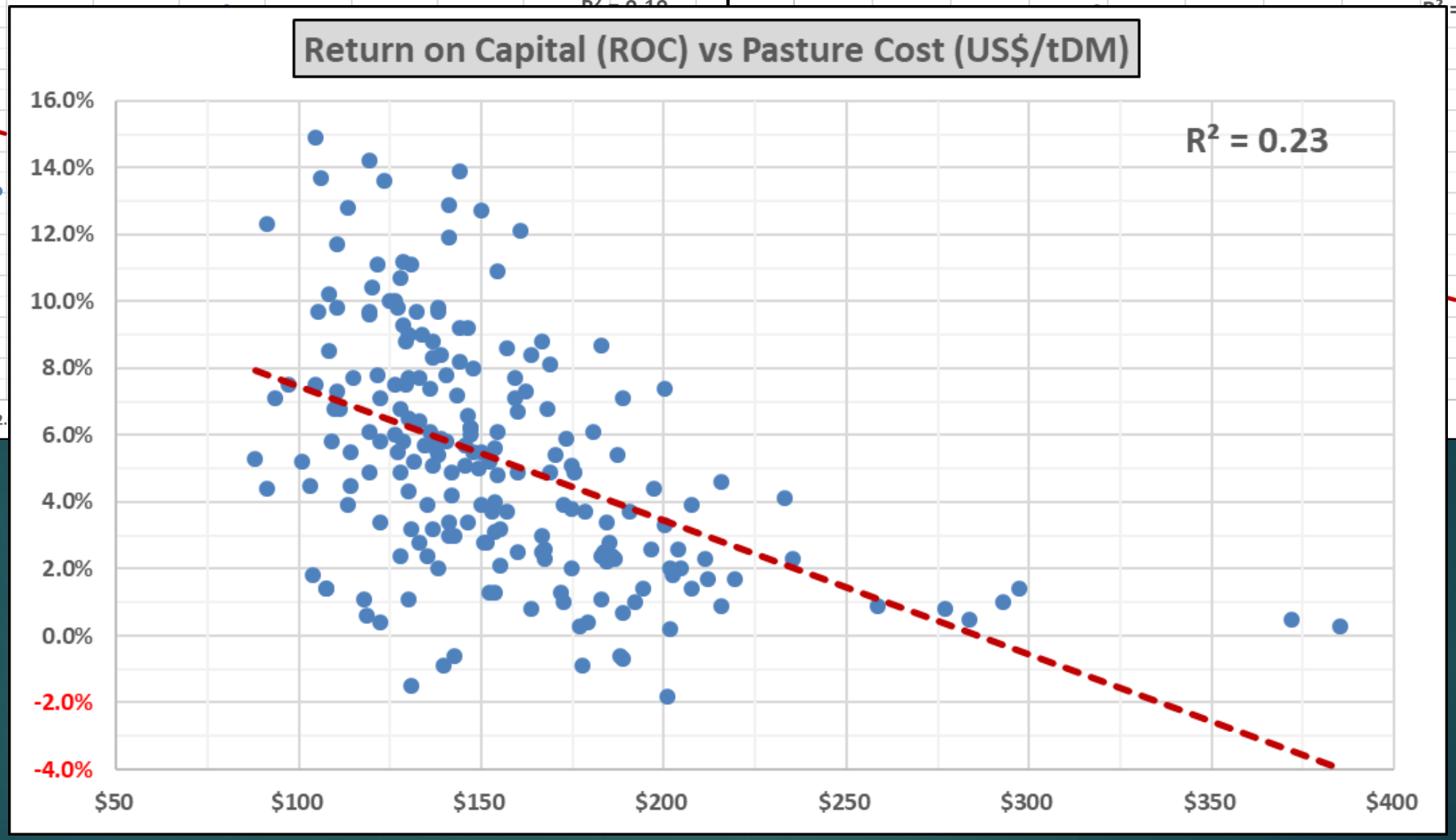
What are the key INPUTS

Low supplemented feed costs per litre

Low pasture cost per ton dry matter


Return on Capital (ROC) vs Feeds/Supplements per Litre*(US$ c/litre)
16.0%
14.0%
12.0%
10.0%
8.0%
6.0%
4.0%
2.0%
0.0%
-2.0%
-4.0%
0.0


Return on Capital (ROC) vs Feeds/Supplements per Litre (US$ c/litre)
16.0%
= 0.15
18.0
20.0

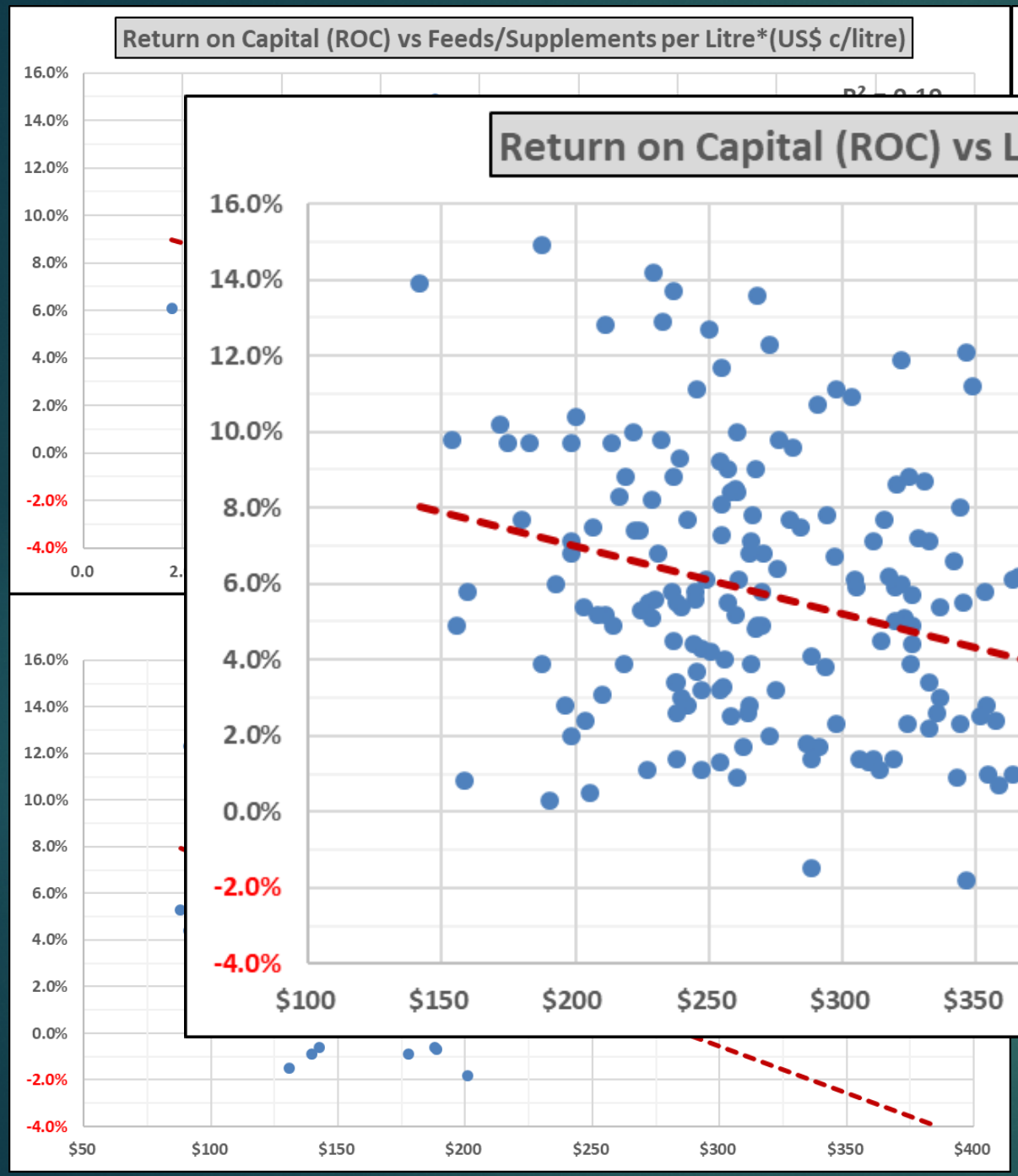

Return on Capital (ROC) vs Pasture Cost (US$/tDM)
$R^2 = 0.23$
16.0%
14.0%
12.0%
10.0%
8.0%
6.0%
4.0%
2.0%
0.0%
-2.0%
-4.0%
$50
$100
$150
$200
$250
$300
$350
$400

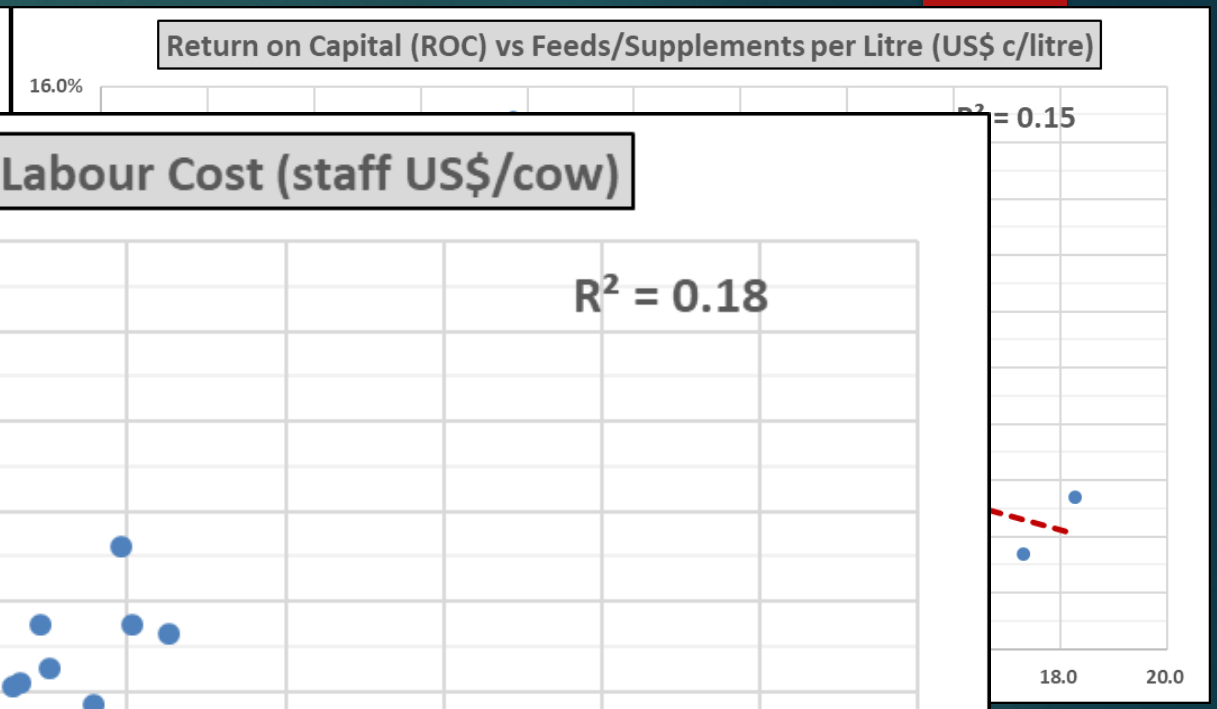
What are the key INPUTS

Low supplemented feed costs per litre

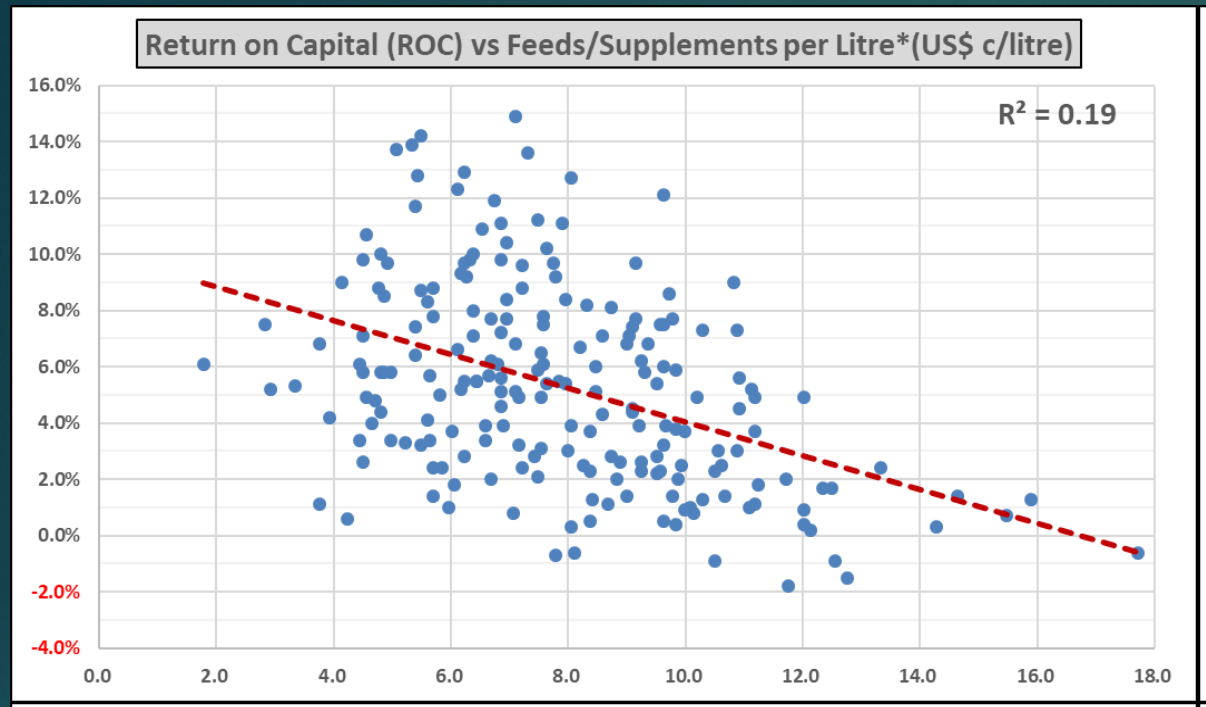
Low pasture cost per ton dry matter

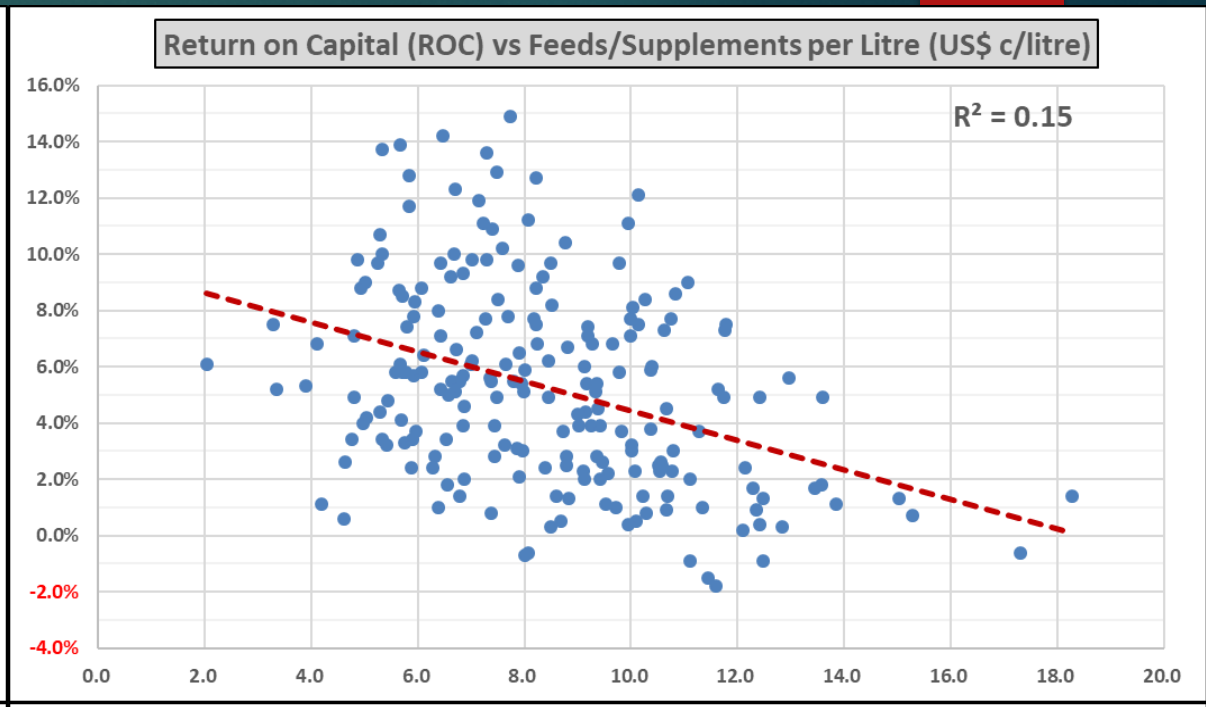
Low labour/people costs per cow (management & staff combined)

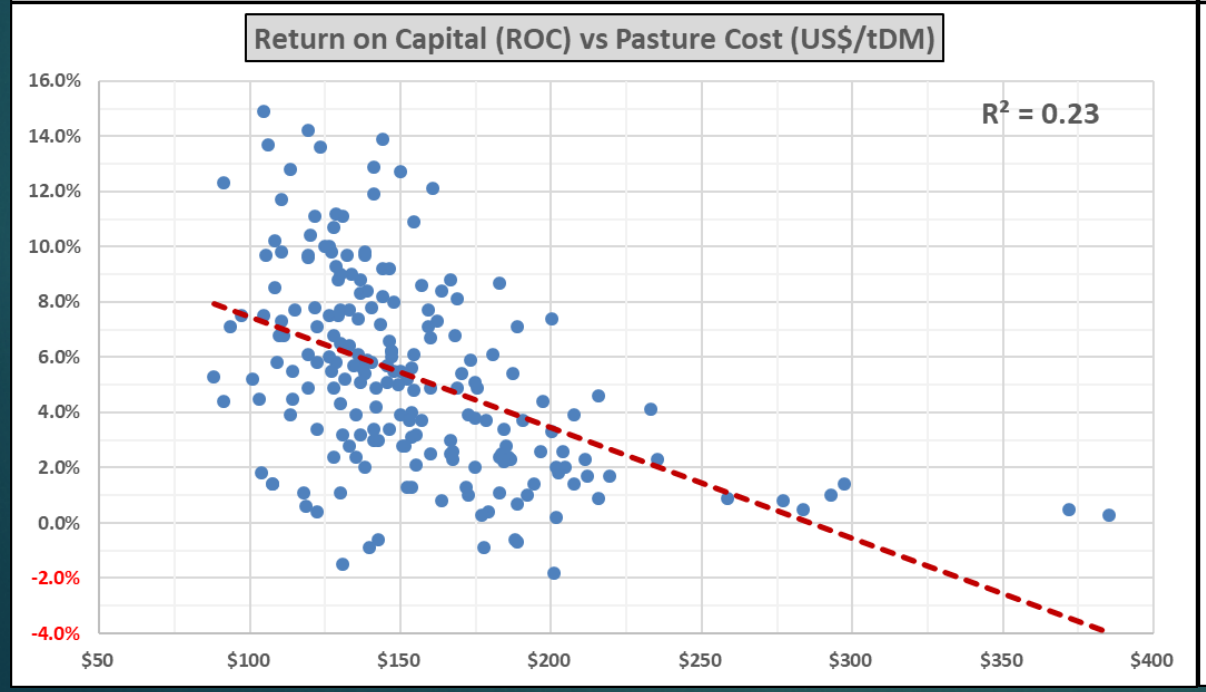

Return on Capital (ROC) vs Feeds/Supplements per Litre*(US$ c/litre)
16.0%
14.0%
12.0%
10.0%
8.0%
6.0%
4.0%
2.0%
0.0%
-2.0%
-4.0%
0.0
$50
$100
$150
$200
$250
$300
$350
$400

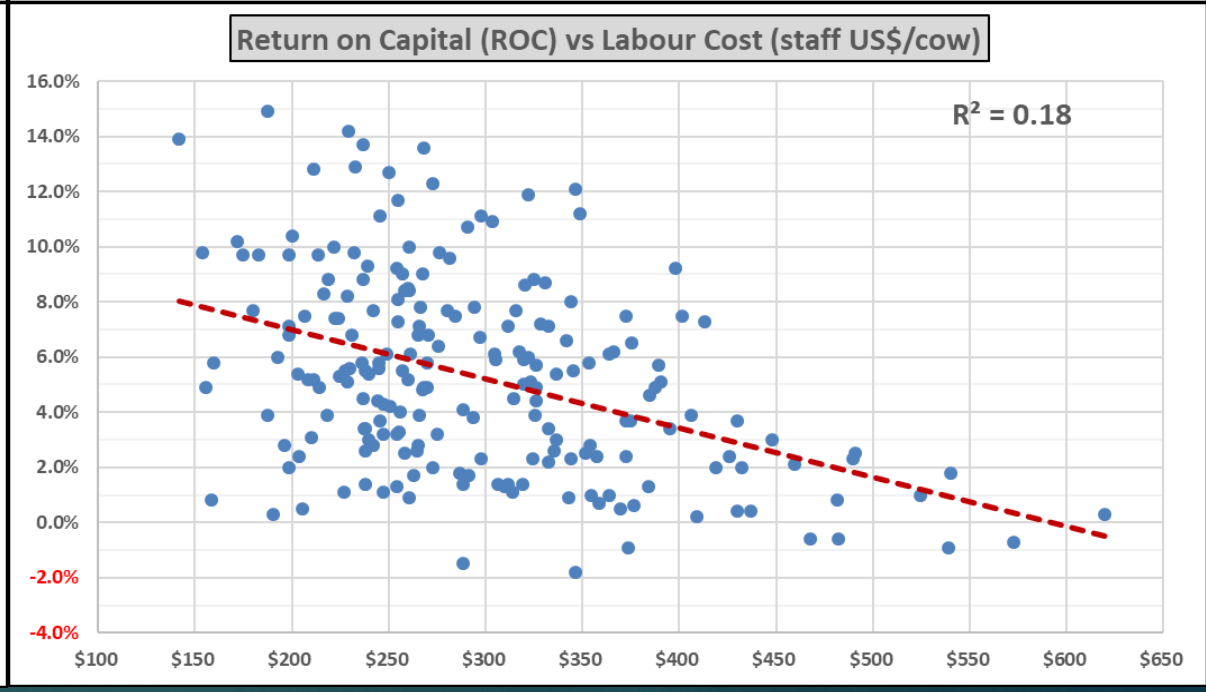

Return on Capital (ROC) vs Feeds/Supplements per Litre (US$ c/litre)
16.0%
= 0.15
18.0
20.0

Return on Capital (ROC) vs Labour Cost (staff US$/cow)
$R^2 = 0.18$
16.0%
14.0%
12.0%
10.0%
8.0%
6.0%
4.0%
2.0%
0.0%
-2.0%
-4.0%
$100
$150
$200
$250
$300
$350
$400
$450
$500
$550
$600
$650


Return on Capital (ROC) vs Feeds/Supplements per Litre*(US$ c/litre)
R² = 0.19
16.0%
14.0%
12.0%
10.0%
8.0%
6.0%
4.0%
2.0%
0.0%
-2.0%
-4.0%
0.0
2.0
4.0
6.0
8.0
10.0
12.0
14.0
16.0
18.0


Return on Capital (ROC) vs Feeds/Supplements per Litre (US$ c/litre)
R² = 0.15
16.0%
14.0%
12.0%
10.0%
8.0%
6.0%
4.0%
2.0%
0.0%
-2.0%
-4.0%
0.0
2.0
4.0
6.0
8.0
10.0
12.0
14.0
16.0
18.0
20.0


Return on Capital (ROC) vs Pasture Cost (US$/tDM)
R² = 0.23
16.0%
14.0%
12.0%
10.0%
8.0%
6.0%
4.0%
2.0%
0.0%
-2.0%
-4.0%
$50
$100
$150
$200
$250
$300
$350
$400


Return on Capital (ROC) vs Labour Cost (staff US$/cow)
R² = 0.18
16.0%
14.0%
12.0%
10.0%
8.0%
6.0%
4.0%
2.0%
0.0%
-2.0%
-4.0%
$100
$150
$200
$250
$300
$350
$400
$450
$500
$550
$600
$650

What are the key INPUTS

Low supplemented feed costs per litre

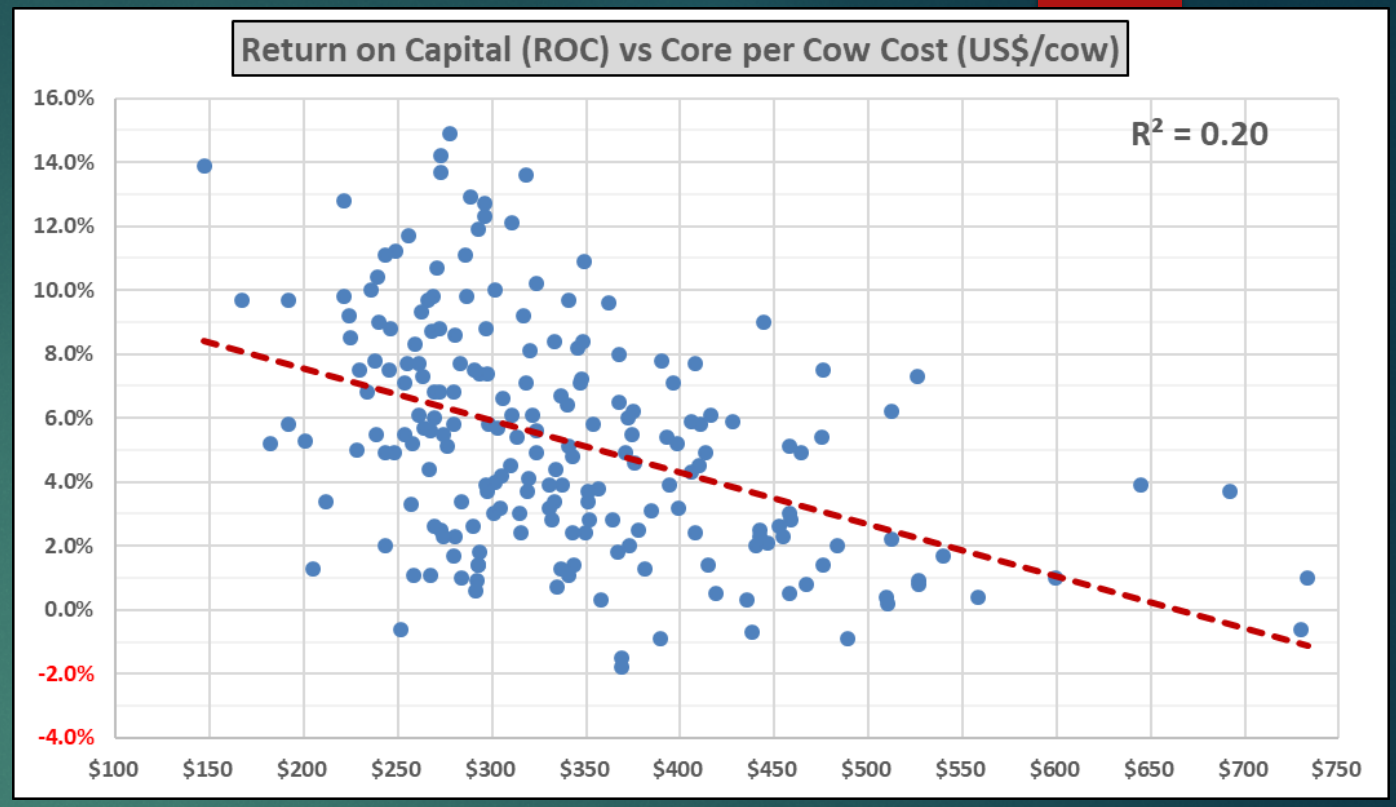
Low pasture cost per ton dry matter

Low labour/people costs per cow (management & staff combined)

Low ‘core per cow’ costs (ratio only includes ‘cow’ costs)

Core per Cow Costs = (Animal Health + Breeding + Dairy Shed Exp. + Electricity + Grazing/Agistment + Freight + 50% Repairs & Maintenance + 70% Vehicles + 30% Standing Charges + 50% Depreciation **) /**

Milking Cows



What are the key INPUTS

Low supplemented feed costs per kg milk

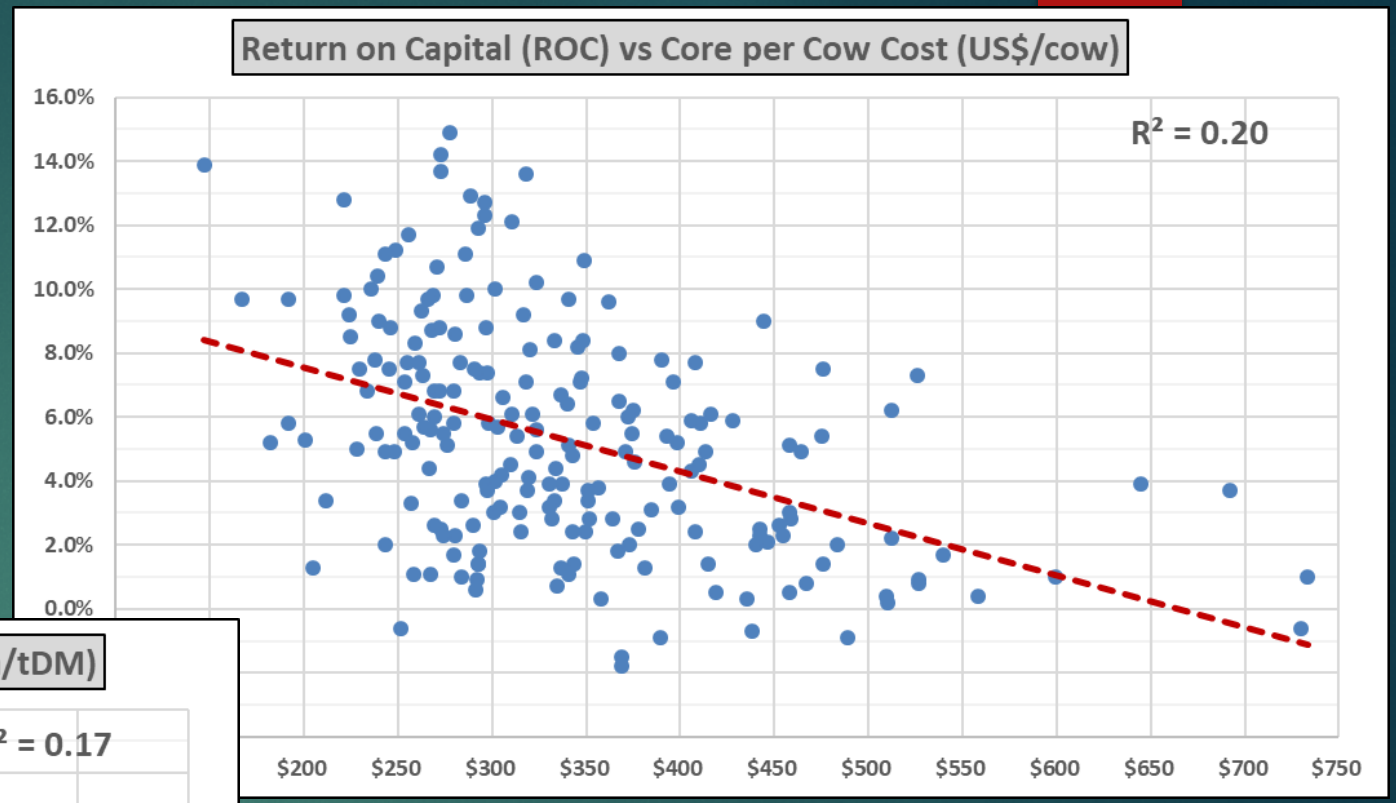
Low pasture cost per ton dry matter

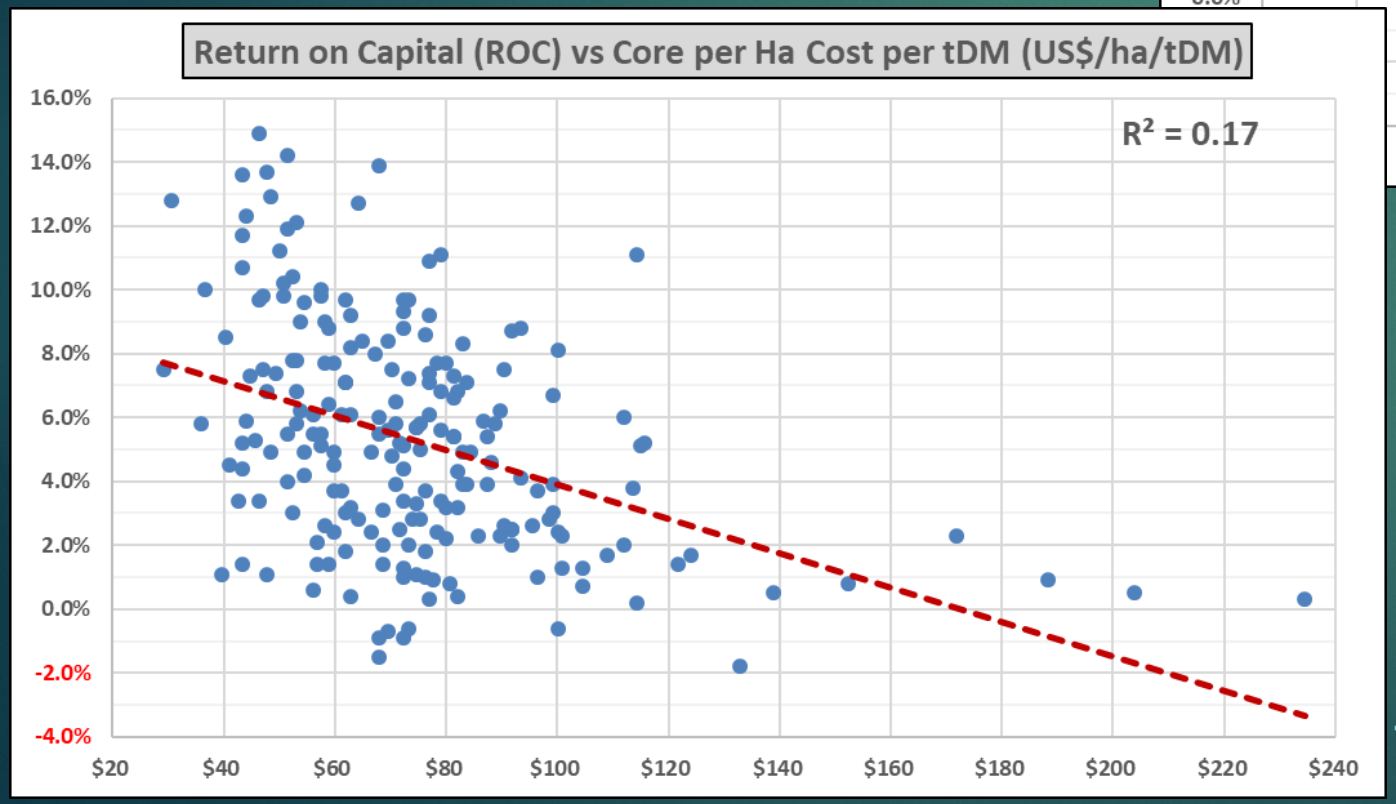
Low labour/people costs per cow (management & staff combined)

Low ‘core per cow’ costs (ratio only includes ‘cow’ costs)

Low ‘core per hectare per ton dry matter’ costs (ratio only includes ‘land’ costs)

Core per Cow Costs = (Animal Health + Breeding + Dairy Shed Exp. + Electricity + Grazing/Agistment + Freight + 50% Repairs & Maintenance + 70% Vehicles + 30% Standing Charges + 50% Depreciation **) /** **Milking Cows**

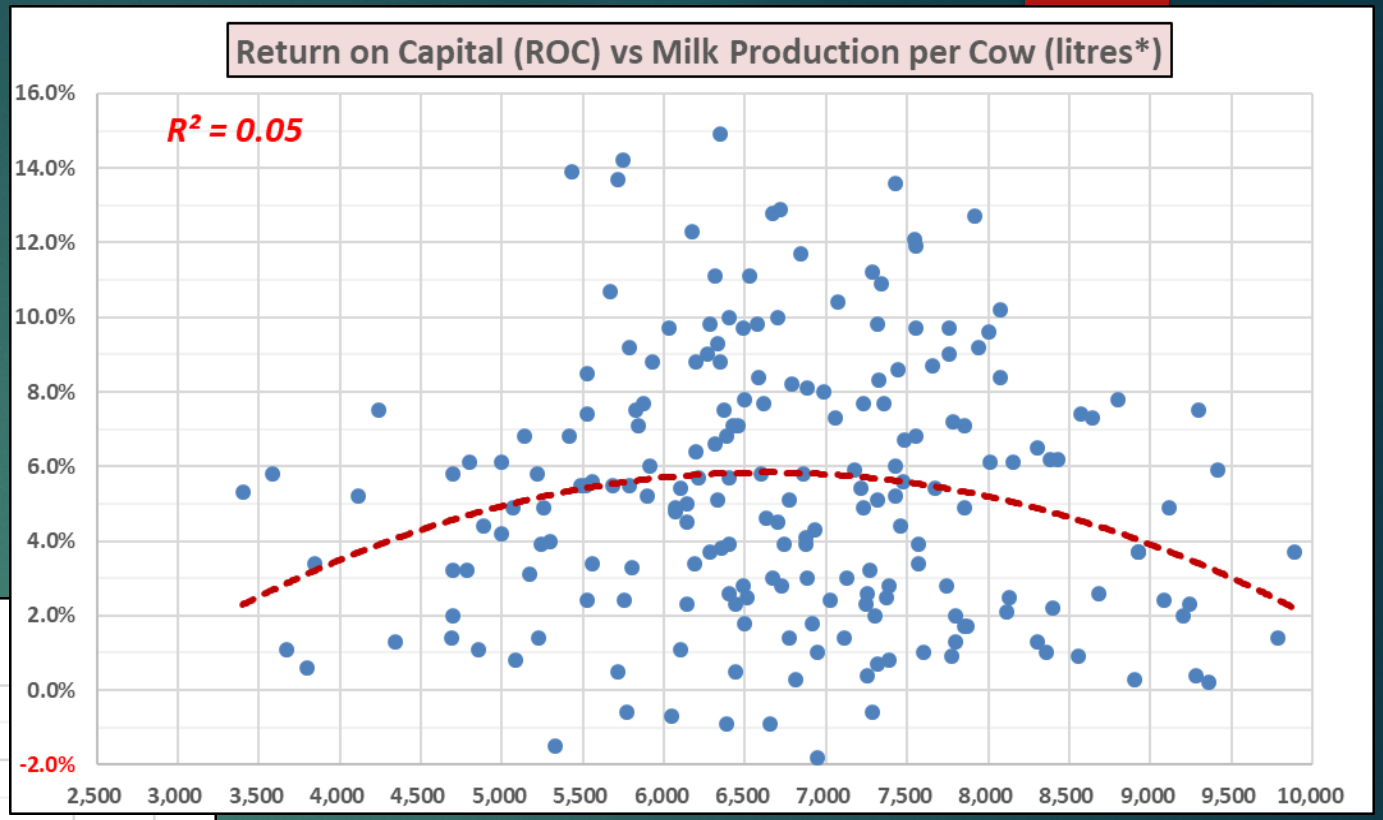


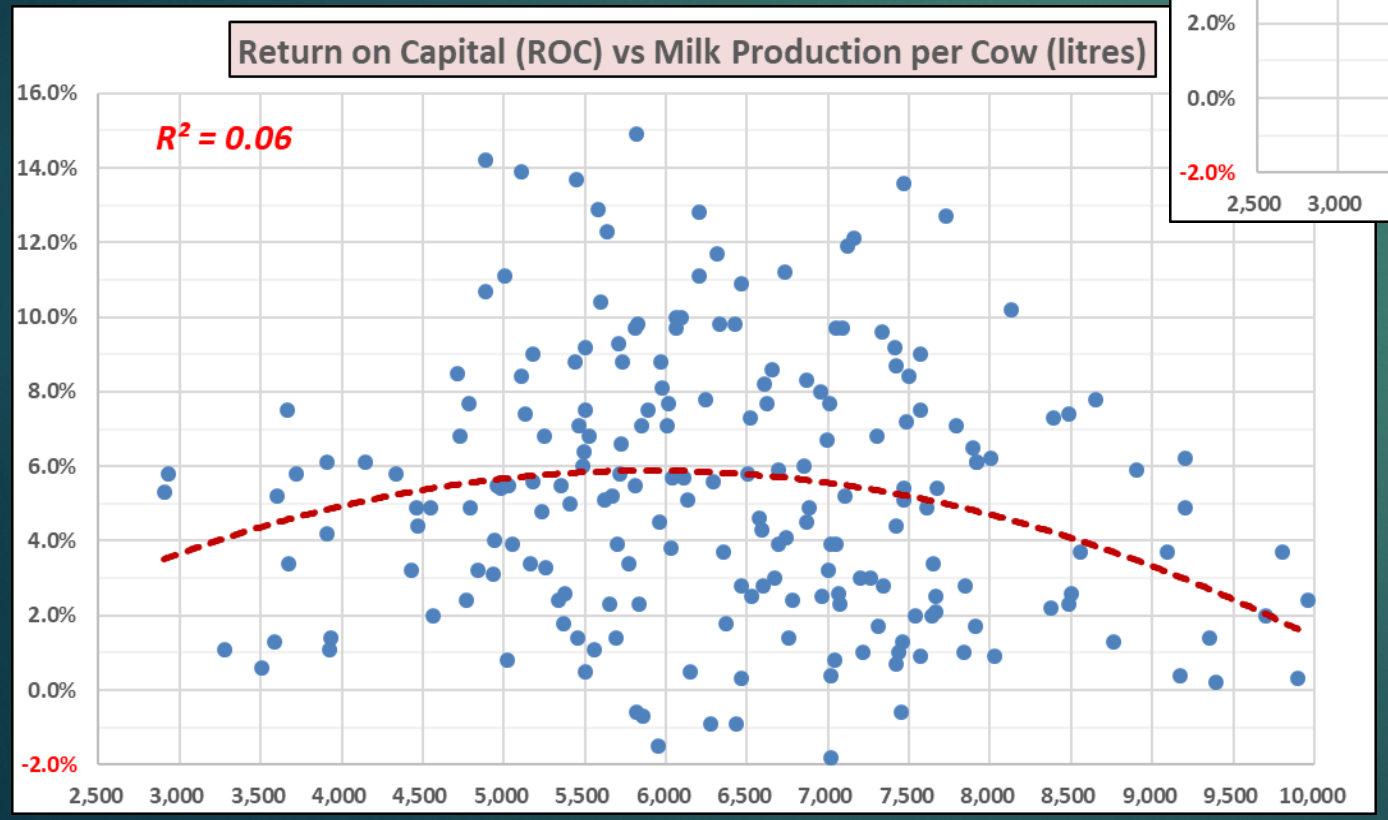


Core per Ha Costs per tDM = (Fert excl. nitrogen + Pasture Maintenance/Renewal + Cropping (greenfed) + 50% Repairs & Maintenance + 30% Vehicles + Administration + 70% Standing Charges + 50% Depreciation **) / Milking Hectares / tDM/ha Pasture Harvest**

Do NOT focus on…

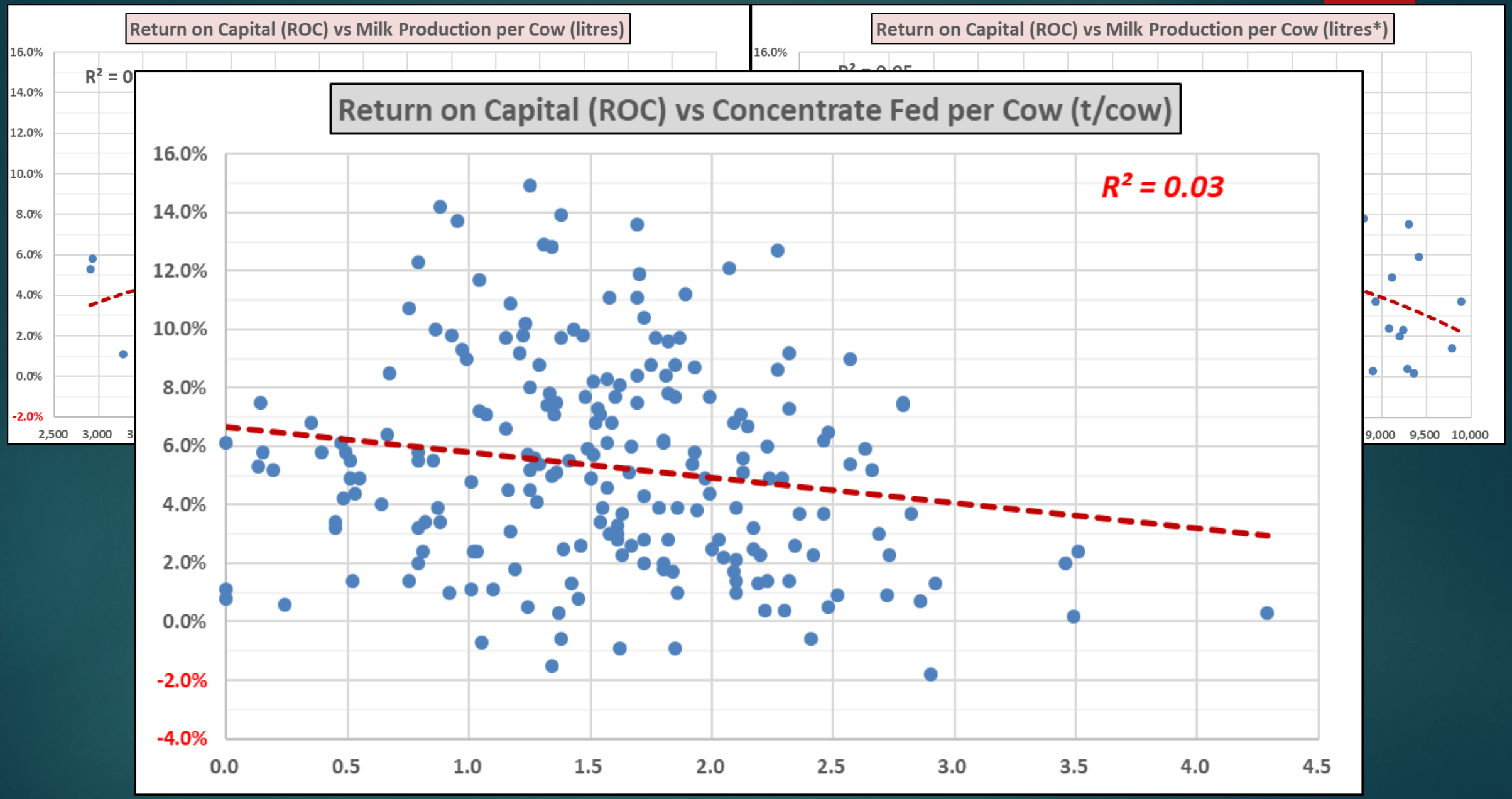
- Increasing milk production per cow


Return on Capital (ROC) vs Milk Production per Cow (litres*)
R² = 0.05
16.0%
14.0%
12.0%
10.0%
8.0%
6.0%
4.0%
2.0%
0.0%
-2.0%
2,500
3,000
3,500
4,000
4,500
5,000
5,500
6,000
6,500
7,000
7,500
8,000
8,500
9,000
9,500
10,000


Return on Capital (ROC) vs Milk Production per Cow (litres)
R² = 0.06
16.0%
14.0%
12.0%
10.0%
8.0%
6.0%
4.0%
2.0%
0.0%
-2.0%
2,500
3,000
3,500
4,000
4,500
5,000
5,500
6,000
6,500
7,000
7,500
8,000
8,500
9,000
9,500
10,000

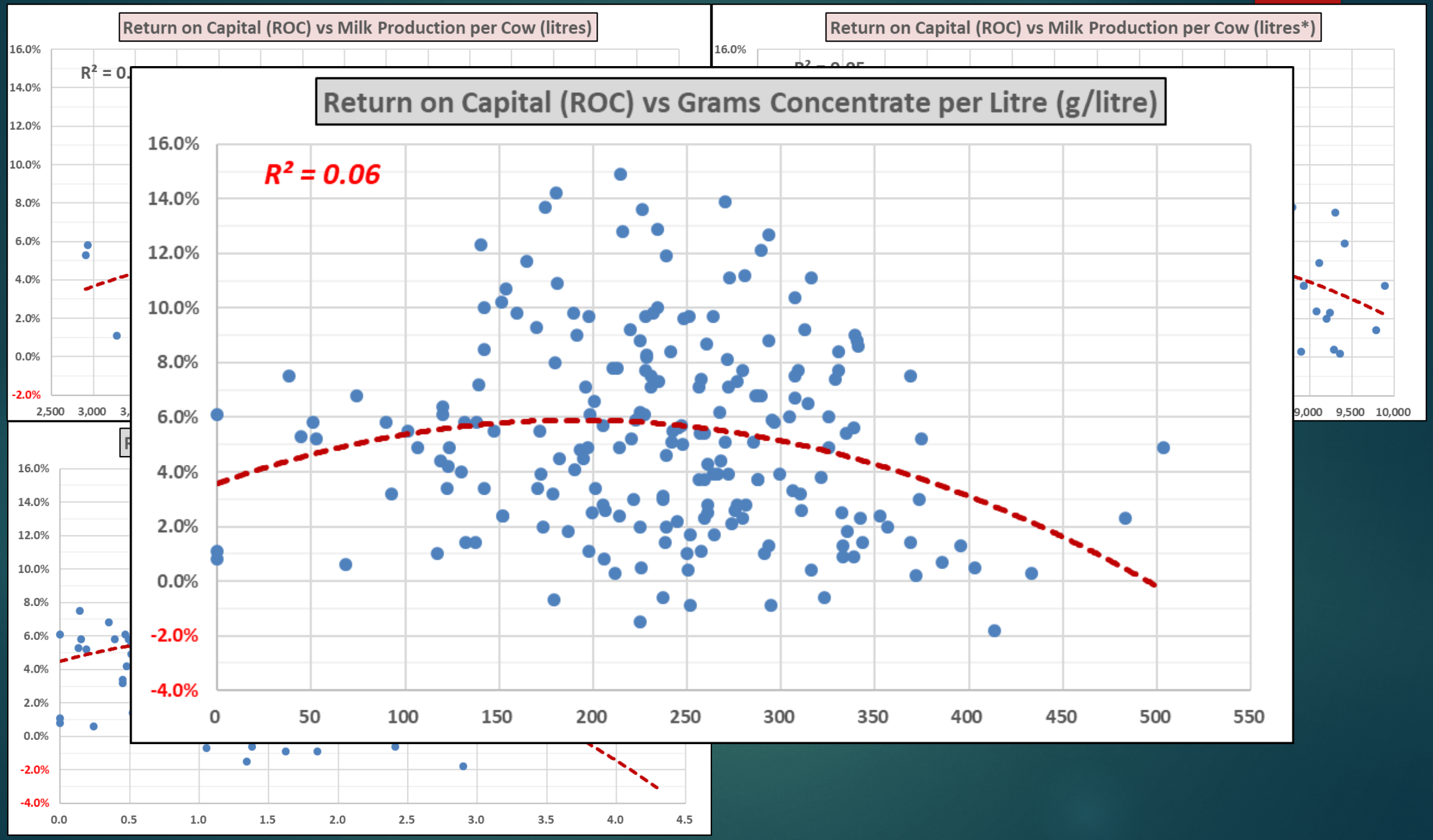
Do NOT focus on…

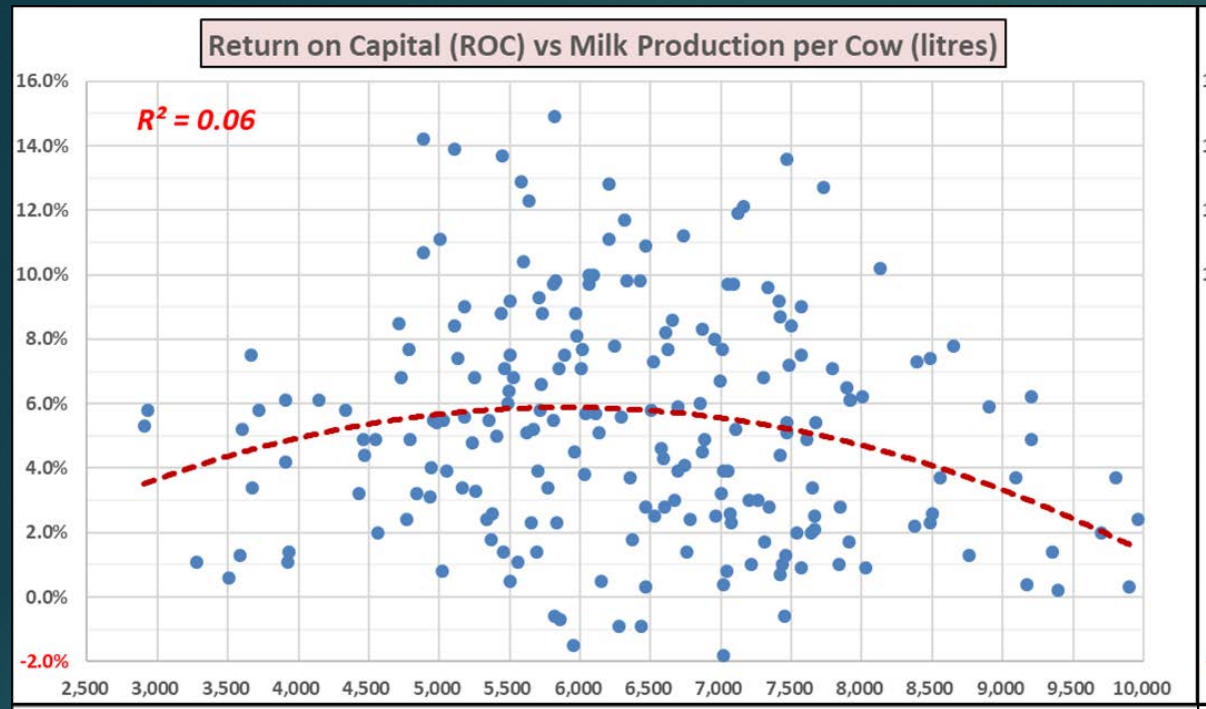
- Increasing milk production per cow
- Breeding larger cows that partition strongly to milk production (not liveweight / fertility) and require more concentrate

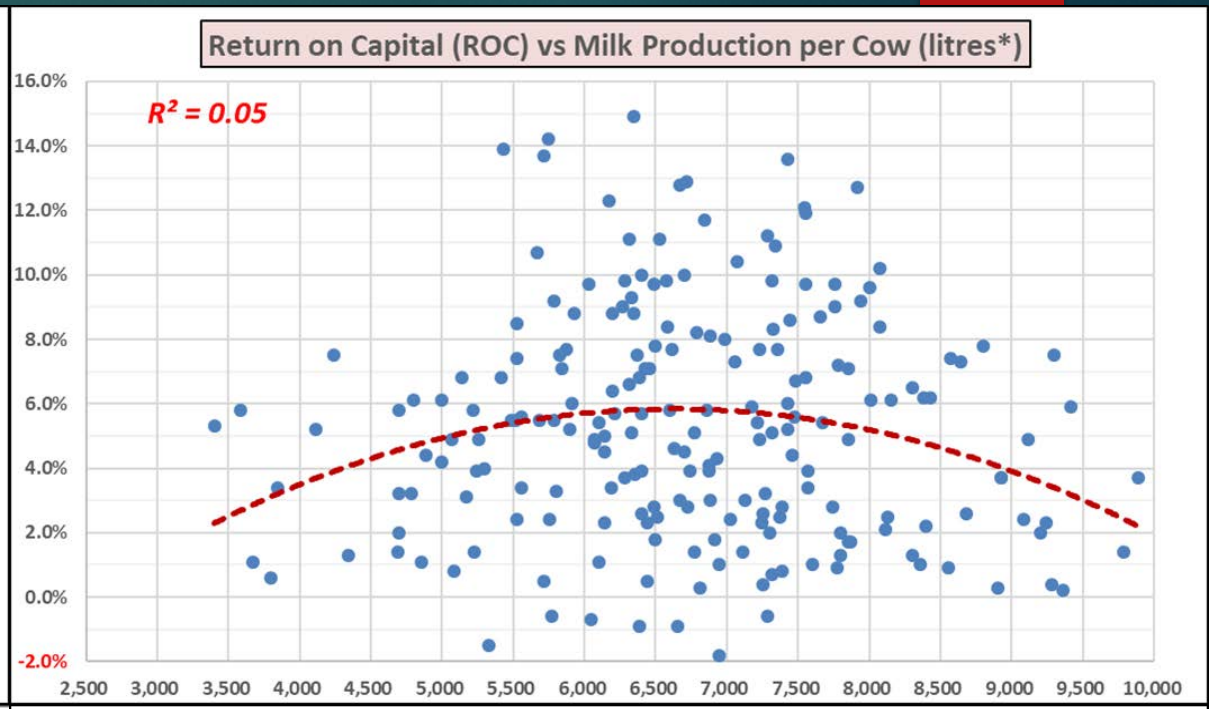

Return on Capital (ROC) vs Milk Production per Cow (litres)
Return on Capital (ROC) vs Milk Production per Cow (litres*)
Return on Capital (ROC) vs Concentrate Fed per Cow (t/cow)
R² = 0.03
16.0%
14.0%
12.0%
10.0%
8.0%
6.0%
4.0%
2.0%
0.0%
-2.0%
-4.0%
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
2,500
3,000
9,000
9,500
10,000

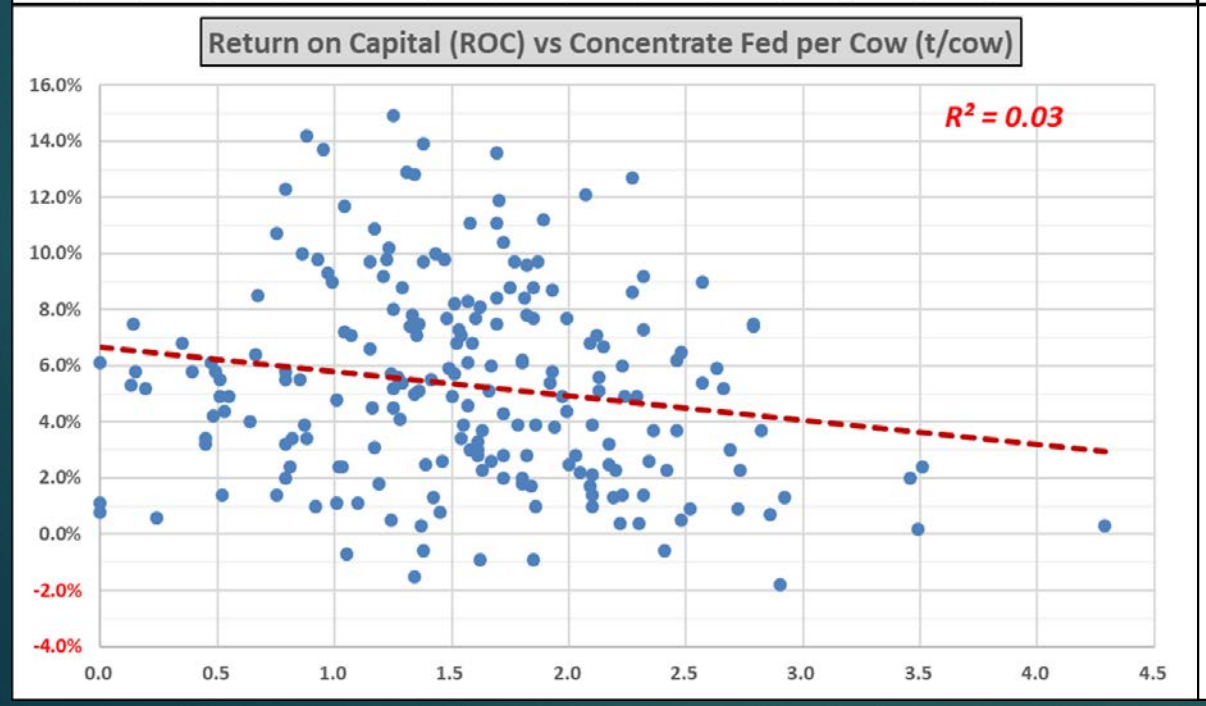
Do NOT focus on…

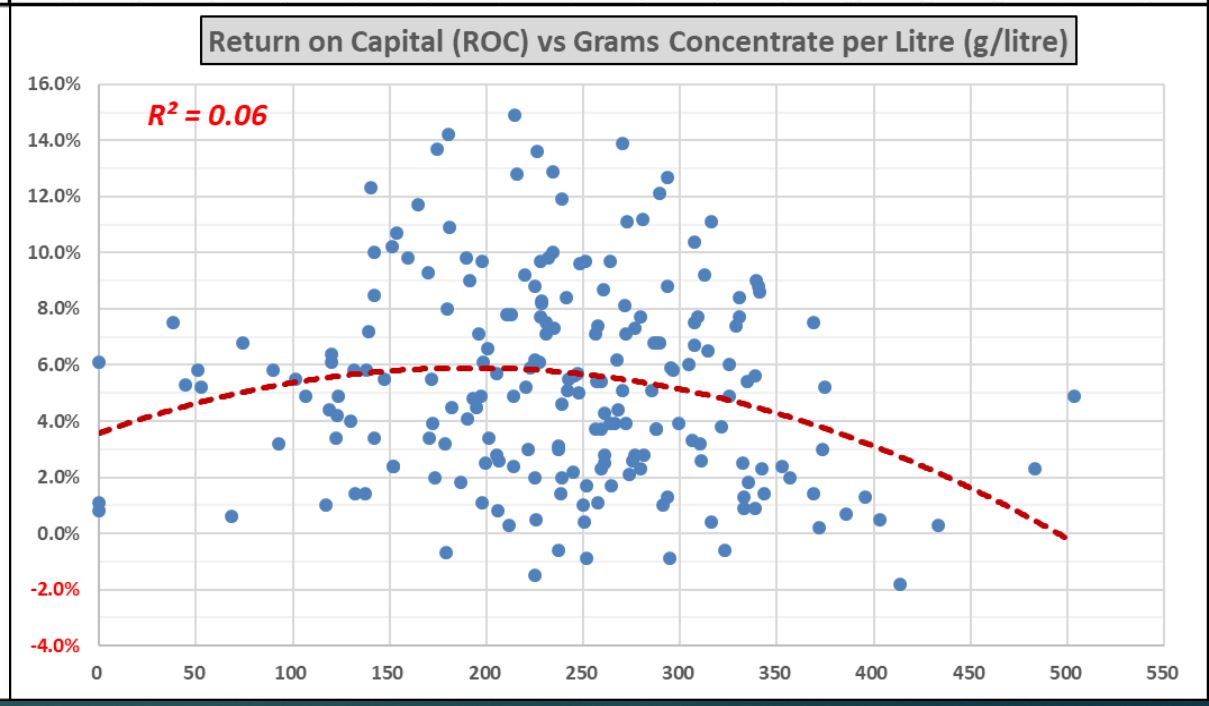
- Increasing milk production per cow
- Breeding larger cows that partition strongly to milk production (not liveweight / fertility) and require more concentrate
- Optimising grams concentrate fed per litre


Return on Capital (ROC) vs Milk Production per Cow (litres)
Return on Capital (ROC) vs Milk Production per Cow (litres*)
Return on Capital (ROC) vs Grams Concentrate per Litre (g/litre)
R² = 0.06
16.0%
14.0%
12.0%
10.0%
8.0%
6.0%
4.0%
2.0%
0.0%
-2.0%
-4.0%
0
50
100
150
200
250
300
350
400
450
500
550


Return on Capital (ROC) vs Milk Production per Cow (litres)
R² = 0.06
16.0%
14.0%
12.0%
10.0%
8.0%
6.0%
4.0%
2.0%
0.0%
-2.0%
2,500 3,000 3,500 4,000 4,500 5,000 5,500 6,000 6,500 7,000 7,500 8,000 8,500 9,000 9,500 10,000


Return on Capital (ROC) vs Milk Production per Cow (litres*)
R² = 0.05
16.0%
14.0%
12.0%
10.0%
8.0%
6.0%
4.0%
2.0%
0.0%
-2.0%
2,500 3,000 3,500 4,000 4,500 5,000 5,500 6,000 6,500 7,000 7,500 8,000 8,500 9,000 9,500 10,000


Return on Capital (ROC) vs Concentrate Fed per Cow (t/cow)
R² = 0.03
16.0%
14.0%
12.0%
10.0%
8.0%
6.0%
4.0%
2.0%
0.0%
-2.0%
-4.0%
0.0 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5


Return on Capital (ROC) vs Grams Concentrate per Litre (g/litre)
R² = 0.06
16.0%
14.0%
12.0%
10.0%
8.0%
6.0%
4.0%
2.0%
0.0%
-2.0%
-4.0%
0 50 100 150 200 250 300 350 400 450 500 550

Do NOT focus on…

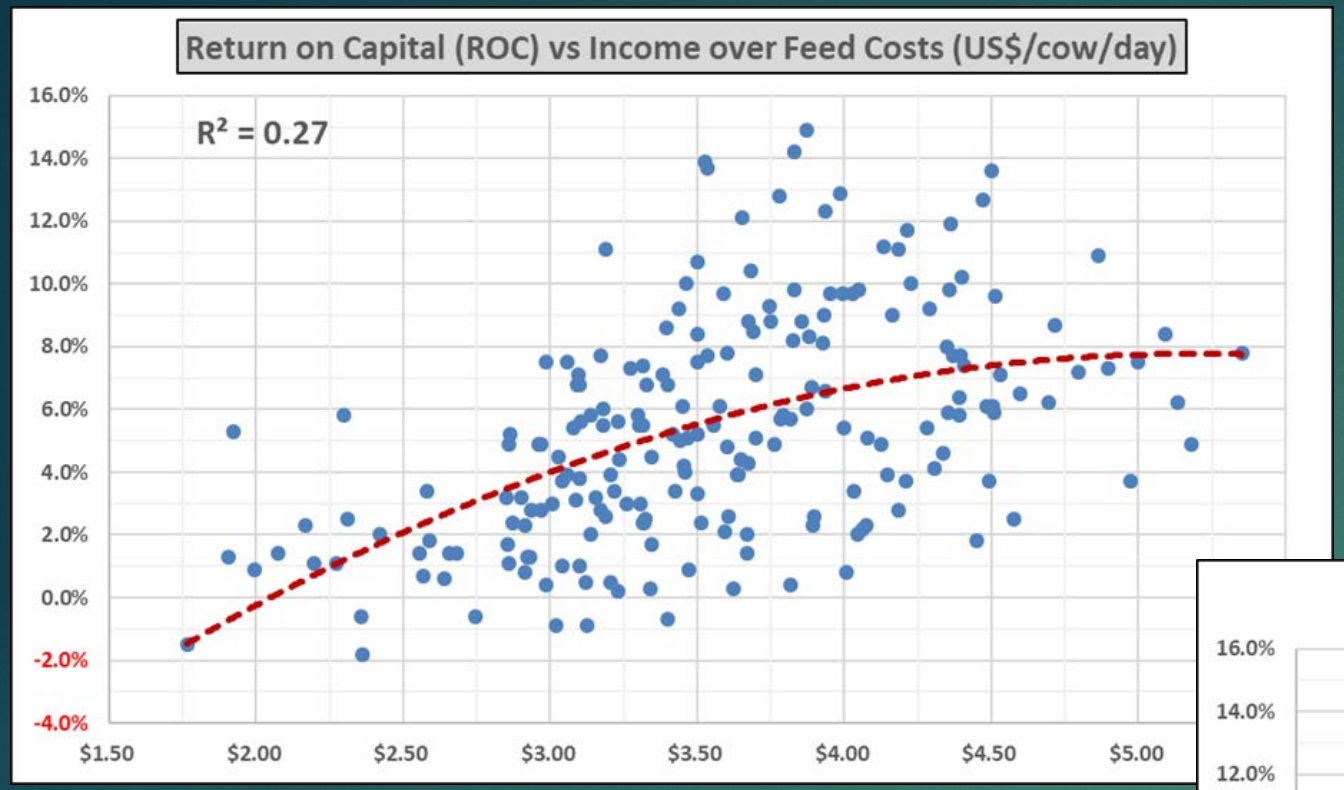
Increasing milk production per cow

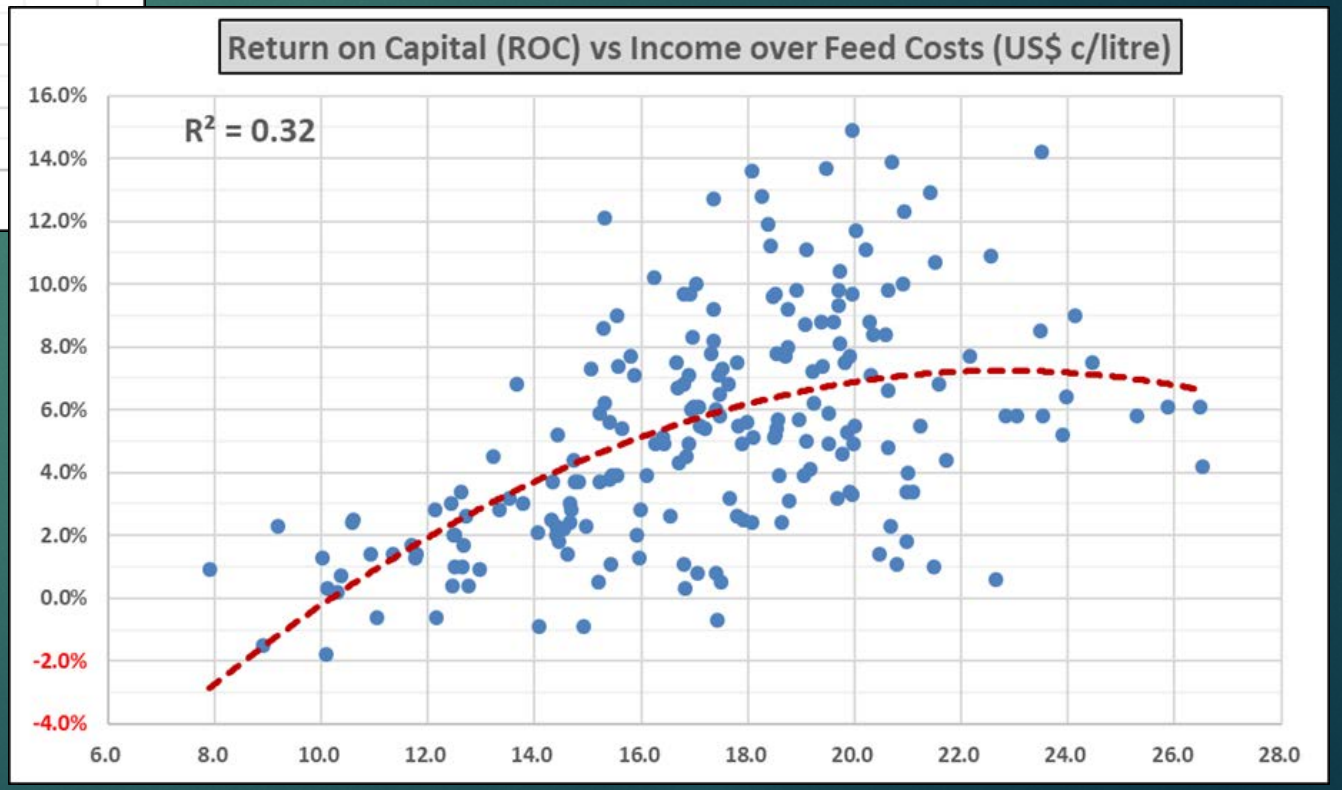
Breeding larger cows that partition strongly to milk production (not liveweight / fertility) and require more concentrate

Optimising grams concentrate fed per litre

And be careful how you utilise…

Income over feed costs given seasonal variations in pasture growth


Return on Capital (ROC) vs Income over Feed Costs (US$/cow/day)
R² = 0.27
16.0%
14.0%
12.0%
10.0%
8.0%
6.0%
4.0%
2.0%
0.0%
-2.0%
-4.0%
$1.50
$2.00
$2.50
$3.00
$3.50
$4.00
$4.50
$5.00


Return on Capital (ROC) vs Income over Feed Costs (US$ c/litre)
R² = 0.32
16.0%
14.0%
12.0%
10.0%
8.0%
6.0%
4.0%
2.0%
0.0%
-2.0%
-4.0%
6.0
8.0
10.0
12.0
14.0
16.0
18.0
20.0
22.0
24.0
26.0
28.0

What about non-PROFIT ratios…?

CASH ratios

Financing & lease costs per kg milk

Working capital surplus

Free cashflow

WEALTH (balance sheet) ratios

Equity percentage (or debt/equity ratio)

Change (growth) in equity

…and some non-comparative PROFIT ratios

Return on equity…with and without capital/asset appreciation

Summary

High pasture harvest critical aspect of profitability and derived from high comparative stocking rates and management excellence

Farm system design must be targeted at high profit margin and lowest cost of production for sustainable, internationally competitive business

Farm system design should be based around moderately sized cows that convert a large percentage of pasture in diet into moderate levels of milk production per cow and readily gets in calf

A suite of 15-20 essential ratios should be monitored if high profitability and long-term sustainability is the desired outcome

1ER SEMINARIO INTERNACIONAL

DISEÑANDO NEGOCIOS LECHEROS RENTABLES PARA LA PRÓXIMA DÉCADA

MUCHAS GRACIAS !

Semagro
Confianza y Seguridad para avanzar

pasteurizadora QUITO S.A.
Tradición lechera

InterGenetics
HACEMOS VACAS

zoetis

VeteLAB
Diagnóstico Veterinario

DeLaval

FLORALP

MONTANA

corporación maresa

AGRICOM
Pastures for Profit

KLINE IRRIGATION

Nestlé

fertisa

winavena

ZURICH

agrarPROJEKT
Laboratory Services & Consultancy