On-Farm Pasteurisation

Pasteurisation is the use of heat to reduce the numbers of bacteria in milk.Pasteurisation of milk for human consumption uses a 'High Temperature Short Time' (HTST) process which heats milk to 72°C for 15-25 seconds. In contrast on-farm pasteurisation of milk for calf consumption typically uses a 'Low Temperature Long Time' (LTLT) batch pasteurisation where milk is heated to 60-63°C for up to 60 minutes.

Pasteurisation is effective at reducing the load of bacteria such as Mycoplasma, Salmonella, E. coli and MAP (the cause of Johne's Disease) in milk and thus reducing the risk of milk borne infections in calves. It may also have a beneficial effect through improving the availability of antibodies in milk that confer local protection to the calf gut.

Many farmers use on-farm pasteurisers to reduce the risk of cow to calf transmission of Johne's Disease. The use of pasteurisers for this purpose is without doubt helpful. However, it is important that if farmers choose to do this that they use pasteurisers as part of a wider infection control programme. For example, the use of pasteurisers in the absence of calf hygiene measures that limit the exposure of calves to cow faeces or a testing programme that identifies high risk cows is likely to lead to disappointing results.

Key considerations in using a pasteuriser should include:

- Only pasteurise low risk milk – pasteurisation reduces the level of bacteria but does not sterilise milk. Don't rely on pasteurisation to 'clear' milk from a high-risk animal such as a Johne's positive cow– such milk should not be fed to breeding replacement calves.
- Do not use waste milk for feeding to calves as this increases the risk of antibiotic resistance developing in your herd.
- Harvest milk as cleanly as possible. Many disease-causing bacteria found in milk (including MAP) are present because of contamination of the milk with dung.
- Always ensure pasteurisers and all associated equipment such as feeders are kept scrupulously clean.
- Always ensure the pasteuriser is adequately maintained so that you can be sure it is working optimally – at the right temperature for the right duration.
- If storing pasteurised milk, it should be refrigerated (4°C) in lidded containers and used within 2 days or stored frozen.
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Pasteurisation is safe and beneficial when used on whole milk. However great care needs to be taken if pasteurisation is to be carried out on colostrum. The antibodies in colostrum, that confer passive immunity to calves, are fragile and will be inactivated if heated to above 62°C. Colostrum must never be heated to this temperature. If using a pasteurisation process for colostrum, it is crucial that the temperature is kept below 62°C and that there are no hot spots in the pasteuriser that might inactivate colostrum. In many cases herd-keepers may choose to only use pasteurisers for whole milk and not colostrum. If pasteurising colostrum, ensure that the protocol used is 60°C for 60 minutes.