Partial budget on the economics of implementing an Automatic Milking System (AMS)

When considering the economics of an automatic milking system there are several physical and financial factors which need to be considered. Use this partial budget as a guide when talking to your financial advisor. For full online budgeting tools see www.dairynz.co.nz/budgets.

**Note:** if you feel there is important information missing from a partial budget scenario make your own assumptions to fill these gaps.

### Increased income

No direct increase in income is likely in a pastoral based system.

### Decreased income

**Production**: 10-15% losses in season one are expected.
Farm average production pre conversion
______kgMS/cow (NZ av 330kgMS/cow) x 10-15% x _______total cows
= _______total kgMS x $________payout = $________

### Decreased costs

**Animal Health** – 5% reduction in season one
Current average $________ (NZ average $77/cow) x 5%
= $________

**Labour** – unless currently overstaffed this will unlikely decrease in the first season.

### Increased costs

**Maintenance** (service costs) $5 -8,000/unit
= $7,500 x # units (1 unit = 60- 90 cows) ___ = $_______

**Farm Dairy** (Incl electricity) 20% increase
Current average $____ (NZ av $22/cow) X 20% = $______

\[
(A+B) = C \text{ Total gains} \quad \$ \\
(D+E) = F \text{ Total losses} \quad \$
\]

**Net gain or loss (C-F)**

### Other factors to consider:
- **Time**
- **Stress levels**
- **System creep**
- **Depreciation**
- **Cow losses (culling)**
- **Interest**
- **Capital**

#### New Zealand average values, 2008/09 season owner operator figures from Dairybase

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Assumptions/Extra Information

1 Animal Health: This is likely to incur a small saving due to a lower incidence of lame cows. Other animal health benefits particularly in the first season are insignificant. Precise management procedures will be required to ensure costs (such as Mastitis, SCC and anoestrus) do not rise in subsequent seasons. If there is currently an animal health problem, in particular high SCC cows, they should be culled before converting as this issue will be exacerbated under AMS. Farm management practices such as preventative health treatments will need to be discussed further with the service merchant and your vet.

2 Labour costs: These are unlikely to change in the first couple of seasons. Labour associated with the actual milk harvesting will decrease, however this will be required in other areas on farm during the transition stages and first couple of seasons. On farm focus and therefore jobs will likely change, more time will be able to be spent on feed/pasture management and animal health.

Total labour requirements in the longer term have potential to decrease by 25%. (Assuming a 50% reduction in labour associated with milk harvesting, and 50% of total labour is milking).

3 Production: This will vary significantly on individual farms and depending what time of the season the transition occurs. Cows transitioning in early lactation will likely adjust to the new system easier but production losses could be higher. Transitioning later in the season there will be cows that will not adjust in the time frame of that lactation and may dry themselves off.

In year one of the operation trial work at Greenfields and data from commercial farms have indicated production losses of 10-15%/cow, due to cow training and system optimisation.

4 Maintenance/service costs: This will be one of the main expense changes on farm. Depending on access/availability to service merchants this could be as high as $10,000/unit/year. This will usually cover call outs and servicing of the system but will be a negotiable factor during the sales/installation process.

5 Farm Dairy: There is currently insufficient data within New Zealand to be certain of the likely impact of AMS on farm dairy costs (in particular electricity), however indications are to expect and increase of up to 20%

6 Time: The time requirements and potential impact on the current farm performance during the commissioning phase needs to be considered and allowed for. When the system is established, there will be more time to spend on other farm practices due to lower labour requirements and time constraints in the farm dairy

7 Stress: Expect stress levels to increase during the commissioning phases and throughout the first year of converting to AMS. Long term, farmers report reduced stress, more flexibility and greater enjoyment from their work.

8 System Creep: Warning! Investing in AMS can lead to other changes in your farm system, examples include increased supplementary feeding and a more spread calving pattern. Keep control of your system and carefully consider any subsequent system alterations.

9 Depreciation: The expected life of an AMS is conservatively 10 years. Therefore most models would depreciate at 10% annually.

10 Cow losses: Experience on both research and commercial farms have indicated that between 2-5% of cows will need to be culled prior to or during the system change due to being unsuitable for AMS. Factors such as udder shape and size, temperament and simply not adapting to the new system will need to be considered.

11 Interest Rates: When analysing the financial implications of changing a system the opportunity cost needs to be taken into account so even if full borrowing is not required it should be included in the budget. For this budget we have assumed the units cost $250,000 each, however this is extremely dependant on the number of units being installed, the changes required to the current farm layout and infrastructure (including yarning and races) and location of sales and service merchants in relation to your property. For more information consult your local dealer.

12 Capital: The number of AMS required to milk your herd directly influences capital and subsequent interest costs. The number of cows each AMS can milk will depend on the targeted milking frequency, the yield and to some extent the calving pattern (i.e. block calving places greater demand on milking space because of washing requirements and peak yield occurring at a similar time for the herd). The maximum reported number of cows per AMS is 90 in an all grass spring calving system with a daily milking frequency at peak of 1.4/cow. It is more typical to have a ratio of 60-80 cows per AMS. The total capital cost is dependent on the number of units being installed, the changes required to the current farm layout and infrastructure (including yarning and races). Approximate figures are $250,000/box unit.

Other: It is important to note that these values have potential to vary significantly between farms as would occur on a conventional farm. This budget is designed to be used to help you analyse the potential financial and non financial changes that are likely to occur when converting your current system to AMS.