

NEW ZEALAND DAIRY INDUSTRY AND COLOSTRUM

New Zealand is a leading supplier of Colostrum in the global market. Our Colostrum is sold around the world in a diverse range of markets, including the USA and China, as well as here in New Zealand. The supply of Colostrum needs to grow, while still ensuring high quality Colostrum is provided for manufacturing.

A key component in the supply of safe Colostrum is the need for Colostrum to be free from residues. This must occur while ensuring suppliers have measures in place that control mastitis infections on farm.

This document: "Requirements for Farmers producing Colostrum for supply" has been developed by Fonterra. This document details the criteria that must be followed where a supplier uses Dry Cow Treatments and offers colostrum for supply. It allows for a variation of the label withholding period to be applied, PROVIDED the risks are managed within a registered Risk Management Programme.

Demand for New Zealand Colostrum will continue to grow with consumers' increased awareness of its potential health benefits. This, coupled with the quality of New Zealand's colostrum will pay dividends today and in years to come.

Copies of these requirements will not be distributed to the public. This document may be examined by contacting Fonterra Milk Quality Manager, Pukete Rd, Hamilton, or the Head Office of the New Zealand Food Safety Authority (NZFSA) in Wellington during normal working hours. While this document will be distributed to contracted Colostrum suppliers, copies may not be made without the prior written approval of the sponsor, Milk Quality Manager, Fonterra.

The sponsor is responsible for maintenance, review and amendments associated with this document.

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INTRODUCTION AND SCOPE

The use of Prescription Animal Remedies (PAR), and in particular, mastitis treatments present a heightened risk to the quality of milk and Colostrum for supply. This risk is greatest during the late stages of the milking season and at calving.

The developing market for Colostrum-based products has raised the awareness of this risk because of the nature of the product as a nutraceutical and because the Colostrum used for production must be collected during a high-risk period.

This document has been developed to outline absolute minimum requirements that must be met by farmers to minimise the risk of antibiotic contamination of Colostrum. It also contains useful management techniques and tools that should be considered for use by Colostrum suppliers. It is to be read in conjunction with NZCP1, New Zealand Farm Dairy Code of Practice.

The requirements outlined in this document are applicable only to contracted Colostrum suppliers who are operating in accordance with a registered Risk Management Programme that have adopted the Code. It does not confer rights to other suppliers, particularly in regard to dry cow therapy withholding period compliance.

PURPOSE

This document has been developed to assist suppliers to produce Inhibitory Substance safe Colostrum while still using a Dry Cow Treatment.

The requirements outlined in this document specifically require suppliers to extend the withholding period of Dry Cow Treatments by a MINIMUM of 20 days past the standard treatment to calving withholding period. Thus allowing a nil withholding after calving for Colostrum supply.

The label withholding period for Dry Cow treatment requires the first eight milkings after calving to be withheld from supply. This document details the criteria that must be followed, where a supplier uses Dry Cow Treatments. It allows for a variation of the label withholding period to be applied PROVIDED the risks are managed within a recognised Risk Management Programme.

Following the requirements outlined in this document will allow contracted Colostrum suppliers to supply Colostrum for manufacturing, while not fully adhering with the label requirements of the dry cow treatment used.

The requirement must not restrict veterinarians from freely prescribing the most appropriate drug for treatment. It will however mean that individual cows which cannot meet this withholding period, will be ineligible from supplying Colostrum for manufacturing purposes.

The welfare of all dairy animals, including calves shall take priority over the supply of Colostrum at all times.

The requirements outlined in this document do not remove the obligation of suppliers to conform to withholding periods when supplying whole milk. This document only applies to Colostrum supply, which is under written contract, and does not allow for variation to any other withholding periods other than Dry Cow Treatments.

1. LATE SEASON PROCEDURES

1.1 TREATMENT OF MASTITIS AND OTHER ANIMAL HEALTH ISSUES

1.1.1 LACTATION TREATMENTS PRIOR TO DRYING OFF

The treatment of milking cows must follow normal treatment procedures. The treatment used shall be a lactation treatment, the cow(s) shall be identified using a durable marking system and a record shall be kept of all treatments as per NZFSA Standard D105.2 – Milking Animal Health i.e. records shall include, date identified, cow identification, reason for treatment, treatment used, date milk returned to vat.

1.1.2 TREATMENT AT DRYING OFF

The treatment of cows with dry cow therapy must follow the procedure outlined below:

- Treatment shall only be applied to cows at the last milking of the season. Or, as soon as possible after that last milking. Treatment may only occur after the delivery line to the vat has been disconnected.
- Do not treat cows with a dry cow therapy if they are already dry. Lactational therapies should be used on any infected cows identified over the Dry Period.
- Cows treated with Lactation treatments shall not be included in the Colostrum supply, and withholding periods shall be complied with.
- Administer Dry Cow treatments as per the label instructions. Cows that have treatments administered off-label cannot be included in the Colostrum supply herd.
- If drying off in batches identify and clearly mark all cows that will receive dry cow therapy. This should be done immediately prior to treatment. Consider using tail paint and a leg band for extra security. If using tail paint only, consider refreshing this if it becomes too faint.
- Record the individual identification of every cow given dry cow therapy and the date the therapy is administered. If using more than one type of therapy make yourself aware of any differences in withholding times.

- Records shall be kept for 3 years
- Wash hands thoroughly after treatments are administered, being careful not to smear antibiotic on to hoses or equipment where it may be accidentally touched and applied to a milk contact surface or a cow's teats.
- If bringing treated cows in to the dairy, for any reason, first ensure that the milking herd has exited the milking area and the milk delivery line has been removed from the vat before any treated cow enters the milking area.
- Cows given dry cow therapy shall be kept in a separate mob and must be secured well away from the milking herd in a manner that minimises the risk of treated cows re-joining the milking herd.

Fences and gates must be in good repair. Do not allow the treated herd to be in a paddock directly adjacent to the milking herd at any time.

When milking during the drying off period it's important to keep a very accurate tally of cow numbers in the dry cowherd on a daily basis. If there are less cows than expected you can be relatively certain that a dry cow has re-entered the milking herd by accident and the milk should be tested for possible contamination with inhibitory substances.

- When all cows have been dried off ensure that the treatment records are removed to a secure place where they can be readily accessed at any future date.
- Ensure all staff associated with milking are aware of how dry cows are identified and what action to take if they are found in the milking herd.

1.1.3 DRYING OFF DECISIONS WHEN HERD IS TO SUPPLY COLOSTRUM

Remember, Dry Cow Therapy is only one tool of many available for controlling mastitis and somatic cell count in the following season. Dairy farmers with consistently low somatic cell counts and mastitis infection levels use a combination of methods to achieve good results. A combination or all of the other methods available for the control of mastitis should be used. There is a place for blanket Dry Cow Therapy, but it should not be undertaken as a replacement for good management

Treatment at drying off can be triggered by a number of factors but in general there are some best management practices that should always be followed.

- First decide in conjunction with a veterinarian, which cows are to be culled and which are to be treated with Dry Cow Therapy.
- For Colostrum supply only, the minimum dry withholding period shall be extended by 20 days e.g. if the therapy label requires a minimum dry period of 28 days, this shall be extended to 48 days. This requirement shall be applied regardless of the therapy used.
- Always consult with your local Veterinarian on the most appropriate Dry Cow Treatment.
- The welfare of the cow shall take priority over the supply of Colostrum at all times.
- Cows should be dried off when daily milk flow drops below 5 litres or when the somatic cell count is affecting the bulk milk count to the point that grades are being incurred.
- Dexcel recommend that, if drying off cows is based on condition scoring then the following applies:

Days From Calving	Condition Score	
	Cow	Rising Three Year Old
120	3.0	3.5
90	3.5	4.0
60	4.0	5.0

(From Condition Scoring Made Easy, Copyright Dexcel Ltd, 2004).

1.1.4 WHICH COWS TO TREAT AND WHICH COWS TO CULL?

The decision as to whether to infuse all cows or a selection of cows is based on:

- The bulk tank SCC of the herd
- The proportion of high individual SCC at herd test
- The incidence rate of clinical mastitis over the dry period and in early lactation

- Other management considerations

The SAMM plan recommendations are to use whole herd Dry Cow Treatment where:

- More than 40% of animals are infected at any herd test in the lactation (i.e. More than 120,000 and more than 150,000 for heifers and cows respectively), or
- More than 10% of cows had clinical mastitis in the dry period or first month of subsequent lactation, or
- Grazing-off over winter, or
- Selling the herd.

1.1.5 CULLING

Dry cow therapy results in bacteriological cure of ~80% of cows.

However, even following dry cow therapy, cows with:

- Recurrent (i.e. greater than two) clinical cases of mastitis in the same quarter are three times more likely to be diagnosed clinical mastitis next season than non-recurrent cases, and

Hence these cows should be strongly considered for culling.

1.2 ADMINISTERING TREATMENTS

1.2.1 DRY COW THERAPY

Having reviewed mastitis management with your vet, the following procedures should be followed to minimise the risk of Inhibitory Substance grades.

- Do not withhold water from cows before or during drying off.
- Feed can be changed to include more dry matter to assist the drying off process.
- Do not treat any cows until the delivery line has been removed from the vat. i.e. milk all of the cows, draft off those to be treated, divert the bulk milk tank delivery line, then bring the cows to be treated back into the milking area or treatment area and treat with dry cow therapy.

- Allow plenty of time to treat animals. Treat cows in manageable groups e.g. a row/day. As a rule of thumb, each person can infuse 20-30 cows/h.
- Ensure that responsible operators are trained adequately in the treatment procedure and are supervised well.
- Mark cows clearly immediately prior to treating. Use dry cow antibiotics or teat seal only at the cows **last** milking for the current lactation i.e. do not infuse dry cow more than 12 h after the final milking of the season.
- Watch for and **DO NOT** treat glands (quarters) that have already dried off (e.g. '3-titters'), as there is an increased risk of residue violation.
- Treat every quarter of each cow with a **full tube** of the **same** treatment.
- Ensure there is a robust system in place that eliminates the risk of treating a cow more than once.
- Vigorously rub the teat-end for 10-15 seconds with cotton wool dampened in 70 per cent alcohol.
- DO NOT massage the teat ends if teat seal has been used.
- After removing cap of antibiotic tube, insert the nozzle no more than 3mm into the teat canal. This reduces teat-end damage and reduces the risk of carrying bacteria into the gland.
- Spray all teats with a newly mixed up sanitizer (teat spray) within one minute after insertion.
- Record cow number, treatment and date for every cow. Mark cow clearly, prior to treating, so that the cow won't be accidentally milked if it jumps the fence or if the wrong mob is bought in.
- Put cows into 'clean' paddocks after drying off i.e. avoid effluent or recently grazed paddocks.
- Don't bring cows near the dairy for at least seven days after drying-off.
- Don't treat cull cows unless being sold after expiry of meat withholding period.
- Record any abnormal events or treatments during drying off, for traceability purposes.

1.2.2 OTHER TREATMENTS MADE TO COWS THAT WILL SUPPLY COLOSTRUM

- If administering any other type of treatment the label withholding requirements of that treatment, or written veterinarian advice shall be followed

If treating a dry cow for mastitis with a lactational drug the milking withholding period shall be adhered to. The treated cow shall not supply Colostrum for manufacturing purposes.

2. DRY SEASON PROCEDURES

2.1 DRY SEASON ANIMAL TREATMENTS

In the dry period it is still necessary to monitor animal health and treat illnesses as necessary. However, it is important to note that the treatment of mastitis in the dry period is a major contributor to inhibitory substances grades in the calving period. **If treating for mastitis the following requirements shall be met:**

- All mastitis treatments administered in the dry period shall be lactational therapies only. Dry cow therapy is not permitted to be used except after the last milking.
- Any cows treated for mastitis during the dry period shall not be included in the Colostrum supply herd. Any such cows must be clearly marked and a record must be kept of all treatments to ensure that Colostrum from these cows is not supplied. It's suggested that the marking system for cows treated during the dry period should differ in some way that is noticeable to minimise the risk of inclusion e.g. different colour tail paint or leg band is used (or both).
- All treatments for other than mastitis shall also be recorded and the animal identified using a marking system.

2.2 PURCHASE AND SALE OF COWS

Animals removed or added to the herd present major risks, particularly where there are inadequate records of animal treatments. When cows are sold the movement record (Animal Status Declaration – ASD) should be marked to indicate any cows that have been treated so that adequate withholding procedures can be used. **When purchased cows are entering the herd the following shall apply:**

- If a purchased cow has no treatment data supplied (written records) at the time of purchase or arrival on to the farm then Colostrum from this cow shall not be supplied.
- If a purchased animal has been treated during the dry period then Colostrum from this cow shall not be supplied.
- If a purchased cow has been treated with dry cow therapy then the name of the drug and the date of treatment must be known and the withholding time for this cow must be adhered to. If the date of treatment is not known or if the withholding period cannot be met then Colostrum from this cow shall not be supplied.

2.3 WINTER MILKING

If supplying milk during the winter period extra care must be taken to ensure that there is no accidental intermingling of cows from the dry or milking herds. Keep a tally of cows in each herd and check the numbers regularly. If the numbers in either herd should change take immediate action. This should include notifying the dairy company at the earliest opportunity if contamination of milk intended for supply may have occurred.

2.4 SLIPS

If a cow calves prematurely then it is important to check your treatment records to ensure that the full withholding time (label requirement plus 20 days) has been met. **If the withholding time cannot be confirmed or if the correct withholding time has not been met then Colostrum from this cow shall not be supplied.**

It is recommended that if a cow calves prematurely they are not to be included in Colostrum supply.

2.5 INDUCTIONS

If a cow is induced, the first eight milkings shall be withheld from the wholemilk supply. This milk/Colostrum shall not be used for Colostrum supply.

3. CALVING PERIOD

Calving dates shall be recorded to ensure traceability of Colostrum if a problem does occur.

In terms of inhibitory substances, the calving period is the time of greatest risk to both Colostrum and milk supplies. Cows are managed in multiple herds, herd managers are at their busiest, early season mastitis may be prevalent, mud and rain may have covered any markings indicating a cow has been treated and, to make matters worse, the milkers and herd managers are probably stressed and tired.

To minimise these risks there must be adequate management systems in place and operating and all staff must be fully aware and trained in these systems. Preferably all training should be completed in the winter period when staff is less tired and there are fewer distractions. During calving is no time to introduce new staff to systems or to introduce new systems to staff.

The greatest risk to milk quality at this time is that of inhibitory substance contamination due to failure to follow correct withholding times and failure to adequately separate treated cows from cows in a milk or Colostrum for supply herd.

3.1 CALF REARING

Supplying Colostrum for manufacture, particularly from larger herds, should not interfere with the rearing of calves as replacements. While Colostrum is important in preventing disease and calf deaths, the critical factor is the timing and intake at the first feeding. As soon as the calf is born, the ability of the Colostrum immunoglobulins to cross from the intestine into the blood stream begins to decrease.

The greatest risk occurs when the calf receives too little Colostrum in the hours after birth. An adequate intake during this period will contribute to the overall immune system and play a key role in the health of the calf over the first month of life.

3.2 HERD MANAGEMENT

There shall be clear delineation between each herd being managed during the calving period. The treated cow herd shall be kept well separated from the whole milk, or Colostrum supply herds, both in the dairy and on the farm. Treated cows shall not be kept with the Colostrum for supply herd under any circumstances.

Colostrum for manufacturing purposes shall be supplied from healthy cows with healthy udders.

Colostrum cows shall be stripped prior to each milking. If there is presence of any abnormality (such as blood, mastitis) then that cow shall not be milked for the supply of Colostrum.

It is extremely important to ensure that product likely to contain antibiotic residues, mastitis infection, blood or sediment is excluded from the Colostrum supplied.

3.3 MILKING ORDER

The Colostrum herd shall be milked after the main milking herd, and before any treated cows. Do not allow treated cows to enter the milking area until all of the Colostrum cows have been milked and the delivery line has been removed from the Colostrum collection tank. If possible make one person solely responsible for diverting the delivery line to ensure that this important step is not overlooked. No treated cows should be cupped until the responsible person gives an 'all clear' to do so.

3.4 COLOSTRUM VOLUMES

The likely volume of Colostrum to be produced is 15 – 18 litres per cow per day. This takes into account the Colostrum removed by suckling calves, the number of cows calving outside the Colostrum collection period, and days when there is insufficient volume available for collection.

3.5 PLANT HYGIENE

After milking treated cows the plant should be thoroughly rinsed before any further cows are milked. The ideal situation is for the treated cows to be milked last and then the plant given a thorough hot wash using standard dairy detergent solutions. Plants should be hot washed after every milking, particularly during the calving period and when high potency antibiotics are in use.

Filter socks must also be given extra attention during this period. Filter socks should not be re-used. If they are to be used for an additional milking then they must be thoroughly cleansed using a hot water and detergent solution.

4. GENERAL

This section contains general information and useful tips regarding the safe treatment of cows to minimise the risk of antibiotic contamination of milk and Colostrum for supply.

4.1 USE OF TAIL PAINT

Milkers can get used to seeing tail paint on animals that have actually completed their withholding period and so don't recognise when a treated cow accidentally gets back in to the main herd. To avoid this, when a treated cow returns to the main supply herd paint over the antibiotic markings with another colour e.g. if a treated cow is painted with red tail paint, cover this with blue. In this way, all cows painted with red tail paint must be withheld from supply regardless of what herd they are in. No other decision has to be made. Refresh the paint if it becomes difficult to see clearly.

4.2 DRUG STORAGE

Do not store dry cow therapies with normal lactating cow therapies. Dry cow therapy does not need to be in the dairy until cows are actually being dried off. Keep all drugs and therapies securely stored, preferably on labeled shelves.

4.3 WITHHOLDING TIMES

Always familiarise yourself and your staff with the correct withholding times for each treatment used. Recheck this regularly to make sure you are applying the correct withholding at all times and that your understanding of the withholding time matches that of your staff.

When you buy a new batch of treatments re-check to see that you have the treatment you intended to buy and use and that the withholding time hasn't changed. Some treatments look the same but the difference between a long acting (LA) and milking cow (MC) therapy can be considerable.

Always discuss with your vet:

- The withholding time if using a combination of drugs;
- The withholding time if treating more than one quarter on a cow;
- The withholding time for any abnormal or off-label use of a therapy.

Consider extending the withholding time if you are treating large numbers of cows that will return to the main supply over a tight time frame.

4.4 MILKING MANAGEMENT

Always withhold the milk from all four quarters of a treated cow. If using a test bucket then make sure this is emptied after each cow and make sure it is in a stable position where it can't tilt or tip over.

Do not under any circumstances use a quarter milker. These are known to be extremely high risk.

Do not use old syringes for administering other treatments e.g. for homeopathic treatments.

Black pock ointment should be removed from the teats before cups are applied.

4.5 ANIMAL IDENTIFICATION – TREATED ANIMALS

There are a number of effective methods to identify treated cows when they come in to the dairy to be milked. These include leg bands (Velcro) or tail bands (electrical tape) in varying colours and udder and tail paint.

The most critical attributes that any system must have are as follows:

- Everyone working in the dairy must know and understand the system;

- The system must be durable i.e. it must be capable of lasting at least the length of the withholding period and it must remain visible no matter what the weather conditions are like.

5.0 WHOLEMILK SUPPLY

The requirements for supply of Wholemilk remain unchanged; suppliers must comply with the Supplier handbook, Fonterra's Risk Management Programme and NZCP 1 – Farm Dairy Code of Practice.

Withholding periods for both Dry Cow Treatments and the exclusion of Colostrum from the first eight milkings post calving shall be adhered to.



REFERENCES

NZCP1, New Zealand Farm Dairy Code of Practice (NZCP-1)

NZFSA Standard D105.2 – Milking Animal Health