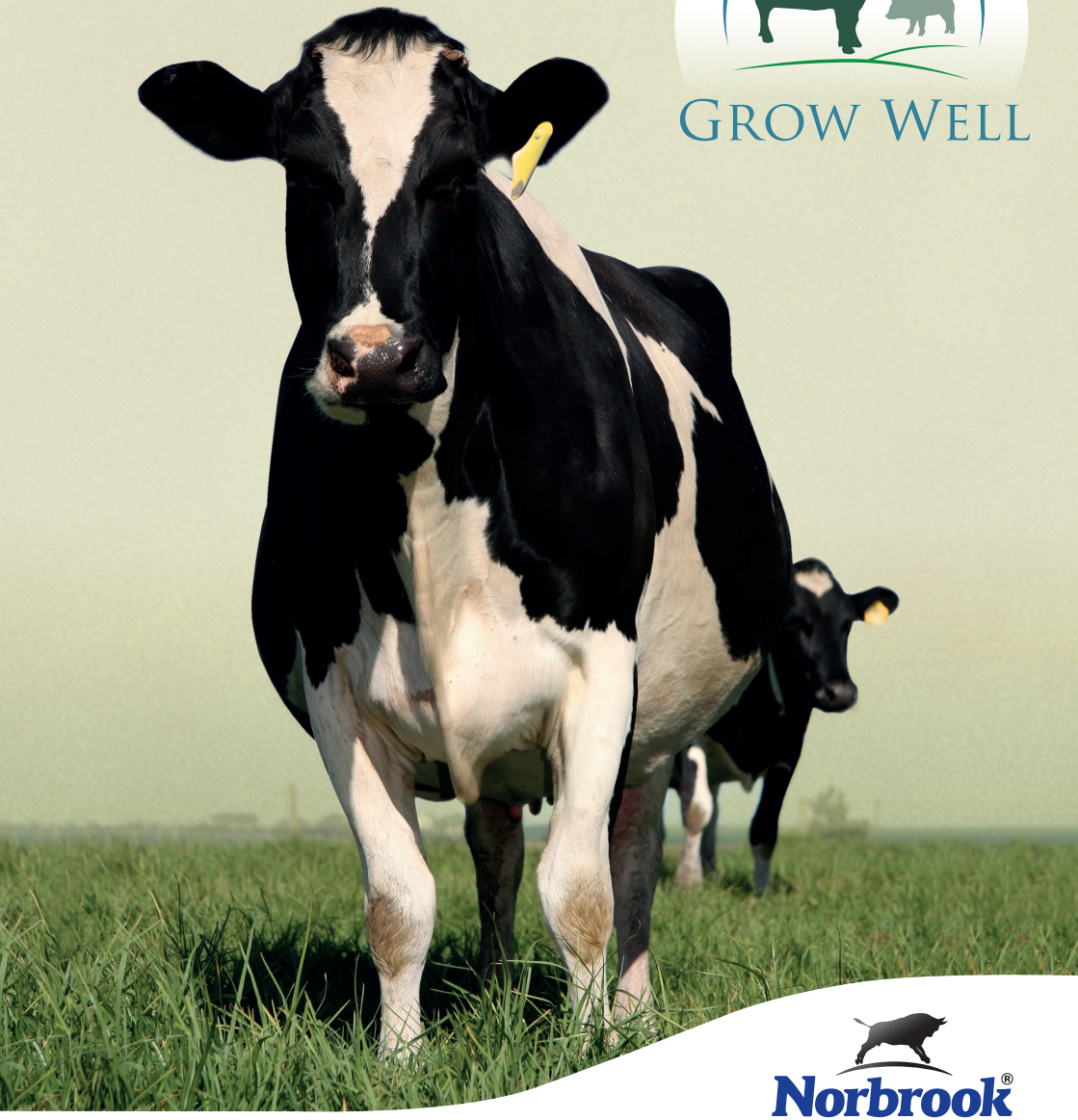
# Dry Cow Consult
## Information Leaflet

GROW WELL



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## The Dry Cow consult

The dry period of a dairy cow, between her last day of milking stopping one lactation and her calving beginning the next, is a cornerstone in the effective control of mastitis. Once the udder involutes and is no longer producing milk, the dry period offers the optimum time to use antibiotic dry cow treatment (ADCT) to cure existing subclinical mastitis caused by intramammary infections (IMIs) acquired during the previous lactation. Counterbalancing this, the process of reducing milk production at the end of one lactation and bagging up before the next lactation represents the highest risk period for new IMIs, leading to clinical mastitis early in the following lactation.

There are two main categories for mastitis control treatment over the dry period: ADCT and teat sealants (TS). In conjunction with your trusted veterinary adviser, the information within this booklet is designed to support a more individual cow approach to using these treatments over the dry period. The use of ADCT and TS treatments, combined or individually over the dry period, are significant investments in milk quality for the upcoming lactation. Reviewing their use will maximise the benefits obtained from the responsible use of these products.

# ol programme

## Cost of Mastitis

The costs associated with clinical and subclinical mastitis are attributable to: reduced milk production; increased culling or deaths; reduced milk quality and therefore value; veterinary costs; increased labour costs; increasing risk of antibiotic residue violations; and discarded milk. In one study, 64% of the costs attributable to clinical mastitis were due to milk loss, 8% to culling and 28% in treatment costs[1] indicating that the dominant cost is associated with discarded milk (including future production losses). This cost will only increase in higher production cows and as the value of milk rises.

Maximising the benefits of reduced clinical and subclinical mastitis from dry cow treatments will positively impact your farm's profitability. Estimations in New Zealand place the financial cost of each clinical case of mastitis at approximately $150[2]. There are also considerable production benefits to reducing your bulk milk somatic cell count (BMSCC) and managing subclinical mastitis as described in the table below.

## Annual percent kgMS gain from lower bulk milk SCC*

| SmartSAMM Powered by DairyNZ | | Target BMSCC x 1,000 cells / mL | | |
|---|---|---|---|---|
| | | 100 | 125 | 150 |
| Actual BMSCC x 1,000 cells/mL | 200 | 2.1% | 1.4% | 0.9% |
| | 225 | 2.5% | 1.8% | 1.2% |
| | 250 | 2.8% | 2.1% | 1.5% |
| | 275 | 3.1% | 2.4% | 1.8% |
| | 300 | 3.3% | 2.7% | 2.1% |
| | 325 | 3.6% | 2.9% | 2.3% |
| | 350 | 3.8% | 3.1% | 2.6% |
| | 375 | 4.0% | 3.3% | 2.8% |
| | 400 | 4.2% | 3.5% | 3.0% |

Table shows the kilogram of milk solids gain, as a percentage of annual production, from decreasing the actual Bulk Milk Somatic Cell Count (BMSCC - left column) to the target BMSCC (top row).

*Table: Reprinted with permission from:
SmartSAMM Gap Calculator - Paper Version.
See www.dairynz.co.nz/mastitis-gap for more information.

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# Working towards

## Setting targets

Milk quality goals are important to help you achieve results with your mastitis control programme. Goals will vary between farms but should focus on areas where a farm may improve to meet the industry benchmarks that have been shown to improve profitability.

| | SmartSAMM Triggers | Previous Year's Results | Upcoming Year's Goals |
|---|---|---|---|
| Number of cows | N/A | | |
| Number of clinical mastitis (CM) cases within 14 days after calving | 10% | | |
| Number of CM cases during lactation each month | 1% | | |
| BMSCC > 400,000 at any point in lactation | No | | |
| Percentage of cows with SCC > 150,000 | N/A | | |
| Percentage of new cows (less than 14 days calved) with SCC > 150,000 | N/A | | |

# greater profitability

## Quantify the Gains

Using the previous results and the estimated benefit from improving subclinical mastitis and preventing clinical mastitis we can assess any possible economic benefit.

### Example Herd

| Annual Milksolids 150,000 kg | Previous Year's Results | Upcoming Year's Goals | Benefit | $ Savings* | End Target |
|---|---|---|---|---|---|
| Bulk Milk Somatic Cell Count (average) | 250,000 | 150,000 | SmartSAMM estimate of 1.5% greater milk production | 1.5 / 100 x 150,000 x 5.0 = $11,250 | 100,000 |
| Clinical Mastitis within 14 days of calving | 12% | 10% | 2% less cases of mastitis in first 14 days at $150 per case | 2 / 100 x 400 x 150 = $1,200 | < 5% |
| Clinical Mastitis rate during lactation per month (9 months) | 1.5% | 1% | 0.5% less cases each month at $150 per case | .5 / 100 x 400 x 150 x 9 = $2,700 | < 0.5% |
| | | | Potential economic benefit | $15,150 | |

* Assumes herd size of 400 cows and milk price of $5.0/kgMS.

### Your Herd

| Annual Milksolids | Previous Year's Results | Upcoming Year's Goals | Benefit | $ Savings | End Target |
|---|---|---|---|---|---|
| Bulk Milk Somatic Cell Count (average) | | | SmartSAMM estimate of _____ % greater milk production | | |
| Clinical Mastitis within 14 days of calving | | | _____ less cases of mastitis in first 14 days at $150 per case | | |
| Clinical Mastitis rate during lactation per month (9 months) | | | _____ % less cases each month at $150 per case | | |
| | | | Potential economic benefit | | |

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# Assessing

## Cell Count

The somatic cell count is the most important indicator for udder health and is assessed in all herds as the BMSCC from a milk vat and in some herds at an individual level (ICSCC – Individual Cow Somatic Cell Count). Individually, normal milk usually contains between 20,000 to 150,000 cells/mL[3] and an IMI, either clinical or subclinical, is the major cause for the ICSCC to be elevated above these levels. The BMSCC level is the average of the herd's ICSCC and is an indication for the broad level of mastitis control for the herd over a long period. It is estimated that for every 100,000 on a BMSCC, 10% of the cows are subclinically infected and have elevated ICSCC.

An ICSCC provides valuable information when drying cows off about the prevalence of infection in individual cows allowing them to be defined as subclinically infected and identifying individual cows with chronic infections that may have poor cure rates with ADCT. The New Zealand threshold to define a cow as having an IMI and carrying a subclinical infection is 150,000 cells/ml. An individual cow's ICSCC is variable and it is suggested to always use multiple ICSCC results to define animals as free from subclinical infection or infected.

## Type of bacteria causing mastitis

There are two broad groups of bacteria which cause mastitis: contagious and environmental. Differentiation between and within these groups can occur with the use of milk culturing of clinical and subclinical mastitis, and based on ICSCC. The areas to focus on for your mastitis control programme will vary between these broad groups.

## Environmental

*Streptococcus uberis* is the most common cause of environmental mastitis, with *E. coli* also occurring infrequently. New infections occur mainly in the dry period and are opportunistic, taking advantage of an open teat due to the absence of teat or keratin plug together with circumstances that favour environmental contamination of the teat. New IMIs predominantly occur at the beginning and end of the dry period leading to clinical mastitis early in the following lactation. Teat sealants may be used over the dry period to minimise the number of open teats at risk of a new IMI.

## Contagious

*Staphylococcus aureus* is the most common cause of contagious mastitis. New infections occur during lactation when the bacteria is transferred in milk from an infected cow, either clinically or subclinically, to an uninfected cow. IMIs caused by *S. aureus* account for a significant proportion of sub clinically infected cows, making the dry period the optimum time to cure these infections and manage this bacteria.

### References

**1. Bar et al. The cost of generic clinical mastitis in dairy cows as estimated by using dynamic programming. J Dairy Sci. 2008 Jun;91(6):2205-14**

**2.** SmartSAMM Gap Calculator - Paper Version, DairyNZ, accessed 24-12-2015, available from <www.dairynz.co.nz/media/127335/Smartsamm-gap-calculator-august-2014_TEMPLATE.pdf>

**3. Lee et al 1980. Identification properties, and differential counts of cell populations using electron microscopy of dry cows' secretions, colostrum and milk from normal cows. J. Dairy Res. 47:39.**

For SmartSAMM recommendations about drying off, see *SmartSAMM Technote 14 - Decide dry cow management strategy* at www.dairynz.co.nz/mastitis

# Grow Well

## Grow Well

Grow Well aims to develop tools for veterinarians and their clients which may be used in practical situations.

Your veterinarian is the trusted professional with local knowledge to best meet your farm's needs.

Using a greater understanding of your farm's mastitis together with practical considerations, your veterinarian can tailor your dry cow treatment to fit your situation, aiding you with setting and meeting the goals that will ensure your mastitis control.

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