

## SECTION III-6 TEAT DIPPING

### 6. TEAT DIPPING

#### 6.1 TYPES OF TEAT DISINFECTANTS

In Canada, teat dips are treated as prescription drugs, in terms of regulatory standards, and require a **drug identification number (DIN)** in order to be marketed for use with livestock. This assures us that the dips have been tested for effectiveness, safety and risk of residues. As there are no products that are currently licensed for dairy ewes, all teat dips are used through **extra label drug use (ELDU)**.

Although there are no teat dips that are officially approved for sheep, there are many that have been approved for dairy cattle that have been used in the sheep industry (see Table III-1 for a list of those products). Post-dips are more commonly used in sheep flocks; however, pre-dips are also available for use. Generally, teat disinfectants are iodine, chlorhexidine acetate or hydrogen peroxide based. Some have teat conditioners added to these dips, such as lanolin or glycerine, to improve the condition of teats. Even though these conditioners have beneficial effects on teat condition, some producers have reported that the conditioners make the teats greasy, which can make milking, especially hand milking, difficult.

All teat dips need to be handled properly to maintain their efficacy. Containers of dip must be closed at all times, and stored in an area such as a cupboard with doors, that does not expose the dip to extreme hot or cold temperatures, nor to sunlight. Pre- and post-dips, if not the same product, should remain separate. Teat dips should not be diluted in any way, which can compromise the efficacy of the dip. After teat dip is removed from the storage container (e.g. into a teat dip cup or sprayer), it should NEVER be returned to that container. Expiry dates of these products should also be observed, as an expired product can drastically affect its strength as a teat disinfectant.

#### 6.2 PROPER COVERAGE OF THE TEATS

It is essential that not only the teat end, but also the entire teat up to the base of the udder, is completely covered on all sides to ensure maximum amount of protection of the udder from harmful bacteria (Fig. 14). If there is manure or debris on any part of the teat that comes in contact with the milking unit, there is an increased chance of these bacteria entering the udder, contaminating the milk in the bulk tank.

Fig. 1. Proper teat coverage



### 6.2.1 DIP VS SPRAY

Care must be taken to ensure proper coverage of teat dip regardless of whether a teat cup and teat spray system is used.

- For teat dip cup (Fig. 15), there are times when there is not enough dip in the cup, therefore not allowing for the entire teat to be covered. If care isn't taken, the solution can be contaminated between animals.
- With a spray system (Fig. 16), often the placement of the spray nozzle is not positioned correctly under the teat, leaving exposed areas.

Teat dip cups have been the traditional method of applying teat dip, as the system allows for full coverage of the area of the teat that is exposed to the milking unit. Teats that have abnormal placement on the udder can be dipped correctly. Teat sprayers allow for easy and quick application of disinfectant on teats. However sprayers may increase the risk of poor coverage of the teats, particularly in sheep, as their teats are not completely vertical, compared to dairy cattle (Fig. 16, Fig. 18). In addition, sprayers tend to emit quite a bit of spray, more than is sometimes required, and this increases the potential of increased iodine content in milk, as iodine has the ability to permeate the skin of the udder and be absorbed into the milk.

### 6.3 RETURN VS NON-RETURN DIP CUPS

Return dip cups were the first containers developed for easy application of teat dips when milking. These are hand held cups that are shaped for easy application on teats (see Fig. 15). The base of the container is a squeeze bottle that holds a reservoir of dip, which is squeezed up, into the cup as needed. This allows the milker to regulate the amount of teat dip being applied to the udder. This is an open system, so teat dip can be exposed to all ewes in the flock.

Non-return dip cups are the same design as return dip cups, but the teat dip from the cup cannot return back to the original dip container, which decreases the chance of transferring bacteria to the uncontaminated dip. This type of dip cups is preferred, and they decrease the potential transfer of pathogens.

Fig. 5. Non-return cup



Fig. 2. Dip cup



Fig. 3. Teat spray



Fig. 4. Poor coverage by spray



#### 6.4 CLEANING THE CUP

Cleaning the teat dip cups after each milking is important to decrease the spread of bacteria from milking to milking. Both the inside and outside of teat cups should be rinsed out at the end of each milking. If the dip cup is a return cup, all teat dip should be cleaned out after each milking, to decrease the chance of bacteria being transferred from milking to milking.

If manure or any debris falls in the teat dip cup during milking, any excess teat dip should be removed from the cup and rinsed. In addition, if any ewe that has been confirmed as having a *Staph. aureus* intramammary infection, the teat dip cup should be emptied and rinsed before using it on the remainder of the flock.

#### 6.5 ENVIRONMENT POST-MILKING

The teat sphincter is relaxed and does not close for approximately 30 to 120 min after milking, leaving it exposed to pathogens. Post-dipping the teats following milking helps decrease the chance of transferring pathogens into the udder, however, its efficacy is limited.

To prevent risk of environmental pathogens entering the teat sphincter, discourage lying down following milking. Offering water and feed immediately after milking will help to do this. Fresh, water should be freely available as soon as they leave the parlour, but it is critical that the area around the waterer be kept dry and clean as splashing can dirty the teats. If

fresh feed is delivered to the feed bunk after the ewes leave the parlour, this entices them to stand and eat rather than lie down. While the ewes are in the holding area of the parlour prior to milking, this is an ideal time for wet bedding to be removed and fresh bedding to be laid down. If at pasture, make sure wet, swampy areas are kept fenced off. Dry lots or corrals should be similarly dry and clean.

Flies have been shown to transmit mastitis causing bacteria as they are attracted to the teat ends. Fly control during the summer, particular biting-type flies is an important part of a mastitis control program.

Fig. 6. Water available after milking



#### 6.6 IODINE RESIDUES IN THE MILK AND HUMAN HEALTH

Recently, high levels of iodine found in milk have been a human health concern. Excess exposure to iodine-based teat dips can potentially affect the milk of the ewe, as iodine can permeate skin.

Children under the age of 8 have a daily iodine requirement of approximately 90 µg (mg or millionth of a g), with a maximum iodine limit of 300 µg, and adults have a daily iodine requirement of approximately 150 µg per day, with a maximum iodine limit of 1100 µg. It is important that humans are not ingesting excess iodine from dietary sources.

It is suggested that an appropriate iodine level in bulk tank milk should remain below 500 µg/kg. This can be done by: proper use of teat dips; proper cleaning and drying of the teats; assuring that dietary iodine levels be limited to requirements only (See Section I.2).