

Northland Pastoral Extension: Popular Summary

Split Calving



Summary of Key Findings

A trial was run at Massey University and a systems comparison undertaken at the Northland Research Farm. Farm survey information from Dexcel and Northland Dairy Company was also used as reference material.

Calving cows in autumn was shown in Massey trials and Northland Research Farm system comparisons to increase days in milk to 285+ days. A premium (\$0.80–\$0.90/kg MS) must be received to make autumn calving herds profitable. This premium is necessary because of reliance on supplements for autumn calving herds. Profitability of split calving hinges on the cost of supplements and the milk premium price.

Split calving may be the best way to overcome any mismatch between dairy cow feed demand and pasture growth, the main factor limiting increased milk production on farms regularly experiencing dry summers and autumns. In addition to increasing lactation length, split calving is also attractive because of:

- Industry signals – seasonal pricing, peak milk rights.
- Possible better use of land, capital and labour.
- Managing cow infertility with modern high breeding worth (BW) cows.

Important non-financial factors must be considered, such as managing two herds instead of one (implications – twice the number of decisions, an increase in work load, labour issues).

Given the diverse systems of farming, farmers need to 'do their own numbers' to look at their own system's profitability, making a decision based upon:

- 'What level of premium do I need to break even?'
- Consideration of the costs of supplements utilised.
- Non-financial implications – such as motivation and retention of staff.

Massey University Autumn vs Split Calving Trial

Higher cash surpluses occur for autumn and split (50:50) calving compared to spring calving, due to milk premium, sale of livestock (higher price for calves) *and* greater per cow production.

- More days in milk for autumn than split; split more than spring.
- Extra supplements/grazing off required for autumn and split calving herds.
- Breakeven of split with spring if premium = \$0.80/kg MS.
- Similar milksolids produced per ha for all systems, particularly in years with favourable winters and dry summers.
- Increasing lactation length per cow compensated for lower stocking rate and lower per cow per day production for the autumn herd.
- Farm expenses \$/kg MS (as a result of increased costs of feed, animal health, and labour) are Autumn > Split > Spring.

Trial Design 1996–1999

Soils moderately well drained, drought prone. 123.5 ha effective.

	Autumn	Spring	50% Autumn 50% Spring
Calving	March	August	March and July
Stocking rate (cows/ha)	2.0	2.4	2.2
Supplements fed (incl. grazing off) (kg DM/ha)	2420 Maize, grass silage	2120 Maize, grass silage	2310 Grass silage
Supplement %	22	24	25
Grazing off	None	Spring herd (Winter)	40% Winter
Production			
MS/ha	723	750	720
MS/cow	361	309	333
Days/cow	292	241	257
MS/cow/day	1.24	1.28	1.30
Financial			
Farm expenses per kg MS	\$2.92	\$2.60	\$2.89
Income/ha	\$3592	\$2726	\$3225
Farm expenses/ha	\$2114	\$1949	\$2087
Cash surplus	\$1478	\$778	\$1138

Northland Research Farm Autumn vs Spring Calving Comparison

A 3-year trial (1997 to 2000) undertaken at the Northland Research Farm, Dargaville, showed that the premium for May to July needed to be 90 cents/kg milksolids for autumn calving to be as profitable as spring calving.

Overall pasture utilisation was 10–15% lower for autumn calving than spring calving.

(Northland Research Farm, with clay soils and being a very wet winter farm, was a real test for the autumn calving system)

Animal Production

	Autumn 3-year average	Spring 3-year average
Cows	76	96
Stocking rate (cows/ha)	2.38	3.0
Milk production (kg MS)		
Total	27,661	29,942
Per cow	364	312
Per ha	864	936
Lactation days	285	257
Peak milk		
Kg MS/cow/day	1.55	1.72
Supplements (kg DM/cow)		
Maize silage	737	183
Grass silage	406	63
Hay	8	111
Meal	42	0
Squash	0	21
Total (tonnes DM/cow)	1.19	0.38
Nitrogen (kg N/ha)	129	167
Off-farm grazing (estimate) (kg DM/ha)	0	250

Autumn herd peaked lower than spring herd, but had more lactation days and slightly higher daily milksolids over the lactation.

Autumn system used no grazing, less nitrogen but more supplements (800 kg/cow extra) than spring calving.

- Overall pasture utilisation 10–15% lower in autumn than spring calving herds.
- Increased supplements, partially offset by reduced grazing off-farm, require associated feeding-out facilities.

Financial Results

Autumn herds required less capital in cows per hectare and required less peak processing capacity, so the autumn system produced a higher return on assets.

Dairy income	Autumn 3-year average	Spring 3-year average
Payout (\$/kg MS)	3.96	3.41
Winter premium (\$/ha)	496	–
Milk (\$/ha)	3443	3190
Net stock sales	348	270
Total income (\$/ha)	3791	3460
Dairy expenses		
Cow costs (\$/cow)	134	121
Feed costs (\$/cow)	296	184
Total expenses (\$/ha)	1808	1744
Cash surplus (\$/ha)	1983	1716
Adjustments (wages, depreciation)	659	619
Economic farm surplus (EFS)	1324	1097
Difference in EFS (\$/ha)	+227	
Expenses/Income (per ha)	48%	51%
Costs/kg MS (\$/ha)	2.10	1.87

Winter Milk Premium

Profitability of split calving *critically* depends upon:

- Differing levels of premium.
- Different costs of supplement.

Example	
When the premium from winter milking was \$1.25 per kg MS, the financial advantage of split calving was \$107 per ha; but, at a \$1.00 premium, the financial advantage of split calving fell to just \$32 per ha.	
Premium (\$/kg MS)	Advantage (\$/ha)
1.00	32
1.25	107
1.50	180

Example	
If average maize cost had been 25 cents (rather than the actual 17.8 cents) per kg DM, the advantage of autumn calving would have dropped from \$227 to \$100 per ha.	
Cents/kg DM (3 year average maize cost 17.8 cents/kg DM)	Advantage of Autumn calving (\$/ha)
10	364
15	276
17.8	227
20	188
21.4	164
25	100

Comparison of Northland Owner-operators for Split vs Spring Calving

Split calving farms offer higher profitability, but not every Northland farm has the correct characteristics for conversion to split calving.

During 1996–1998, 81 farms were monitored for split calving and 415 monitored for spring calving. Split calving farms were compared with spring calving farms.

Profitability

The economic farm surplus for split calving farms was found to be \$188/ha higher than spring calving farms.

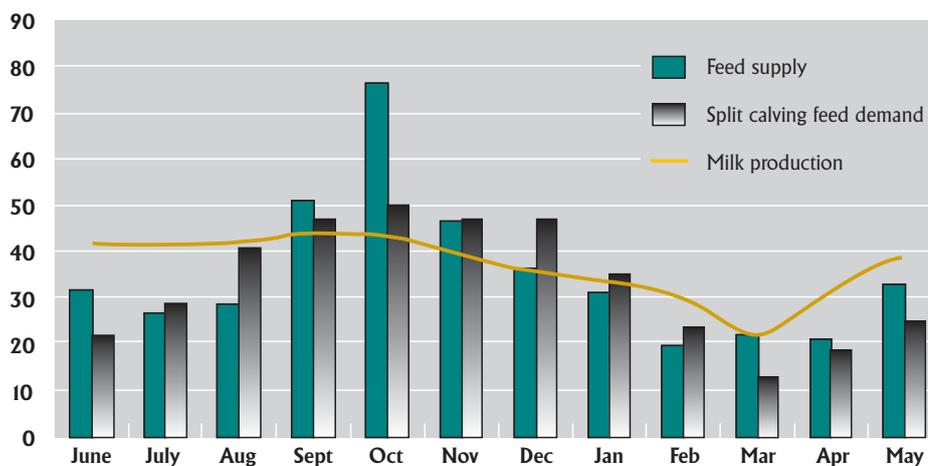
- \$90/ha advantage to split at same MS/ha at a premium of \$1.65/ kg MS.
- Stock sales \$348 autumn, \$270 spring.
- 68 kg MS/ha advantage to split.
- Days in milk advantage to split (310 vs 270).
- Shortfalls of split calving – higher animal health costs (breeding and lameness).

Attributes of Farms Suitable for Split Calving

For a farm to be suitable for split calving, it should have:

- High feed utilisation in winter, free-draining soil.
- Good races.
- Access to cheap supplements/off-farm grazing.
- Permanent feed pad and machinery.
- Good management.
- On/off grazing.
- Good management of mating.
- High winter pasture growth relative to summer growth.

kg DM/ha/day &
kg MS/cow



Economics of Winter Milking

All-winter milk farms were found to be more profitable, more productive but with higher inputs.

During 1998/99, the economics of 25 all-winter milk farms were compared with 308 spring calving farms. NZ-wide data showed that all-winter milk farms:

- Produce more per cow and per ha.
- Have 60% of their extra gross income from winter milk premiums (\$0.44/kg MS during survey period), the rest from extra production and extra stock income.
- Have higher costs – \$400/ha.
- Have higher Economic Farm Surpluses – \$159/ha.
- Rely more heavily on feed brought in from outside the milking area – an extra 658 kg DM/ha.



	Spring calving	Winter calving	Difference
Farm area	91	139	
kg MS/cow	285	337	+52
kg MS/ha	749	805	+56
Stocking rate (kg LWT/ha)	1180	1164	
Average payout (\$/kg milksolids)	\$3.50	\$3.94	\$0.44
Gross income per ha	\$2840	\$3398	+\$558
Farm working expenses per ha	\$1577	\$1976	+\$399
Economic Farm Surplus per ha	\$632	\$791	+\$159
Expenses as % of GI	56%	59%	
Feed costs (\$/ha)	\$269	\$322	\$53
Animal health (\$/cow)	\$44	\$48	
Wages (\$/cow)	\$67	\$119	
Nett stock income (cents/kg MS)	\$0.30	\$0.35	

Feed use	Spring	Winter
Pasture consumed (tonnes DM/ha)	9.8	9.276
Brought-in supplement	0.469	1.127

Feed use shows a small difference between the two systems – winter calving requiring 2.3% more.

Northland Dairy Company Performance of Split and Conventional Spring Calving Farms

Split calving farms were found to be larger and more productive but higher-spending than spring calving farms, with their profitability reliant upon winter premiums.

During the late 1990s, Northland Dairy Company compared performance for both split and conventional spring calving farms. Split calving figures were for first-year and second-year split calving farms.

Production

Split calving farms were found to be larger and produce more milk solids per cow and per ha than spring calving farms.

	Split calving (Average/annum)	Spring calving (Average/annum)
Milking area (ha)	119	90
Total cows	275	192
Stocking rate (/ha)	2.33	2.14
Milk solids/cow (kg)	251	238
Milk solids/ha (kg)	586	508

Outputs

More money was spent on feed, nitrogen, and off-farm grazing for split systems.

	Split calving (Average/annum)	Spring calving (Average/annum)
Nitrogen (kg/ha)	75	46
Meal (tonnes)	15	2.8
Hay (bale equiv.)	1190	1079
Grass silage (tonnes)	102	30
Maize silage (tonnes)	80	8
Greenfeed crop (ha)	1.1	0.2
Grazing off/100 cows (weeks)	4.5	1.5

Winter Premiums

To be viable, the extra costs incurred for split calving must be offset by a winter premium.

	Split calving (Average/annum)	Spring calving (Average/annum)
Feed, N and grazing (\$/cow)	137	84
Feed, N and grazing (\$/ha)	320	179
Extra income for Split calving	\$38,135	
Extra cost for Split calving	\$13,959	
Cash surplus benefit	\$24,176	

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A project coordinated by the Northland Pastoral Farming Development Group
The unabridged version of **Research Stocktake – Dairy** is available on the
Enterprise Northland website www.enterprisenorthland.co.nz