MILKING 5,000 COWS OAD SUCCESSFULLY ON RAKAIA ISLAND

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- In 1994, Rakaia Island was converted from a run-down, dry-land sheep and beef farm into an irrigated dairy farm.
- Irrigation applied by border dyke systems [290ha]; by centre pivots [313 ha], moveable K lines [207 ha] and fixed position sprinklers [700 ha]. 98% of the island is irrigated.
- Rakaia Island is an elongated island, 13 km long by 2.5 km wide; the main Rakaia River forms the southern boundary and a smaller branch forms the northern boundary.
- The cows are milked in three rotary milking sheds [54 bales in two, 62 in the other]; these are located on the length-wise centre line of the island , with one in the middle and the other two located about 2 km to the west, and 2 km to the east.
- During 1994 to 2004 the cows were milked TAD; with 450 cows milked in 1994, increasing to 3,280 cows milked in 2004. Production in 2004 was 1,426,000kg MS, or 435 kg MS/cow and 1261kg MS/ha
- Rakaia Island is farmed in conjunction with Woodstock Farms, located near Oxford. All calves from both farms are reared at Rakaia Island. All Rakaia Island and Woodstock cows were mated for a 1 August calving of which the first 5,000 that calve will come to the Island and the balance will be milked twice a day at Woodstock Farms.
- It was decided to milk OAD, starting in spring 2004. This decision was made so that the number of milking cows could be increased, and grazed on a larger area of the island, in order to produce more milk. If TAD had been continued, the cows would have had to walk very long distances each day, and we believed that it would have been unworkable.
- OAD milking was introduced to overcome the constraints imposed by the large size of the island and its long distances .
- In spring 2004 OAD milking started with a herd that contained about 40% of 2 year olds half of them purchased from Taranaki. Now the herd contains a more normal percentage of older cows with 22% of 2 year olds introduced into the herd each year.
- 22 full time dairy staff are employed on Rakaia Island, plus 4 others. Silage and straw is purchased from, and fed-out by, a contractor. Milking starts at 6am, finishes about 1:30pm with other farm work done until 5pm but things are busier in Spring.
- About 3,800 t DM is imported as high quality lucerne silage and straw including 400T maize.; of this 2,170 t DM are fed to the milkers on the 1,361 ha milking platform. The remainder is fed to the dry cows in winter , along with grazing on crops. About 12 t DM /ha

is apparently eaten annually from the milking platform and about 16t DM/ha is grown annually

- 220 kg N are applied as Urea, and the whole area is treated with ecoN
- In 2010/11, 1200 of the older and higher producing cows were milked TAD , on paddocks closer to the shed, from October until April; and then milked every 18hours [3 times in 2 days] until dry-off.
  1,775,000 kg MS will be produced by the 5,000 Friesian x Jersey cows ; = 355 kg MS/cow; 1,304 kg MS/ha; 84,523 kg MS/full time person.
- Daily yields of MS , for the 3 milking sheds, were between 1.58 and 1.68 kg MS/cow at the peak in October; and in April were between 0.96 and 1.06 MS/cow.
- OAD cows need more coaxing and encouragement than TAD cows to produce well. Feed quality is even more essential for reasonable yields on OAD, and especially in later lactation, summer and autumn. The quality of lucerne silage was improved by cutting it after 35 days , rather than 42 days [but with one longer interval between successive grazing to allow flowering].
- The main advantage from OAD milking has been the ability to milk 1,720 more cows and produce 350,000 more kg MS from the 1,550 ha Island. The only extra input required was added milk-cooling capacity, to cope with the larger volume of milk being cooled per hour.
- The main disadvantages/ problems associated with OAD milking have been; udders becoming deformed by the weight of milk; mastitis , including black mastitis, and SCC; relatively low yields per cow
- At the end of 2010 , all cows were treated with dry cow therapy, and teat seal. During winter , 2010 cows and 2 year olds in the spring mob, grazing on swedes and kale were teat-sprayed every day in a portable yard and race unit. This appeared to have been very successful in reducing the number of cows calving with mastitis.
- Average SCC in 2010/11 for the three milking sheds were 172,000, 193,000 and 194,000; these were all reduced from values of 246,000, 226,000 and 216,000 respectively, in 2009/10.

Notes:

- Black mastitis [Staphylococcus] has been a persistent problem, but it now seems to be under control. With OAD in a just- infected cow that is not detected, the bacteria has almost 24 hours to proliferate, and cause inflammation and discomfort; the visible signs of infection will be more severe by the next milking , and it will be more difficult to treat effectively. With OAD , it is essential that milkers detect all infections as soon as they start; and then treat effectively.
- Calving in 2010 :1/8 planned start date, 13 days to 50% calved; Mating 2010; 6 weeks AB, and 4 weeks with a Hereford bull [late calvers and low BW cows put to the bulls]. No inductions used for 10 years; no CIDRs used in 2010; 7% empty.
- Very few lame cows; cows walk more quickly on their way into the shed , and again on their way back to the paddock. They seem to be more energetic and even more happy!. The incidence of lameness has decreased at Rakaia Island with OAD; whereas at Woodstock with TAD, lameness has increased.
- Farm Working Expenses: $3.8/kgMS [including 0.91c/kg MS for staff; 0.89c/kg MS for feed; 0.22c/kg MS for animal health; 0.64c/kg MS for fertiliser.

Conclusion

- OAD has been successful in its aim of producing more milk [an increase of 350,000kg MS], and also increasing profit from the Island . Future plans include the integration of 3 milkings in 2 days, for selected groups of cows [these milkings can be fitted in before and after the main OAD milking]; and a target of 2,000,000 kg MS.