



The table shows that even at a \$3.50 payout, LUDF will not meet its target ROC and at a \$3.00 payout it would not generate enough funds to pay a normal level of interest costs. The farm will need to make changes to at least meet its ROC target at a \$3.50 payout.

**Typical farmer responses to this situation;**

**Option 1:** Doing the same!

**Option 2:** Holding production while cutting costs.

**Option 3:** Increasing production through better management while holding or reducing costs.

**Option 4:** Increasing production at a greater rate than any increase in costs associated with generating this extra production.

**Option 5:** Changing the farming system

The LUDF management team has chosen **Option 3** ie to improve management and subsequent productivity. This strategy allows the spread of fixed and variable costs over a greater number of kgs of Milk Solids. To achieve this requires good understanding of two major fundamentals.

- 1) Where our major opportunities in cost saving are, and
- 2) What the major production strengths of our farm are.

**1) Opportunities for cost saving**

**Table 2: Analysis of costs LUDF for 2003/04 season.**

Expense	% of total FWE	Your farm
Labour & Management	31%	
Purchased feed	25	
Fertilizer (incl N)	11	
Animal Health	7	
Irrigation Costs	7	
Repairs & Maintenance	6	
Over heads	5	
Herd Improvement	3	
Shed Expenses	3	
Regrassing	1.5	
Other	1.5	
<b>TOTAL</b>	<b>100%</b>	

Table 2 shows that while cost saving can potentially be made in a range of areas, there are two dominant costs that cannot be ignored.

Labour and management costs increased significantly this year (16%). The costs associated with recruiting new staff for the coming season are significant, and although we prefer to think of these as a “one-off” they need to be factored into future budgets. Additional casual staff hours and other associated employment costs (holiday pays, training, house rentals etc) are now fully budgeted.

Labour and management costs represent a limited opportunity for cost saving for this farm. Other cost savings are possible in further automation of the milking process. The emphasis in this area needs to be on improved staff organisation resulting in improved time management. LUDF will do some time and motion studies on some key work areas such as milking and shifting irrigators.

“Purchased feed” as identified above includes bought-in supplements, winter grazing and replacements grazing. The production plan identifies that a set amount of supplement is required to support the proposed stocking rate (4.0 cows/ha or 2000 kgLW/ha or the Comparative Stocking Rate of 86).

LUDF obtains its “brought in” feed from two sources – its own 18ha support block adjacent to the farm, or from neighbouring cropping farms. All purchased feed is fully analysed, and prices are at competitive market rates. The biggest opportunity for LUDF arises from reducing the amount of purchased feed by focusing on growing more feed on the milking platform and/or the associated 18ha runoff.

There is little opportunity to reduce fertilizer costs as these inputs are already determined by a detailed nutrient budget and cut in this would result in mining the property of fertility.

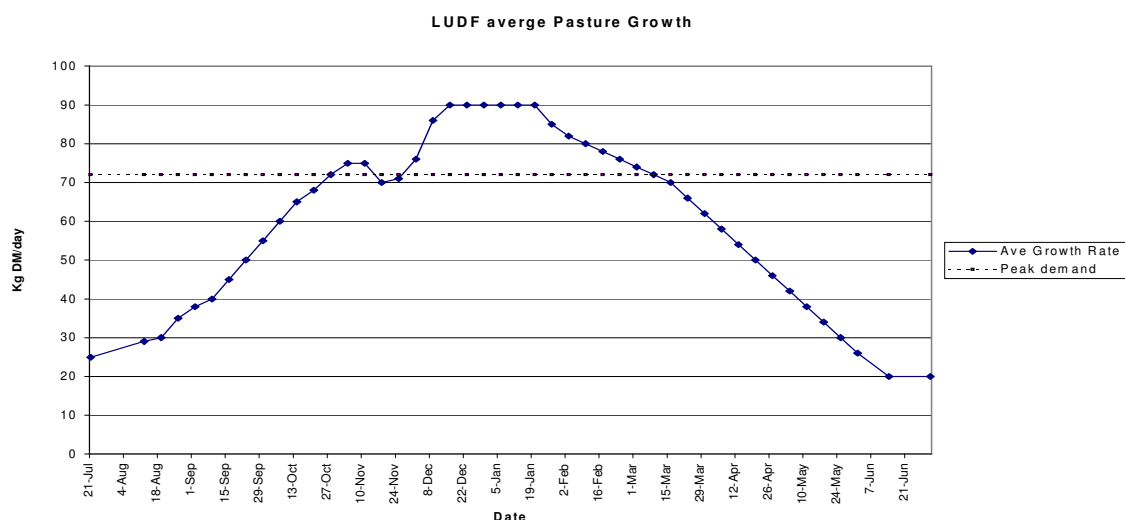
## 2) Farm strengths

### a) Planning, monitoring and analysis

LUDF has developed extensive Financial, Staff, Feed, Environmental and Animal Management Plans. These plans include specific objectives for each new season, and in order to meet these and the key parts of the operational plans records and data are collected weekly on many elements of the farms operation. The data has proved to be an invaluable tool in analysing and solving problems on farm because it has been detailed enough to show cause and effect. The results of these analysis are then used by the farm staff and management team to improved the farms management systems.

### b) Ability to grow pasture

i) Changes in pasture cover have been measured with a Rising Plate Meter on the weekly farm walk for nearly three years. The growth rate data has been compiled into the following graph and this forms the basis for developing the production system used on the farm.



### Fig 1.

Figure 1 highlights the farm's dominant underlying strength. This farm has the ability to grow grass, not just through the winter but it also shows very strong growth through the summer. The peak demand line has been drawn across the graph at a level indicating a stocking rate for the farm where cows can be fed on all grass for a period of about 5 months.

### Fig 2

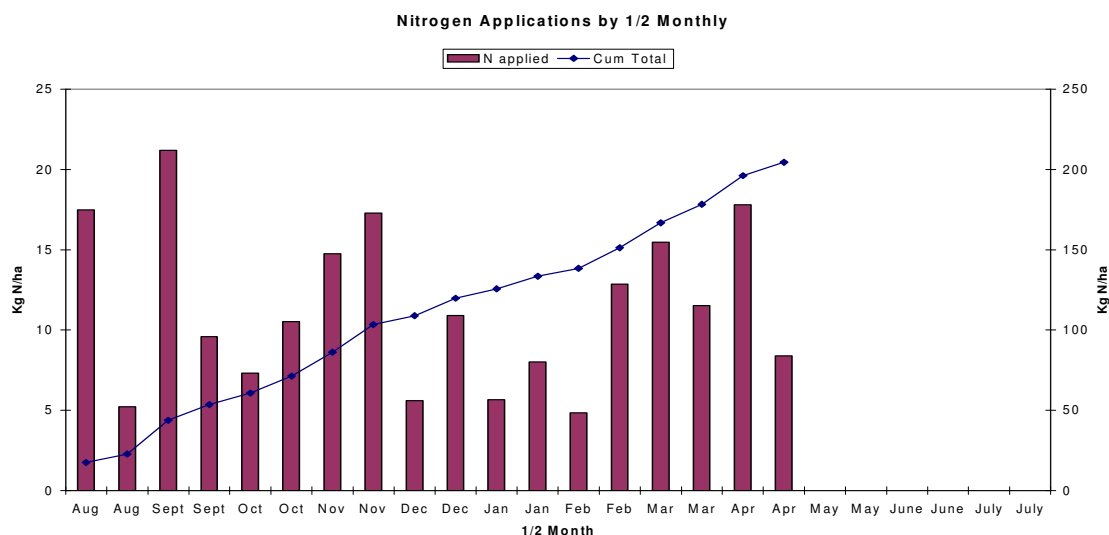


Figure 2 shows that our annual application of 200 kg N fertilizer was mostly used strategically in the spring and autumn. The high pasture growth rates in the summer were achieved by using a minimum of N, and are the result of good soils and an excellent irrigation system.

In the 2003/04 season the estimated average /ha pasture growth on the dairy platform was 18 - 21t. Additional feed purchased was 1.6t /ha silage for milkers and 2.8t /ha of winter grazing. Pasture is 82% of the annual feed supply made available for the milkers and opportunities to increase pasture production and utilization are the starting point to improving milk solid production and reducing supplementary feed costs.

#### ii) Opportunities to increase pasture production.

- 1) Re-grassing non-performing pastures (LUDF targets pastures growing less than 16t annually).
- 2) Better timing of N fertilizer applications. The management team intends to target N applications for maximum response periods, and carry a stronger average pasture cover into subsequent periods.
- 3) Application of EcoN on the South Block for the 2004/05 season, and the rest of the farm in following seasons, provided the current environmental research programme supports this..
- 4) Improved irrigation management to prevent under and over watering.
- 5) Correcting some of the drainage constraints in the heavier soils to both grow more pasture and increase utilization.
- 6) Improved pasture monitoring and allocation to eliminate/minimise grazing of re-growth or topping after cow grazings. Also more use of back fencing.
- 7) Increasing the area of the farm grassed in hybrid or short rotation ryegrass pastures. It is currently 20%.

**iii) Opportunities to improve pasture and feed utilization.**

- 1) Better allocation of daily grazing areas.
- 2) Prevention of pasture damage during wet periods by on/off grazing.
- 3) Earlier identification of surpluses or pending deficits in late spring and early summer.
- 4) Improved control of effluent spreading so that it only goes onto paddocks soon after grazing.
- 5) Not feeding out supplement onto paddocks during wet periods.
- 6) Feeding out supplement in thin lines in the paddock.

**iv) Opportunities to improve per cow performance.**

- 1) Reduce the cow wastage after calving.
- 2) Reduce the numbers of cows in the sick mob due to lameness and mastitis.
- 3) Increase the % of crossbred cows in the herd.

**LUDF Option 3. Increase production and target some reduction in costs**

Examples of possible cost savings are;

\$15,000 employment costs (saving of 7%)

\$ 20,000 external feed costs and external grazing (saving of 12)

\$5,000 animal health and breeding costs (saving of 7%)

**Table 3: Impact of increasing production by 2% and reducing costs by 5.8%**

	2003/04 season	2004/05 season no change	2004/05 season changed targets
<b>Wintered Cows</b>	<b>672</b>	<b>672</b>	<b>670</b>
<b>Milkers into vat</b>	<b>635</b>	<b>635</b>	<b>644</b>
<b>Milking S Rate</b>	<b>3.94</b>	<b>3.94</b>	<b>4</b>
<b>MS /cow</b>	<b>422</b>	<b>422</b>	<b>425</b>
<b>MS / ha</b>	<b>1665</b>	<b>1665</b>	<b>1700</b>
<b>Total MS</b>	<b>268,121 ** est</b>	<b>268,121</b>	<b>273,700</b>

<b>Payout</b>	<b>\$4.15</b>	<b>\$3.50</b>	<b>\$3.50</b>
<b>Milk Income</b>	<b>\$1,005,452</b>	<b>\$938,424</b>	<b>\$957,950</b>
<b>Total Income</b>	<b>\$1,177,961</b>	<b>\$1,018,080</b>	<b>\$1,130,459</b>
<b>Total Income \$/kg MS</b>	<b>\$4.39</b>	<b>\$3.80</b>	<b>\$4.13</b>
<b>Operating Expenses * \$/kg MS</b>	<b>\$2.56</b>	<b>\$2.56</b>	<b>\$2.43</b>
<b>Operating Surplus \$/kg MS</b>	<b>\$1.83</b>	<b>\$1.24</b>	<b>\$1.70</b>
<b>Return on Capital ROC</b>	<b>6.7%</b>	<b>4.5%</b>	<b>6.2%</b>

Note: \* Interest costs not included (if debt is \$1/kg MS at 7.5% = 75c /kg MS)

\* Depreciation not included

Included wages of management

### The proposed Production System for year 4 (2004/05)

- 1) All replacements grazed off.
- 2) 0.8 cows /ha wintered on dairy platform to maintain feed wedge.
- 3) Maximum average annual artificial Nitrogen fertilizer /Ha = 200 kgs
- 4) All cows spring calving. Calving date 1<sup>st</sup> Aug. (12 weeks of calving).
- 5) Stocking rate at 4 cows/ha (2000 kg Lwt/ha or CSR of 86).
- 6) Targeting 273,000 kg MS or 1700 kg MS/ha, or 425 kg MS/cow. Mid season target of 150,000 kgMS by end of December (55%).
- 7) Achieved by harvesting 80% of the 21t DM/ha of pasture grown and 80% of the 400 kgDM/cow of supplement introduced. The supplement will be pasture silage and lucerne silage (this includes any silage made on the milking platform).
- 8) Lactation length of no less than 275 days in milk (average).
- 9) An in-calf rate of 85% after 12 weeks of mating (15 % empties)
- 10) Grow yearlings to 300 kg Lwt by mating, and 410 kg Lwt by 1<sup>st</sup> May

**Table 5: Projected Milk Solids production for 2004/05 season**

	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Milk Solids (000)	8	28	40	37	36	34	28	29	24	10
Cum total (000)	8	36	76	113	149	183	211	240	264	274
MS/cow/day	1.5	1.8	2.0	1.9	1.8	1.7	1.6	1.5	1.4	1.0
Cows milked	250	512	645	645	645	640	630	620	580	350

This targets an increase in production of 2%, remembering that the plan is to improve production while maintaining or slightly reducing costs.

### Key management elements

From the 1st April management is focused on achieving key cow condition score, pasture cover and pasture quality targets that will be required for next season.

1. Criteria for Drying off cows or reducing milker numbers further:
  - Any cows condition score < 4.0 will be dried off in early May.
  - Any cows to calve in August with CS < 4.5 will be dried off in early May.
  - Somatic cell counts > 750,000
  - First and second calvers if early calving
2. The current feed plan targets for average Pasture Cover at critical dates through this Winter and Spring 2004 are:

	<u>2004 season</u>	<u>2003 season</u>	<u>Your figures</u>
• At 4 May	2256 kg DM/ha		
• At 31 May –	2050 kg DM/ha	2000	
• At 1 <sup>st</sup> August –	2350 kg DM/ha	2400	
• At 1 <sup>st</sup> Sept –	2010 kg DM/ha	2300	
• At 1 <sup>st</sup> October –	1875 kg DM/ha	1967	

3. We are planning to winter up to 130 Rising 2 yr heifers on the milking platform. (0.8 cows per ha). These animals will be used to maintain a target feed wedge and pasture cover, which in turn is essential in having sufficient high quality pasture (ME 12.3 plus) available at PSC.
4. The expected calving pattern for this calving suggests peak demand will be later than usual, early to mid October and that the date at which pasture growth is expected to exceed demand could be earlier than usual ie 25<sup>th</sup> September (+/- 5 days)
5. Peak Feed demand for October is expected to be 4.0 cows / ha at 18 kgDM/cow/day = 72 kg DM/ha (down the cows throat).

### **Key Principles for the Spring Feed Plan**

- (i) careful planning and weekly measuring of pasture cover is paramount
- (ii) Feed quality must be retained by consistently grazing to defined residuals of 1450 – 1550kg/ha
- (iii) Any Pasture cover higher than target is seen as the key buffer for the system (ie lowest cost) and will be held forward to offset any drops in PGR
- (iv) The Spring Rotation Planner and the allocation of X square metres per milker will be the main planning and action tool and progress will be closely monitored against weekly target covers.
- (v) A defined amount of supplements will be available, but the aim is to negotiate the spring using little or no supplements.

### **Supplements plan for spring 2004**

Supplement to be fed in spring period to milkers	98 kg per cow
Supplement to be fed to dries in spring	43 kg per cow

- This level of supplements is available to balance the pasture growth rates of August and September.
- If the PGR exceeds target, less supplement will be used
- If the PGR is below target during early lactation (Aug to mid Sept), cow intakes will be restricted accordingly.

### **Risks**

- Wet spring which affects utilisation AND growth rates
- Poor winter growth

### **Risk management**

- More controlled return of springers / dries from off-farm grazing
- On-off grazing of milkers to protect pastures
- Carefully planned and managed N strategies based on feed demand and soil temps
- High ME pasture as the key feed ingredient – ie above 12.3 ME

## **2004/05 Triple bottom line enhancements for Lincoln University Dairy Farm**

Financial – improving productivity by increasing production and targeting some cost reductions.

People – Use of time and motion studies to develop patterns of improved work flow.

Environment – Use of EcoN on the farm's south block to reduce Nitrate leaching.

## **Conclusions**

- 1) Work to a plan for all parts of the operation.
- 2) Identify and use the farm's key strengths to develop a production system that will deliver a strong return on capital at the medium to long term projected payout range of \$3.50 to \$4.00
- 3) Monitor sufficient aspects of the farming operation on a weekly basis, to provide a data-base of information that enables cause and effect to be linked for all farming decisions.