



TOTARANUI YEARLING HEIFER FIELD DAY- 10 Sept 2014

Analysis of Payback by Phil Tither AgFirst – Hastings

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There are costs of setting up a programme to mate yearling heifers but the benefits of the additional calf production significantly outweigh this in most cases. Some would say it is just a no brainer, get on with it, our approach is to say what do I need to do to ensure that this programme of yearling heifer mating is successful at a whole farm level.

For us the keys to success are:

- 1 Grow out the yearling heifers to target weight of minimum 60% mature cow size at joining.
- 2 Use low birth weight bulls.
- 3 Feed the in calf rising R2 heifer for medium live weight gain through pregnancy i.e. liveweight gain of around 0.4 to 0.5 kg / day.
- 4 Feed the first calving heifers well so that they get back in calf.

The costs associated with adopting yearling mating include purchasing some specialist bulls and feeding. To help us calculate the impact of allocating more feed to heifers we have established a Farmax model for Puke Te to test the scenario of their current management plan which includes heifer mating and contrast to this to a scenario of not mating until 2 year old. Puke Te has used Farmax for the past two years and so we have some useful actual data to help us validate our models.

We compared a model where yearling heifers are not mated to another where we join at 15 months. We will need to allocate more feed to both the R1 and R2 heifers to make this programme successful, of the yearling heifer mating. The ways to do this could include:

- 1 Reducing the overall cow herd.
- 2 Increasing the supplementary feeds.
- 3 Reducing competing trading stock.
- 4 Changing the rotation to have heifers in front of ewes on a 90 day rotation, with ewe lambs if we haven't killed them (as in the drought year).

Once the production parameters are established Farmax can be used to scale numbers so both options are just feasible and the economics of options compared.

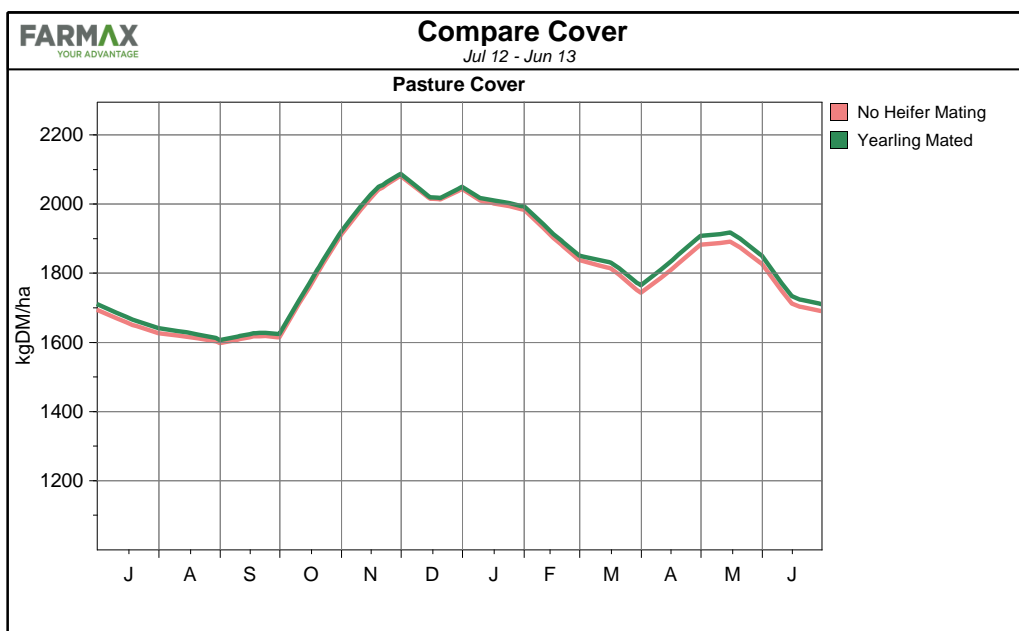
Reducing cow numbers.

In this example we go from 341 ma cows and 72 dry R2 heifers down to 285 ma cows plus 93 in calf heifers. However total calves bred increases from 314 to 348. On both cases the model assumes steers and surplus heifers are carried through to slaughter.

Results

The whole farm benefit of mating the heifers is over \$30,000. This is the equivalent of a 12% increase in the beef breeding and finishing enterprise and results in an increase in the gross margin per kg DM eaten from 9.1 cents for non mated up to 10.2 c / kg DM eaten.

FARMAX YOUR ADVANTAGE		Compare Gross Margin			
		Jul 12 - Jun 13			
		No Heifer Mating	Yearling Mated	Difference	
Revenue	Sheep	Sales - Purchases	1,136,468	1,136,468	0
		Wool	190,819	190,819	0
		Capital Value Change	-31	-31	0
		Total Sheep	1,327,256	1,327,256	0
	Beef	Sales - Purchases	496,676	525,929	29,253
		Capital Value Change	-108	-78	30
		Total Beef	496,568	525,851	29,283
Total Revenue		1,823,824	1,853,107	29,283	
Expenses	Crop & Feed	Conservation	27,450	27,450	0
		Forage Crops	70,800	70,800	0
		Regrassing	18,000	18,000	0
		Nitrogen	7,337	7,337	0
		Total Crop & Feed	123,587	123,587	0
	Stock Costs	Animal Health	47,281	46,974	-307
		Shearing	68,470	68,470	0
		Total Stock Costs	115,751	115,443	-307
Interest on Capital (livestock & feed)		242,145	241,013	-1,132	
Total Variable Expenses		481,483	480,043	-1,440	
Gross Margin		1,342,341	1,373,064	30,723	
Gross Margin per ha		895	915	20	



Breed & Finish Enterprise
Same Feed Demand

	Yearling Mated	First calf 3 yr old
MA Cows	285	341
R2 heifers IC	93	
Total in calf	378	341
R2 Dry		72
R1 Heifers	127	139
R1Steers	171	156
R2 Steers	134	112
Bulls	8	7
Total	818	827

Whole farm Stock Numbers for Heifer Mating Model

FARMAX <small>YOUR ADVANTAGE</small>		Numbers by Month Stock Class										
		<i>Jul 12 - Jun 13</i>										
	31 Jul	31 Aug	30 Sep	31 Oct	30 Nov	31 Dec	31 Jan	28 Feb	31 Mar	30 Apr	31 May	30 Jun
Ewe Lamb					2158	2147	2140	2132	2125	2118	2809	2793
Ewe Hogget	2350	1634	1615	1596	1580	1561	1542	1468	183	182	181	
Ewe	7443	7235	7190	7143	7000	5969	5721	6344	7571	7521	7471	7600
Ram Lamb					205	203	271	270	569	536	533	530
Ram Hogget	527	524	443	233	212							
Ram	197	196	211	209	204	236	231	226	221	215	207	202
Mixed Lamb					5708	4079	1978	360				
Total Sheep	10517	9589	9459	9181	17067	14195	11883	10800	10669	10572	11201	11125
Heifer Calf									175	175	157	127
1-Year Heifer	127	127	127	127	127	127	127	127	127	112	93	93
2-Year Heifer	93	91	91	91	91	91	91	91	91	91	91	
Cow	284	283	282	281	280	270	268	267	196	196	195	285
Bull Calf										100	200	200
1-Year Bull	200	200	200	200	200							
Bull	8	8	9	9	9	9	6	6	6	6	6	8
Steer Calf									472	471	470	469
1-Year Steer	468	467	466	465	464	167	167	166	166	154	154	134
2-Year Steer	134	133	108	88	53							
Total Beef	1314	1309	1283	1261	1224	664	659	657	1233	1305	1366	1316

More Supplements and keeping cow numbers the same

We then looked at the option of growing more fodder beet so that the extra feed can be grown and improve the likelihood of liveweight targets being achieved.

First step is to determine how much Fodder Beet would be required. We have summarized the intake data from farmax below.

Winter demand of R1 heifers				
	Mated	Dry	Difference	Monthly
April	6.2	5.9	0.3	9
May	6.0	5.7	0.3	9
Jun	5.7	5.2	0.5	15
Jul	6.5	5.5	1.0	31
Aug	7.4	5.9	1.5	47
Sep	7.3	5.8	1.5	47
Total	1199	1043		157
				15%

Winter demand of R2 heifers				
	Mated	Dry	Difference	Monthly
April	9.6	7.3	2.3	69
May	9.8	7.3	2.5	78
Jun	9.3	7.1	2.2	66
Jul	9.5	6.7	2.8	87
Aug	9.7	6.7	3.0	93
Sep	10.6	6.7	3.9	121
Total	1794	1282		513
				40%

	2993	2325		671	29%
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Fodder Beet required for :

Extra requirement of 100 R1 & 100 R2 heifers	3.0
or All requirement of 100 R1 heifers June to Aug	2.8


*Assumed net yield kg DM
/ ha*


22,000


The whole farm Farmax model on this shows a gross margin benefit of \$31,260 if we grow an extra 3 ha of fodder beet for our mated heifers compared to leaving the heifers dry.

So the \$2500 / ha growing cost was more than covered and overall we had a similar result to reducing cow numbers but maybe a specialist crop will give more assured results.

Target Liveweights for Mating 15 month heifers

 Live Weights for Beef heifer mate: Heifer Calves <i>PukeTe (Jul 12 - Jun 13)</i>			
Date	Start Live Wt. kg	Body Wt. Gain kg/d	End Live Wt. kg
Jul 12			
Aug 12			
Sep 12			
Oct 12			
Nov 12			
Dec 12			
Jan 13			
Feb 13			
Mar 13		0.4	230
Apr 13	230	0.5	245
May 13	245	0.4	249
Jun 13	249	0.3	270

 Live Weights for Beef heifer mate: 2-Year Heifers <i>PukeTe (Jul 12 - Jun 13)</i>			
Date	Start Live Wt. kg	Body Wt. Gain kg/d	End Live Wt. kg
Jul 12	477	0.1	493
Aug 12	493	0.2	456
Sep 12	456	0.3	465
Oct 12	465	0.4	477
Nov 12	477	0.5	493
Dec 12	493	0.2	500
Jan 13	500	0.1	504
Feb 13	504	0.1	508
Mar 13	508	0.1	514
Apr 13	514	0.1	519
May 13	519	0.0	524
Jun 13	524	0.0	0

 Live Weights for Beef heifer mate: 1-Year Heifers <i>PukeTe (Jul 12 - Jun 13)</i>			
Date	Start Live Wt. kg	Body Wt. Gain kg/d	End Live Wt. kg
Jul 12	270	0.4	283
Aug 12	283	0.6	301
Sep 12	301	0.8	325
Oct 12	325	0.9	360
Nov 12	360	0.9	389
Dec 12	389	0.3	399
Jan 13	399	0.3	410
Feb 13	410	0.3	421
Mar 13	421	0.3	435
Apr 13	435	0.4	450
May 13	450	0.3	466
Jun 13	466	0.1	477

The costs allowed for in model

- Increased winter feed demand per head
 - R1 heifers 15 %
 - R2 heifers 40%
- 1 specialist low birthweight bull purchased per year @ \$3,000

Simple Sell Weaners Model

In order to get a comparison to finishing stock margins we have compared a more simple enterprise where all surplus weaners are sold store and cow numbers kept the same.

A summary of the Farmax results below.

Enterprise Comparison of 350 Cows selling Weaners

	Dry	Mated	Difference	
Gross Margin	\$ 162,640	\$ 225,724	\$ 63,084	39%
Intake	2,002,190	2,367,217	365,027	18%
c/ kg DM eaten			17.3	

A margin of 17.3 c / kg for the marginal extra Dry matter eaten is a useful return and will be competitive with many finishing enterprises.

The feasibility and the costs of supplements will vary for each farm. In general it is more cost effective to reduce breeding cow numbers than it is to reduce trading stock but each farm scenario can be modelled using Farmax.

Conclusions

- **For most of you it will pay**
- **Set a strategy to achieve target weights**
- **Buy the right bulls**

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