

# RUNOFFS: CONTROL BUT AT WHAT COST?

Jonathan Davis  
LIVING LAND CONSULTANTS, CHRISTCHURCH

## Introduction

Runoffs are becoming more common in Canterbury as dairy farmers aim to control their winter grazing, supply of supplements and young stock grazing. Farmers tend to remember the year when grazing cost over \$20 per head per week to winter the cows and even then the cows were not always well fed.

There is a cost to owning these runoffs that many farmers do not consider when they look at purchasing that ideal runoff. This paper shows the cost of runoffs and looks at ways of minimising that cost.

## Base information

The model farm used to show the return on capital and cost of owning a runoff is based on:

- 100ha property
- 96ha effective
- Fully irrigated
- 450kg cows fed to put on 0.5CS over winter
- 81% feed utilisation during winter and 85% during summer
- 11MJME/kgDM grass
- Grass growth of 16,500 kgDM/ha/yr
- Cow grazing cost is the 5 year average
- Silage at 12c/kgDM is the standing price of the grass.

The data used in the analysis comparing an all grass system with triticale and rape comes from clients in Canterbury. All the data is based off silage weights (all trucks weighed and drymatter tested) and pre and post grazing cuts. The figures used are based on 3 years' average data.

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Notes:

## The Cost of owning a 100ha runoff

### Runoff with Young Stock Grazed on

Income	Number	Days	\$/week		Total
Winter cow grazing	900	61	\$16.60		\$130,191
Calf Grazing	220	135	\$4.50		\$19,093
Heifer grazing	220	365	\$6.70		\$76,859
In-Calf Heifer grazing	220	31	\$11.65		\$11,350
Silage Sales	95,808	kgDM x	\$0.12	/kgDM	\$11,497
		Total Income			\$248,990
<b>EXPENSES</b>					
Wages - ½ a worker			\$15,000		
Silage for Winter	572,520	@ 6c/kgDM =	\$34,351		
Weed & Pest			\$1,320		
Regrassing			\$4,500		
Electricity			\$1,200		
Irrigation			\$25,000		
R&M			\$5,000		
Vehicle			\$7,500		
Admin			\$1,200		
Rates			\$3,500		
Insurance			\$3,000		
Depreciation Irrigation and Vehicles			\$25,000		
Fert			\$35,000		
Crop Expenses			\$0		
		Total Expenses			\$161,571
<b>SURPLUS AVAILABLE FOR DEBT SERVICING</b>					<b>\$87,419</b>
<b>DRYMATTER TOTALS</b>					
	Stock	Days	kgDM/hd/day		
Winter cow grazing	900	61	12		658,800
Calf Grazing	220	135	4		118,800
Heifer grazing	220	365	8		642,400
In-Calf Heifer grazing	220	31	10		68,200
Silage Sales					95,808
Total DM					1,584,008
Total Growth 16,500kgDM/ha/yr					

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Notes:

Drymatter for Winter				
DM required				
Cows	900	61	12	658,800
Heifers	220	45	10	99,000
Calves	220	120	6	158,400
			Total	916,200
Grass Available				
Standing	96	ha x	2,500	kgDM/ha = 240,000
Growth	96	ha x 90 days	12	kgDM/ha/day = 103,680
			Total grass	343,680
Silage required for winter				572,520

**Table 1:** Return on capital for a runoff grazing heifers

		kg DM/ha/yr			
		12,500	14,500	16,500	17,500
	<b>\$15,000</b>	3.3%	4.5%	5.8%	6.5%
Land Price	<b>\$17,000</b>	2.9%	4.0%	5.1%	5.7%
per ha	<b>\$19,000</b>	2.6%	3.6%	4.6%	5.1%
	<b>\$21,000</b>	2.3%	3.2%	4.2%	4.6%
	<b>\$23,000</b>	2.1%	3.0%	3.8%	4.2%
	<b>\$24,000</b>	2.0%	2.8%	3.6%	4.0%

As you can see the return on capital is from 2.0% - 6.5% depending on the amount of grass grown and the purchase price of the land. An average return on most runoffs is 3.5 – 4%.

Assuming you are borrowing the money at 7 – 8% the dairy farm is having to support the runoff. Based on the data above the dairy farm is having to generate an extra \$60,000 to \$80,000 to support the runoff. Note that this is above what the dairy farm would have to pay to purchase the grazing and supplement on the open market.

One way to reduce the cost to the dairy farm is make more money off the runoff. This can be done by grazing heifers off and selling more silage. This is shown in the next section.

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**Notes:**

**Runoff with no heifers grazed on**

<b>Income</b>	<b>Number</b>	<b>Days</b>	<b>\$/week</b>	<b>Total</b>
Winter cow grazing	900	61	\$16.60	\$130,191
Calf Grazing	220	135	\$4.50	\$19,093
Heifer grazing	0	365	\$6.70	\$0
In-Calf Heifer grazing	0	31	\$10.00	\$0
Silage Sales	806,380	kgDM x	\$0.12 /kgDM	\$96,766
<b>Total Income</b>				<b>\$246,050</b>
<b>EXPENSES</b>				
Wages - 1/2 a worker			\$15,000	
Silage for Winter	278,800	@ 6c/kgDM =	\$16,728	
Weed & Pest			\$1,320	
Regrassing			\$4,500	
Electricity			\$1,200	
Irrigation			\$25,000	
R&M			\$5,000	
Vehicle			\$7,500	
Admin			\$1,200	
Rates			\$3,500	
Insurance			\$3,000	
Depreciation Irrigation and Vehicles			\$25,000	
Fert			\$43,000	
Crop Expenses			\$0	
<b>Total Expenses</b>				<b>\$151,948</b>
<b>SURPLUS AVAILABLE FOR DEBT SERVICING</b>				<b>\$94,102</b>
<b>DRYMATTER TOTALS</b>				
	<b>Stock</b>	<b>Days</b>	<b>kgDM/hd/day</b>	
Winter cow grazing	900	61	12	658,800
Calf Grazing	220	135	4	118,800
Heifer grazing	0	365	8.5	0
In-Calf Heifer grazing	0	31	10	0
Silage Sales				806,380
<b>Total DM</b>				<b>1,583,980</b>
<b>Total Growth 16,500kgDM/ha/yr</b>				

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**Notes:**

Drymatter for Winter				
DM required				
Cows	900	61	12	658,800
Heifers	0	45	10	0
Calves	0	120	6	0
			Total	658,800
Grass Available				
Standing	100	ha x	3,800	kgDM/ha = 380,000
		Total grass		380,000
Silage required for winter				278,800

**Table 2:** Return on capital for a runoff with no heifers grazed on

		kg DM/ha/yr			
		12,500	14,500	16,500	17,500
	<b>\$15,000</b>	3.7%	5.0%	6.3%	6.9%
Land Price	<b>\$17,000</b>	3.3%	4.4%	5.5%	6.1%
per ha	<b>\$19,000</b>	2.9%	3.9%	5.0%	5.5%
	<b>\$21,000</b>	2.7%	3.6%	4.5%	4.9%
	<b>\$23,000</b>	2.4%	3.3%	4.1%	4.5%
	<b>\$24,000</b>	2.3%	3.1%	3.9%	4.3%

In this option the dairy farm would need to find \$53,000 - \$73,000 to support the runoff.

Grazing the heifers on or off is dependant on the location of the runoff. If the grass cannot be sold at a reasonable price as silage, due to the distance to the market, then heifer grazing will become more viable.

The key reason that the average runoff makes more money with the heifers off is that less silage needs to be made to winter the cows. This is because fewer animals are wintered i.e. no calves, and you can go into winter with more feed on hand since the farm is destocked in the autumn. There are also some other advantages with the silage option in regard to reduced work load with the heifers and less supplement to feed out over the winter.

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**Notes:**

In the next section we examine the option of crops as a way to reduce the cost of runoffs.

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**Notes:**

## Cropping Options

A number of farmers have got into cropping as a way of increasing the returns – but is this successful? The figures below compare the marginal return between an all grass system and a cropping system. The only costs shown are costs that differ between the two options.

OPTION 1 ALL GRASS SYSTEM							
Grow							
80	ha of grass x		17,000	kgDM/ha =	1,360,000		
16	ha of new grass x		14,500	kgDM/ha =	232,000		
			Total =		1,592,000	kgDM	
Value							
Winter Grass	96	ha x	3,600	kgDM/ha x	\$0.19	=	\$65,664
Winter Silage			384,000	kgDM x	\$0.13	=	\$49,920
Dairy Unit Silage	862,400	kgDM x	\$0.12	/kgDM			\$103,488
			Total Income				\$219,072
Costs							
16	ha of new grass x		\$430	/ha =	\$6,880		
0	ha of triticale x		\$0	/ha =	\$0		
0	ha of rape x		\$0	/ha =	\$0		
							\$6,880
			Margin				\$212,192
OPTION 2 TRITICALE, RAPE AND GRASS							
Grow							
48	ha of grass x		17,000	kgDM/ha =	816,000		
24	ha of triticale x		16,000	kgDM/ha =	384,000		
24	ha of rape x		5,800	kgDM/ha =	139,200		
24	ha new grass x		14,500	kgDM/ha =	348,000		
			Total =		1,687,200	kgDM	
Value							
Winter Grass	72	ha x	3,600	kgDM/ha x	\$0.19	=	\$49,248
Winter Crop	24	ha x	5,800	kgDM/ha x	\$0.19	=	\$26,448
Winter Silage			384,000	kgDM	\$0.13	=	\$49,920
Dairy Unit Silage	904800	kgDM x	\$0.12	/kgDM =			\$108,576
			Total Income				\$234,192

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Costs					
24	ha of triticale	\$390	/ha	\$9,360	
24	ha of new grass	\$430	/ha =	\$10,320	
24	ha of rape x	\$230	/ha =	\$5,520	
	Extra fert at 2.5c/kgDM =			\$2,380	\$27,580
			Margin		\$206,612
					-3%

The crop rotation is spring sown triticale followed by rape sown in February. This area goes back into grass in September.

So why are the crops not making as much money as we think?

Firstly, there is a certain length of time where there is nothing green harvesting the sunlight.

Secondly, the increase in yield of the crop is offset to some extent by the drop in yield in grass. The triticale/ rape option is effectively out for 14 months. This takes two months of growing off the grass. My analysis has shown that kale then triticale is giving a similar return to the triticale rape rotation.

Finally, the crop yield is based on three years data – so includes one bad crop. The spring sown triticale has been up to 17,000 kgDM/ha – but this is not the average.

Cropping is an excellent option when you have to regrass a poor paddock full of weed grasses. This gives you three shots at getting rid of the weed grasses before sowing out. But cropping as a policy will not return to the dairy farmer the same benefit as ryegrass.

Perennial ryegrass is also the recommended grass. Annual ryegrasses are more winter active but they cannot carry as much feed into winter as perennial ryegrass. What dairy farmers need is feed on hand at 1 June — not good growth over winter.

Annuals also produce less drymatter over the summer period than perennials. The fact that annuals produce 20% more over winter than perennials is more than offset by the lower summer growth. Remember 20% of nothing is still nothing!

Annuals are less hardy than perennials and therefore cannot handle the winter treading damage. This reduces the spring yield as the plant recovers.

Does a runoff pay for itself in the drought year?

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A drought occurs in Canterbury, on average, in 1 in 5 years. A drought has the effect of increasing grazing price due to increased competition for the irrigated feed. This competition is not only from cows but also lambs.

The cost of the 100 ha runoff is \$70,000/yr – so over five years costs \$350,000. The runoff therefore needs to generate an extra \$350,000 in the drought years to pay for itself.

Assuming a \$4.00/kgMS payout, the 900 cows would have to produce 97 kgMS more per cow on the dairy farm with the runoff. How likely is this to happen? A conversion farm I was involved with did 367 kgMS/cow in 2001/02 season. There was a drought in the autumn of 2001. That winter and spring, cows were feed straw and urea, calved on farm then sent off to other dairy farms until October when there was grass on the dairy farm. The following season production went up to 402 kgMS/cow. The cost of the drought was 35 kgMS/cow to this farmer.

## Summary

- The cost of runoffs to a dairy farm is dependant on the purchase price of the land and the quantity of feed grown.
- You cannot afford to have the runoff yielding 12,000 kgDM/ha/yr. Runoffs require the same management inputs as dairy farms to ensure the cost of the runoff is minimised.
- Runoffs have had huge capital gains in recent years as have dairy farms – but there is an annual cash input required to pay for the runoff.
- Depending on location most of the time runoffs will loose less money by grazing off young stock and selling silage to the dairy farm or other farms. The work load is also reduced.
- Cropping does not decrease the cost of the runoff. Cropping does fit in with regrassing but it does increase the risks. With increased costs, yields need to be consistently extremely high.
- The annual cost of owning a 100 ha runoff is \$60,000 - \$80,000 above the value of the grazing and feed.
- With a drought occurring in 1 year in five in Canterbury, there is likely to be a milk production loss in that year if you do not own a runoff. Even then the production loss is not likely to be great enough to compensate for the cost of owning the runoff for the previous four seasons.

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