



**THE DAIRY PRACTICES COUNCIL®**

# **GUIDELINES FOR MILKING PROCEDURES FOR DAIRY CATTLE**

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## Abstract

This guideline is designed to give some general information about proper milking procedures that allow for production of high quality milk, protect the health and well being of cows, and provide an efficient milking routine for herd managers and personnel. The overriding goal of all milking procedures is to attach milking units to clean, dry teats. This guideline provides details about the key components of milking routines to optimize the milking hygiene and the cow's milk letdown response, along with milking efficiency. Research and on-farm trials have identified those techniques and timing parameters that cannot be ignored if the goals of optimum hygiene, optimum milk letdown and optimum milking efficiency all hope to be achieved. The purpose of this guideline is to provide a number of milking procedures that incorporate the techniques and timing that work best into milking routines that are easy to implement, keep consistent and maintain. The ultimate goal of this effort is to provide a guideline that makes it possible for every cow to be milked with the best routine possible, exactly the same way every shift no matter who is doing the milking or where the milking is done. Specific milking procedures and evaluation checklists are provided for thirteen situations, each representing a different combination of milk facility, number of milkers, and udder preparation choice.

## Preface

This guideline was originally prepared in November of 2004 by Task Force Director, Tom Herremans, Michigan Milk Producers Assn.; with the assistance of Mike Schutz, Purdue University, Gil Johnson, Michigan Milk Producers Assn.; and William Crist, University of Kentucky. Other contributors included: Miles Beard, IBA, International; Steve Beroza, Michigan Milk Producers Assn.; Diane Bothfield, St. Albans Cooperative; Dave Brady, Michigan Milk Producers Assn.; Frank Brazeau, Michigan Milk Producers Assn.; Don Breiner, Land O'Lakes; Armond Dragon, IBA International; Richard Fluegge, Michigan Milk Producers Assn.; Paul Kent, IBA International; Dale Ledebuhr, Michigan Milk Producers Assn.; Dean Letter, Michigan Milk Producers Assn.; Mike Marvin, Michigan Milk Producers Assn.; Charlie Miller, DairyMaster, USA, Inc.; Jim Parker, WestfaliaSurge, Inc.; Dan Scruton, Vermont Agency of Agriculture, Food and Markets; Norm Schuring, WestfaliaSurge, Inc.; Thomas Stakenas, Michigan Milk Producers Assn.; Gary Steingraber, BouMatic; Jack Stickler, Michigan Milk Producers Assn.; Charles Twining, Ohio Department of Agriculture; Gerry Volz, Michigan Milk Producers Assn.; Craig Weaver, DFA Cooperative; and Ed Zuchnik, Michigan Milk Producers Assn.

## Guideline Preparation and Review Process

**Guideline development within The Dairy Practices Council (DPC) is unique and requires several levels of peer review. The first step in the process of guideline development starts with a Task Force subcommittee made up of individuals from industry, regulatory and education interested in and knowledgeable about the subject to be addressed. Drafts, called 'white copies', are circulated until all members are satisfied with the text. The final white copy may then be distributed to the entire task force, DPC Executive Vice President and the Task Force Director feels would add to the strength of the review. Following final white copy review and correction the next step in the process requires a yellow cover draft that is circulated to the member Regulatory Agency representatives that are referred to as "Key Sanitarians". The Key Sanitarians may suggest changes and insert footnotes if their state standards and regulations differ from the text. After final review and editing the Guideline is distributed in the distinctive DPC green cover to people worldwide. These guidelines represent the state of the knowledge at the time they are written.**

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## BACKGROUND

The overriding goal of milking hygiene is to attach properly functioning milking machines to clean, dry teats. However, there are many aspects of milking practices that must all come together to allow a single procedure to provide excellent milking hygiene, reduce bacterial exposure to the teat end, encourage milk letdown by the cow, and allow labor-efficiency while being exactly the same for every cow, every time she is milked.

The importance of establishing and sticking to a single routine for milking every cow at every milking cannot be overstated. Cows are creatures of habit and often express fear when exposed to novel situations, such as changes in routine. Among the fear responses are increased levels of epinephrine that inhibit the effect of oxytocin in the milk letdown response, as well as more milking unit kickoffs and increased defecation, which can interfere with milking parlor hygiene. Furthermore, research has shown that cows milk faster and produce more milk each milking and lactation when a regular milking routine is followed, compared to more variable milking practices.

Efficiency of labor for milking can be optimized by observing specific routines, especially in milking parlors with more than one operator. If every employee follows the same procedure, it is less likely that any accidents, such as milking an antibiotic treated cow into the bulk tank, will happen. **But the most critical reasons for specific milking routines is to allow strict adherence by all employees to the recommendations of 10 to 20 seconds of stimulation time, at least 30 seconds of kill-time for pre-milking teat disinfectants and milking unit attachment ideally within at least 60 to about 90 seconds (prep-lag time) from initial stimulation of the cow.** Strict adherence to these target times will allow maximal milk letdown response, reduce over-milking, and stimulate optimal milk flow rates. Having a single established routine also allows easier training of newly hired employees and simplifies ongoing evaluation of continuing employees. **A poor milking routine, though performed consistently by all employees, is still a poor routine.**

There are many goals that successful milking routine must accomplish. Financially, the most important aim of milking is to allow cows to produce as much high-quality milk as possible. But there are other very important goals too. Milking routines play a significant role in controlling mastitis and lowering somatic cell counts, which are crucial in terms of animal health, reduced labor, decreased risk of antibiotic contamination (Refer to DPC 22), and milk quality premiums.

Another goal is for the milking routine to be quick enough to allow for a smooth flow of cows through the parlor, while giving each cow adequate stimulation and time to achieve an effective milk letdown response. Speed of the milking routine can be measured either by total number of cows milked per hour, number of cows milked per hour in each parlor stall (parlor turnover rate or throughput), or by the amount of milk harvested per employee per hour. It must be understood that thorough milking routines that include strong stimulation for milk letdown, such as stripping fore-milk from each teat, often result in increased milk flow rates so that milking times are not increased even though the routine itself may take a few seconds longer.

An often-overlooked goal of a good milking routine is that it ought to be simple enough that every milker can use exactly the same routine for every healthy cow every time she is milked. From the consumer's point of view, the most important reason to establish a good milking routine is to ensure milk quality. After all, milk has a reputation as a fresh and wholesome product; and that image must be maintained.

All of these goals must be balanced when deciding on an appropriate milking routine for the herd. The routine that works best for one herd may not work as well for another, but certain considerations are common to all successful milking routines. **All successful milking routines require a correctly functioning milking machine to be attached to a properly stimulated cow with clean, dry teats. Additionally, time from stimulation to unit attachment must be correct.**

Excellent milking routines do not simply happen. They require careful establishment, implementation, and continuous re-evaluation, like any other standard operating procedures. Often the milkers themselves can provide useful feedback on development and implementation of milking routines, but should never be allowed to compromise the key elements of milking routines. Education about the basics of milking routines may help employees understand and appreciate why each element of the milking routine is critical. To be useful, milking procedures must be written. Only if written, can milking procedures be used to train multiple employees to perform each task consistently. That way every milker knows exactly what is expected. Further, written procedures can be used to develop evaluation checklists to provide ongoing feedback to milkers. Continually evaluating milkers and providing constructive criticism and recognition of achievement is the only way to assure consistent compliance with established procedures.

Milking routines and checklists suitable for ongoing evaluation for each of 13 specific situations are provided at the end of this guideline. Routines may be tailored for other situations not covered herein, by adhering to the details provided in the text and, by example, from the guidelines provided.

## DEFINITIONS

**Blind quarter:** A quarter of the udder that produces abnormal milk secretions or no milk. Teat cups should not be attached to blind quarters because of the risk of loss of milk quality. A Synonym is “dead quarter”.

**Claw alignment:** The proper positioning of the milking unit squarely beneath the teats so as not to impede milk flow.

**Forestrip:** To manually remove the initial few streams of milk from each teat prior to milk collection or attachment of the milking cluster. Synonyms for forestrip include “pre-strip”, “strip fore-milk”, or “prime”.

**Germicidal wipes:** Any of a number of single-use, disposable fabric wipes soaked in an antibacterial solution and intended for sanitizing and wiping teats in a single step. Germicidal wipes often contain alcohol or another evaporative compound to facilitate drying of any residual sanitizing solution remaining on the teat.

**Hyperkeratosis:** The condition caused by over-growth of teat keratin that protrudes from the teat end and appears as a roughened, callous-like growth. This condition is most frequently associated with the length of time that the milking unit is attached to the teat per day.

**Milker:** Milker has many definitions in the dairy industry including: 1) a person who milks cows or performs part of the milking task; 2) a machine or any parts of a machine used to mechanically milk cows; 3) a cow that produces milk. In this guideline, *milker* will refer to a person who milks cows or performs some part of the milking task.

**Milking procedure:** A collection of all the different tasks, activities, and responsibilities that are involved in milking.

**Milking routine:** A sequence of established tasks and techniques that are followed each time the cow is milked. This sequence specifically identifies each task to be performed, the exact time to be spent doing each task, the time lag between each task, and exactly how each task is to be performed.

**Milking unit:** An assembly comprised of the teat cups and claw.

**Over-milking:** A condition created by leaving a milking unit attached to a teat or teats from which milk flow has diminished or ceased.

**Oxytocin:** The milk letdown hormone. A hormone released by the anterior pituitary gland that is required for milk ejection from the milk secretory tissues. Manual stimulation is necessary to optimize oxytocin release. Fear response in cows can inhibit the effect of oxytocin on milk secretory tissues.

**Post-dip:** A food-grade disinfectant solution, usually containing iodine or other antimicrobial ingredients, that is applied to each teat following milking to kill bacteria to which the teat-skin surface may have been exposed during the milking process. Most post-dips also contain emollients and skin conditioners to keep teat skin soft and supple. As a verb, *post-dip* refers to the process of applying such an antimicrobial solution to each teat. Colloquially, even the process of spraying or foaming teats with such antimicrobial solutions may be referred to as “*post-dipping*”.

**Pre-dip:** A food-grade disinfectant solution, usually containing iodine or other antimicrobial ingredients, that is applied to each teat before milking to clean the teat and kill bacteria with which the teat-skin surface may have come in contact since the previous milking. As a verb, *pre-dip* refers to the process of applying such an antimicrobial solution to each teat prior to milking by spray or other applicator.

**Prep-lag time:** The time from beginning of stimulation to the attachment of the milking unit. Research suggests that at least 60 to about 90 seconds of prep-lag time is optimum for fastest milkout of most cows, following proper stimulation procedure.

**Sequential milking routine:** Refers to milking procedures where multiple operators are simultaneously milking in a parlor and each milker performs one or a series of tasks and then is followed by another milker performing other tasks. For each cow, different milkers perform parts of the milking routine.

**Stimulation:** The gentle but firm physical manipulation of teats that is necessary for the full release of oxytocin. Cleaning and forestripping the teats normally accomplish adequate stimulation. If forestripping is done, it should be done at the same time as the cleaning to accomplish the maximum stimulation. Research suggests that 10 to 20 seconds of continuous stimulation is optimum for full oxytocin release. Make sure the teat ends are clean when the milking unit is attached. Effective stimulation increases oxytocin release and reduces individual cow milking time.

**Teat barrel:** The portion of the teat between the floor of the udder and the bottom of the teat, but not including the teat end.

**Teat cup:** An assembly consisting of a shell, a liner and a short pulse tube; may include a separate short milk tube and connector or sight glass.

**Teat end:** The portion at the bottom of the teat, which includes the teat opening and the tissues surrounding the orifice.

**Territorial milking routine:** Refers to milking procedures where one or more operators are simultaneously milking in a parlor but only one milker performs all parts of the milking routine on any given cow or consecutive group of cows. For each cow, all milking routine steps are performed by the same milker. Therefore, each milker works with a specific group of cows or within a defined territory in the parlor.

**Udder wash:** Refers to products or solutions labeled for use in cleaning cows' teats prior to milking. Typically this is done by using a single use towel to apply the solution to the cow's teats followed by wiping with another single use towel. It should never be applied with a towel used for more than one cow.

## IMPORTANCE OF MILKING FACILITY

While key milking practices remain critical for all successful milking routines, the way these key elements may be incorporated into a single procedure that all milkers can follow will be greatly influenced by the type of milking facility. The major types of parlors that will be included in the discussion and example procedures sections in this guideline include the following:

**Linear parlors** include any of a number of different styles of milking parlors where the milker is in a "pit" in the middle of the parlor and the cows enter in series so that their udders are approximately at arm level for the milker. This level also allows good visual observation of the cow's udder. Most modern linear parlors have cows on two sides of the pit, though some have cows on one side and some have lines of cows on three or four sides of wider pits. Common variations on the two-sided linear parlor are described according to how cows line up. *Parallel parlors* refer to parlors where cows line up side by side facing perpendicularly away from the pit so that milking is accomplished by milking from the rear and between the cow's rear legs. In *herringbone parlors*, cows line up next to each other, but staggered at an angle so that cows may be milked from the side, but with less distance between udders of consecutive cows than if the cows were in tandem head-to-tail. *Parabone parlors* are a hybrid of parallel and herringbone parlors that allow cows to be closer together than in herringbone parlors. Key implications of the kind of linear parlor on milking procedures include opportunity for the milker to observe

the udder and teats, distance the milker must move from one cow to the next, the ability to align the milking cluster after attachment, and the fact that multiple cows enter a side of the parlor and are ready for preparation at once.

**Tandem parlors** are milking parlors where the milker is in a pit and cows enter individual side-opening stalls one at a time. The side-opening stalls are positioned along one or two sides of the pit such that cows stand broadside to the parlor. Milking is accomplished from the side. Because cows are positioned head-to-tail, the milker must move a considerable distance from one cow's udder to another. The fact that cows enter one at a time means that only one cow at a time is ready to be milked, and the entire milking routine may be performed on one cow before the milker moves to another. Milkers need to be especially aware of achieving adequate kill-time for pre-dip and timing between initial stimulation and attachment of the milking unit. Auto-Flow® is a popular brand name and has become synonymous with this type of parlor.

**External rotary parlors** are milking parlors where the cows enter onto an elevated, revolving platform with the cows facing the center of the round platform. Milkers stand on the outside of the revolving platform. Cows are typically milked from behind, and between their legs as they would be in a linear parallel parlor. After the platform speed has been selected, proper timing of tasks and lag times between tasks may be achieved by positioning milkers at appropriate distances. However, these systems may require more than one milker to adequately perform all elements of the milking routine consistently. It is typically a long distance from where milking units are attached to where cows must be post-dipped, making it nearly essential to position a milker to address milking unit falloffs, kickoffs, or squawking liners.

**Internal rotary parlors** are milking parlors where the cows enter onto an elevated revolving platform with the cows facing to the outside of the round platform in herringbone position. Milkers work in the center of the revolving platform. Cows are typically milked from the side, as they would be in a linear herringbone parlor. After the platform speed has been selected, proper timing of tasks and lag times between tasks may be achieved by positioning milkers at appropriate distances. Compared to external rotary parlors, fewer milkers may be able to adequately perform all parts of the milking routine because of shorter distances to travel on the inside versus the outside of the circular revolving platform.

**Stall barn milking** systems are not truly parlors, since the cows are milked in their own housing cubicles. Other synonymous names include "tie stall barns", "stanchion barns", and "comfort stall barns". Since cows are milked in their housing area, great care must be taken to keep the stall platform dry and prevent contamination of milk from foreign debris. Because milking is performed at the level at which the cow is standing, it tends to be strenuous for the milker and the milking routine must be designed to

reduce the number of times the milker is required to stoop under the cow. Milkers need to be especially aware of timing between initial stimulation and attachment of the milking unit. Also, because milking units are available only when another cow completes milking, it is very difficult to establish exact timing of milking tasks without special effort.

**Flat barn parlors** are milking parlors where cows are lined up side by side in some type of headlock or stanchion. They differ from tie stall barns primarily in the fact that cows are not housed there. Indeed many flat barn parlors are simply renovated stall barns created when alternative cow housing was constructed. Cows are milked from the side. In “walk through” parlors, the cows pass forward through the stall when milking is complete. Otherwise, cows must back out of the stalls and exit the parlor before the next cow enters. Most configurations are similar to stall barns. In some designs, milking units may be stationary and shared between two adjacent cows. Milkers need to be especially aware of timing between initial stimulation and attachment of the milking unit. Also, because milking units are available only when another cow completes milking, it is very difficult to establish exact timing of milking tasks without special effort.

**Step-up parlors** are a modification of the flat barn parlor where the cow “steps up” unto a platform that is raised about 10-12 inches above the floor level. The operator is able to work from floor level near the back of the stall and between two adjacent cows that reduces the amount of stooping required. Cows typically walk forward to exit the stall following milking. Milkers need to be especially aware of timing between initial stimulation and attachment of the milking unit. Also, because milking units are available only when another cow completes milking, it is very difficult to establish exact timing of milking tasks without special effort.

**Swing parlors** or “swing-over parlors” are a version of linear parlors but where the milking units are utilized on both sides of the parlor, rather than having separate milking units on each side. Cows enter the parlor one side at a time, but since milking units are shared with both sides, a cow that has entered the parlor may not be milked until the cow immediately across the parlor has completed milking. Milkers need to be especially aware of timing between initial stimulation and attachment of the milking unit. Therefore, milking routines may need to be more similar to tandem or step-up parlors.

## KEY ELEMENTS OF MILKING PROCEDURES

**Preparing for milking:** There are several important steps in milking procedures that must be performed before cows even enter the milking parlor. A designated employee

must sanitize the milking system with a sanitizing rinse, and prepare the bulk tank, milking equipment, and milking parlor prior to milking according to the established procedures for the farm (Refer to DPC 2 and DPC 9). Also prior to milking, a designated employee must verify that the milk pre-cooler, if applicable, (Refer to DPC 65) and bulk tank cooling system are turned on sometime early in the milking process (Refer to DPC 48). Milkers are responsible to verify that milking equipment is functioning properly. Prior to each milking, milkers must check the vacuum controller and milking vacuum level, inspect milk hoses and liners for holes or tears, and check pulsators and air admission holes in the milking claws. Properly functioning milking equipment is essential to all of the goals of established milking procedures. Milkers should also check supplies such as towels, pre-dip, post-dip, and any other supplies that may be needed during milking so that the routine need not be interrupted during milking.

Milkers must wear synthetic gloves. Note that latex gloves are suitable for use, but may lead to development of latex-based allergies in people who are sensitive. Gloves made of other non-allergic synthetic materials, such as nitrile are readily available. Gloves protect milkers’ hands and provide a smooth surface that is more easily disinfected. Milkers should be encouraged to wash their hands before milking and frequently during milking. In practice, it may not be possible to wash hands before every cow, simply because of the time required. Contact with the pre-dip prior to milking should be relatively successful for disinfecting a gloved hand. However, special care should be used to disinfect gloved hands after prepping dirty, sick, mastitic, or high somatic cell count cows. Changing gloves between milking groups will provide further protection.

**Cow entry into parlor:** Maintenance of the environment is an often overlooked but important part of the milking procedure. Housing areas and cow traffic areas should be kept as clean and dry as possible. This is important in reducing the amount of dirt and soil that will need to be removed from teats and the number of mastitis-causing bacteria on the teats. Freestalls must be dry, and bedding material must be replaced frequently. Stalls should be groomed at each milking. Typically, cow cleanliness upon entering the parlor is not the responsibility of milkers. Nevertheless, it is virtually impossible for milkers to stick to a consistent milking routine or for that routine to be effective if cows are excessively dirty upon entering the parlor.

Anything that startles, distracts, frightens, or otherwise stresses a cow will interfere with the milk letdown response, reduce milk production, and slow cow movement through a milking parlor. The following steps are necessary to ensure cow comfort and to enhance the milk letdown response.

*Avoid prolonged waits in the holding pen.* Cows trapped in the holding pen generally do not have

access to feed and water; and tight crowding of animals can be stressful, particularly for new members of a group of cows, such as fresh cows or heifers. If this wait is unduly long, dry matter intake and water consumption may be reduced, and hence cows will produce less milk. Moreover, stressed cows will have a decreased milk letdown response. Strive to keep cows in the holding pen no longer than 2 hours total per day, which means no more than 1 hour per milking if cows are milked twice per day or 40 minutes per milking if cows are milked three times per day.

*Assure smooth cow flow.* Remove obstructions between cows and the parlor. Even visual obstructions can make cows balk at entering the parlor. Avoid sharp turns and steps. Ramps with gradual slopes and grooved concrete are much easier for cows to walk on than are steps.

*Allow cows to enter the parlor voluntarily.* Cows learn to await a signal that it is time to enter the parlor. If a milker always enters the holding pen to bring cows into the parlor, cows will adapt to waiting for the milker to come into the holding pen as that signal. Cows remain calmer if allowed to enter the parlor voluntarily. With caution, a crowd gate may be used to reduce the area of the holding pen as the number of cows waiting to be milked decreases. However, the crowd gate must never be used to “crush” cows forward. This creates undue stress, greatly increases the risk of injury to cows and milkers, and increases stress that interferes with milk letdown.

*Keep the milking parlor free of startling noises.* Cows probably will not mind radio music playing in the milking parlor, as long as it is not too loud and not distracting to the milkers. Milkers must avoid shouting at cows. Recent studies have demonstrated that cows find being shouted at to be at least as objectionable as being hit. Neither can be tolerated in a milking parlor.

*Verify animal identification.* Many modern milking parlors are equipped with automatic animal identification. Whether or not the parlor is so equipped, the milker should always verify if possible that the correct animal identification is registered for each cow. Occasionally, animal identifications may be swapped if two animals approach or pass the reader simultaneously or if one backs up during entry. If animal identification is part of the method of tracking cows treated with antibiotics, and those cows are not segregated from other lactating cows, it is critically important to verify the identification in order to prevent antibiotic residues in milk. Even in cases where no automatic identification is used, cows should be

carefully observed upon entry so that those with special needs may be handled accordingly.

*Administer injections outside the parlor.* Injections, flaming udders to remove hair, trimming switches, and other procedures which cows may find painful or startling should be done outside of the milking parlor whenever possible. Cows must not associate the milking parlor with negative or painful experiences.

*Feeding in the parlor.* Feeding may encourage cows to enter the parlor quickly, but may interfere with cows' orderly exit from the parlor. If cows are fed in the parlor, great care must be taken to keep the parlor clean of feed residues, insects, and rodents. Some farms, such as grazing farms, may find few alternatives to feeding some grain in the milking parlor.

**Udder preparation:** There are four critical elements of a milking routine that must be accomplished before attaching the milking unit to the cow. These elements are cleaning visible dirt, disinfecting teats, forestripping, and drying teats. These critical elements, as described below, must be accomplished within the following goals of a good cow preparation procedure:

- Remove organic matter from the teat surface.
- Limit use of water.
- Thoroughly disinfect the teats with a teat dip, disinfectant, germicidal wipes or udder wash labeled for pre-milking purposes.
- Allow adequate contact time for teat disinfection following label instructions.
- Provide sufficient stimulation and time for milk letdown.
- Eliminate variation in milking routines.
- Allow labor-efficient milking.

**Clean visible dirt from teats:** Remove loose soil from teats prior to application of pre-dip or teat disinfectant. This can best be accomplished by gently wiping with the gloved hand or a single use cloth or paper towel. In extreme cases it may be necessary to use water, but great care must be used to ensure the udder, udder floor and teats are adequately dry before the milking unit is attached.

The less water that is sprayed onto the udder, the less chance that micro-organisms that reside on the teat and udder skin surface will be washed down and congregate at the teat end. Because of the risk of teat end impacts caused by air admissions during milking, they could enter the udder through the teat end, and cause a mastitis infection. Further, any bacteria that remain on the teat can enter milk and reduce milk quality.

**Pre-dipping or sanitizing teats before milking:** Pre-dipping and wiping may reduce bacterial populations on teat skin by 75% and the incidence of new environmental

infections by up to 50%. Teat wash with disinfectant or a pre-dip only works well if it comes in contact with the entire teat skin surface. Dirt or manure can prevent the pre-dip from penetrating to the skin surface to effectively kill bacteria.

Pre-dip may be applied with non-return dip cups, automatic foamers, spray bottles, and spray wands. Non-return cups and foamers are the preferred choice because they virtually assure adequate coverage to the entire teat. However, spray bottles and spray wands can be used successfully in combination with massaging and forestripping to bring the disinfectant in contact with the entire teat.

Udder washes and germicidal wipes may provide an alternative for pre-dips. Each germicidal wipe must be used for a single cow (dirty cows may require more than one). Udder washes should never be used with a common washcloth to apply the sanitizing solution to more than one cow.

To successfully kill bacteria, pre-dips and disinfectants must remain in contact with the skin surface for a minimum of 30 seconds. While some manufacturers of pre-dip claim much shorter kill times are sufficient, 30 seconds is typically a better goal unless proven otherwise by research. When applying the pre-dip, pay careful attention to assure that the pre-dip is applied to all teat skin surfaces but not the udder floor.

**Forestripping:** Forestripping is a good practice and may dramatically improve mastitis management and lower somatic cell counts when practiced routinely. Stripping several squirts of foremilk from each teat accomplishes five things. Forestripping:

- Allows the pre-dip or disinfectant to be worked onto the skin surface;
- Allows one to feel any abnormalities in the teat or quarter;
- Allows one to see any abnormalities or flaking of the milk;
- Removes the milk with highest SCC or bacteria levels; and
- Provides the most forceful stimulation signal for the milk let-down response.

Forestripping several streams of milk from each teat is easily combined with the pre-dipping task. Gently but firmly massage pre-dip onto teat skin to ensure the pre-dip is in contact with the skin surface. Gently but firmly rub across teat end with thumb until clean. Then strip several streams of foremilk from each quarter and observe for abnormalities. A trained milker will be able to feel any abnormalities such as a hard, hot, or swollen quarter that may indicate a mastitis infection. This visual inspection of milk prior to attachment of the milking unit is usually necessary to comply with the Pasteurized Milk Ordinance administrative procedure that “Bloody, stringy, off-colored

milk, or milk that is abnormal to sight or odor, is so handled and disposed of as to preclude the infection of other lactating animals and the contamination of milk utensils” (PMO-Item 1r). The milk in the streak canal of the teat prior to milking tends to be high in somatic cells and higher in bacteria when compared to milk later in the milking process. Forestripping helps to open the streak canal and flush out potentially trapped bacteria. Thus, forestripping and discarding of some of the initial foremilk may have a positive impact on milk quality and udder health.

Perhaps the greatest benefit of forestripping is the powerful stimulus provided to the cow that induces the oxytocin response that is critical for milk ejection from the alveoli and milk letdown. At least 10 seconds of manual stimulation plays other roles in increasing muscle tone around the milk secretion tissues and milk ducts, which is necessary for those tissues to respond to the effect of oxytocin. Manual stimulation of the cow results in an increased oxytocin release and the potential for faster milkout. The combination of pre-dipping and forestripping should be given around 10 to 20 seconds per cow for adequate stimulation.

In most milking parlors where floors are frequently rinsed and there is typically disinfectant on the floor, fore-milk streams may be aimed at the floor or drain grate. For cows known to have high somatic cell counts or showing signs of mastitis, care should be taken to rinse the floor following forestripping. In stall barns, where cows are milked in their housing cubicle, great care should be taken when forestripping, and use of a strip cup is strongly encouraged to prevent inadvertent contamination of the stall surface or bedding material.

**Drying or wiping:** It is imperative that *individual* towels be used to wipe pre-dip from the teats of each cow. Wiping should begin no sooner than 30 seconds after pre-dip or disinfectant has been worked onto the skin surface of each teat. Use a clean towel with a gentle, twisting motion to ensure all pre-dip is wiped off teat skin of all four teats. Use the other side of the towel and thumb to firmly wipe across the teat ends.

Either paper towels or laundered and dried cloth towels are good options. However, a separate, clean towel must be used for each cow. If cloth towels are used, wash towels in water hotter than 145 degrees using an effective sanitizing detergent at proper concentrations according to label directions. Do not overload washing machines. When using microfiber towels, pay attention to temperatures and concentrations of detergent when washing and temperatures during drying. Follow manufacturers guidelines. Make sure towels are completely dry before use. Absorbency and abrasiveness are factors that should be considered when deciding between cloth and paper towels.

**Attach the milking unit:** Attaching the milking unit can often be accomplished immediately after wiping by the same milker. In some situations, the attachment may be done by a different individual. The milking unit must be attached carefully with minimal air admission. Milkers should always target milking unit attachment from at least 60 to about 90 seconds from beginning of manual stimulation. This is to ensure that the milking unit is not attached too long before peak milk letdown but that the milker is attached by the time peak milk flow rate is typically achieved. Attaching a milking unit too soon can lead to teat end damage resulting from milking the teat without the presence of milk flow.

In linear parlors provide at least 10 seconds of udder stimulation, allow at least 30 seconds of pre-dip contact time, and attach the milking unit from at least 60 to about 90 seconds after the start of stimulation. The number of cows in a prep procedure sequence depends on parlor configuration and milker routines that allow for proper stimulation and lag time. Cows need to be clean and properly stimulated when the milking unit is attached. This allows most individual milkers to prep 3 to 6 cows before returning to the first cow to begin wiping teats and attaching milking units.

The milking unit must be properly aligned to hang squarely beneath the udder. For the typical cow, the alignment of the milking unit should be slightly forward, but cow-to-cow variation in udder shape dictates that the milking unit be adjusted for each cow. This is critical to reduce the risk of air admissions and to ensure that milk flow is unimpeded in the teat cistern, especially at the end of milking. Usually the milk claw outlet should point along the midline of the cow. For automatic detacher milking systems, the milker should select 'automatic' mode to activate automatic takeoffs.

Great care must be taken not to attach the milking unit to any blind quarters.

**During milking:** Teat end impacts occur when vacuum fluctuations, often caused by air admissions from slipping or squawking liners, propel rapidly moving droplets of milk back toward the teat end. Some of these tiny droplets of milk actually enter the teat through the relaxed sphincter and streak canal, and may lead to a mastitis infection if the droplet contains bacteria. Squawking liners represent a parlor emergency and must be tended to immediately. While this guideline on milking procedures has stressed the importance of establishing a routine that is applied to every cow at every milking, there is an important exception when a slipping or squawking liner is heard. Milkers should stop whatever they are doing (within reason) and tend to the liner slip immediately. Maintaining milking systems, keeping cows calm, and properly adjusting the milking unit will prevent most liner slips. However, even with properly functioning milking equipment, there will be an occasional need to realign a

milking unit and to tend to milking units that are kicked off or fall off.

Milkers should clean and sanitize frequently, especially after milking cows that are known to have mastitis or elevated somatic cells. If at all possible, segregate clinical mastitis cows and cows with high SCC counts and milk them after all other cows are milked. Gloves should be disinfected again anytime they come in contact with milk and always between groups of cows.

During the milking process, milking units should be kept clean. Similarly, the platform under cows should be rinsed or flushed when it becomes dirty. At all times, spraying of units and cow platforms must be done in a manner that avoids any mist or spray of water on the cows teats or udder or onto unprotected milking units.

As needed during milking, teat-dip dispenser cups should be cleaned. Prior to refilling the dispensers would be a convenient time to clean them. Teat dip dispenser cups should be cleaned at the end of every milking.

**Detaching the milking unit:** Whether milking unit removal is manual or automatic, milking units should be detached as soon as milk flow slows significantly or stops. Make certain that the automatic detachers are set to remove the milking unit properly to prevent overmilking and with a gentle removal process. Avoid long milking unit on-times, especially with low milk flow rates. This causes stress, increased hyperkeratosis, and injury to teat ends; and may leave cows at greater risk for mastitis. Shut off the vacuum before removing the milking cluster. This is important for the cow being milked, because resulting air admissions can lead to vacuum fluctuations.

**Post-dipping:** This is absolutely necessary after each milking and is the critical element in a strategy to control contagious mastitis. Only products that will not contaminate milk and are proven effective should be used. Manufacturers should provide information about the effectiveness of their product. The measures of effectiveness have been standardized by the National Mastitis Council (NMC), and should be used by manufacturers in testing their product. Producers should select products that have been proven effective using the NMC protocol.

There are many effective post-dips available on the market by many manufacturers. When products require mixing or dilution, manufacturer directions should be followed carefully. Products must be used within their period of effectiveness or they should be appropriately discarded. Most post-dips contain skin conditioners and emollients to prevent chapping and keep teat skin healthy and supple.

Post-dip should be applied immediately after milking. Milkers must be sure to cover at least 3/4 of the length of the teat or the entire teat that has been inside the inflation. Post-dip must be applied with an effective applicator.

Non-return dip cups are recommended for assuring complete coverage. For convenience, it may be tempting to use a sprayer to apply teat dip. This is usually not successful. In fact, unless the milker turns the bottle backwards, reaches beyond the teat and sprays back at their face, it is unlikely that they will apply any dip to the far side of the teat. Cone shaped spray wands may allow one to reach all surfaces of the teat, but are expensive and waste more dip. Ring-type sprayers will apply dip to the entire target area of the teat when used properly, but they are expensive, pores can clog easily, and they are rather susceptible to cow kicks. While convenient, milkers find it difficult to adequately and consistently achieve complete coverage when using these modified sprayers.

Milkers should continue to apply post-dip even in extremely cold weather. Caution must be taken to prevent frozen teats. In extreme conditions, when temperatures or wind chills threaten tissue freezing, cows should be allowed to stand in the parlor until their teats have dried. Often the cow traffic area between the milking parlor and barn will represent the most extreme conditions the cows will face. After 30 seconds of contact time post-dip may be gently blotted from the teats, with a clean towel per cow, to aid in the drying process. Use teat dips especially formulated for severe winter conditions. One may also consider teat dips that are formulated for winter conditions. Some of these teat dips have more skin conditioners and additives for improved protection against frostbite in winter, some are a powder and go on dry. Salves and ointments should be avoided, because containers are not single-use and become a harbor for bacteria.

**Release of cows:** Cows should be released from their milking stalls as soon as practical after milking. In linear parlors, this is when all of the cows on an entire side of the parlor are finished. Cows should be allowed to exit in a calm and orderly manner. Cows have a thirst response following milking and providing water soon after milking appears to be beneficial. In any event, fresh feed and water should be provided to cows after milking to encourage them to remain standing for about 60 minutes until their teat sphincters have had suitable time to close.

**Special needs cows:** Milking special needs cows last will help prevent the spread of disease to healthy cows, and, in the case of treated cows, will be an extra reminder to withhold the milk from the bulk tank. Fresh cows, treated cows, and sick cows may need special attention and may require deviations from established milking routines. Establish a separate written protocol for special needs cows so that each milker will know exactly what to do. Milk from fresh and sick cows may need to be collected in a catch pail and discarded. It takes time to attach the catch pail, so it is recommended that procedures for special needs cows be done before or after prepping and attaching milking units to healthy cows so that timing is uninterrupted. Every cow that was treated with an

antibiotic should be tested for antibiotic residue before offering the milk for sale.

If a treated cow must be milked while healthy cows are also being milked, the milk must be captured in a catch pail using a dedicated milking cluster. The milk line must not be used as a vacuum source for catch pails.

There is greatly reduced risk of antibiotic contamination of milk if the special needs cows can be segregated and milked separately from their healthy herdmates, either in a separate facility or at the end of the milking shift. This allows the milk line to be removed from the bulk tank while sick or treated cows are milked.

Cows with blind quarters, such as three-quarter cows or worse may be milked by machine and produce considerable amounts of milk. However, great care should be used to identify these cows and use proper milking procedures. Such cows should be clearly marked so that each milker knows which quarter(s) should not have milking units attached. Attachment to blind quarters can allow very high levels of bacteria and somatic cells to enter the milk line. Further, standardized, plastic or rubber, non-porous plugs that fit snugly inside the inflation during milking should be used to block air admission into any inflations not in use. During milking, these plugs must be stored in a sanitizing solution. Outside of milking times, they must be properly cleaned and stored in the milk house. The practice of folding the inflation to pinch off the vacuum line is strongly discouraged, since it nearly always results in some level of air admission.

**Clean up:** Milkers are generally responsible for clean up following milking. Clean up involves a number of activities that are dependent on the type of milking system and may depend on the developed task and job descriptions of each farm. Tasks that must be accomplished include the following: removing the milk line from the bulk tank, preparing the milking system for automatic cleaning or cleaning and sanitizing the milking equipment manually, cleaning and sanitizing teat dip dispenser cups, discarding paper towels or laundering and disinfecting cloth towels, thoroughly cleaning the milking parlor platform and pit, cleaning the remainder of the parlor as needed, and removing or changing the in-line milk filter.

## GENERAL DESCRIPTION OF STANDARD OPERATING PROCEDURES (SOPS) AND SITUATIONS

In this guideline, efforts were made simply to outline the critical elements of all milking procedures. The exact milking routine selected for each farm may differ to some

extent because of the size and type of the milking system, the number of milkers and the desired udder preparation.

**Anyone who establishes a milking routine to achieve optimal milking efficiency must be aware of the critical role of oxytocin and its short life. The milking routine should be designed to take advantage of its unique role in milk let down!**

The overriding goal of all milking procedures is to establish routines that ensure that milkers attach poorly functioning milking units to clean, dry teats and teat ends. An equally important goal, especially for today's high producing cows, is to achieve optimal milk let down.

The optimal milk let down cannot be accomplished unless the cow is prepared for milking using a routine that fully utilizes a cow's oxytocin. A milking routine that can cause a full release of oxytocin and then allow the cow to fully utilize all that oxytocin, while it lasts, does not happen by chance. A well-designed procedure is a consistent routine comprised of exact tasks that must be performed using defined techniques and precision timing.

Since the release and utilization of oxytocin is the cornerstone of fast milk out, it only makes sense that a good milking routine must be designed around the optimal release and full utilization of oxytocin.

While the following procedures may appear to be different in their execution, the critical elements necessary for the optimal release and full utilization of oxytocin are present in every routine. Those critical elements are the specific tasks that are performed for a prescribed time in a specific timing sequence. Those critical elements cannot be altered without losing some portion of the potential for optimal milk let down.

**The critical elements found in each of the following routines, regardless of the type of milking facility, the type of udder prep used or the number of people milking are as follows:**

- 1. Stimulation time of 10-20 seconds per cow. This physical manipulation of the teats is necessary for the full release of oxytocin. This is normally accomplished by cleaning and forestripping the teats. Forestripping should be done at the same time as the cleaning to accomplish the maximum stimulation.**
- 2. Milking unit is attached from at least 60 to about 90 seconds after the start of manual stimulation. This time (prep-lag time) is a must to fully utilize the oxytocin released by the stimulation. This timing is important for milk out because the oxytocin arrives at the mammary gland approximately one minute after stimulation and begins to diminish in the blood stream almost immediately thereafter.**

## INDIVIDUAL SOPS FOR 13 SITUATIONS

The following sections contain milking routines that are recommended for each of 13 combinations of milking parlor or facility types, udder preparation (pre-dip vs. germicidal wipes or udder wash), and number of milkers.

After a milking procedure has been selected and everyone who milks has been properly trained in the routine, a plan has to be developed to ensure consistent compliance with the specific details of that routine. The use of a written procedure and a checklist of expectations (evaluation checklist) are important tools to maintain compliance with the established procedure.

Evaluation checklists are provided for each of the 13 recommended milking procedures. The checklists should simplify and standardize the evaluation of milkers. They should be used on a regular basis to maintain and evaluate the routine. Even milking routines that are excellent in design and properly implemented are destined to fail if regular evaluation of each person who milks is not done. **Without regular evaluation the milking routine will quickly erode into one that is based on milkers' personal preference and convenience.**

### Procedures for Linear Parlors

*Procedure #1.* Territorial routine using pre-dip. One milker performs all tasks. The corresponding Evaluation checklist is on the following page.

*Procedure #2.* Sequential routine using pre-dip. Two milkers assigned tasks. The corresponding Evaluation checklist is on the following page.

*Procedure #3.* Sequential routine using pre-dip. Three milkers assigned tasks. The corresponding Evaluation checklist is on the following page.

Note: Udder wash or germicidal wipes can replace pre-dip in these procedures for linear parlors. Refer to Procedure #7 (one milker) or Procedure #9 (two milkers) for the appropriate wording of the written procedure.

### Procedures for Stall Barns, Tandem (Auto Flow®), Flat or Step-up Parlors

*Procedure #4.* One step routine using pre-dip. One milker performs all tasks. The corresponding Evaluation checklist is on the following page.

*Procedure #5.* One-step routine using udder wash or germicidal wipes. One milker performs all tasks. The corresponding Evaluation checklist is on the following page.

*Procedure #6.* Two step routine using pre-dip. One milker performs all tasks. The corresponding Evaluation checklist is on the following page.

*Procedure #7.* Two step routine using udder wash or germicidal wipes. One milker performs all tasks. The corresponding Evaluation checklist is on the following page.

*Procedure #8.* Two step routine using pre-dip. Two milkers assigned tasks. The corresponding Evaluation checklist is on the following page.

*Procedure #9.* Two step routine using udder wash or germicidal wipes. Two milkers assigned tasks. The corresponding Evaluation checklist is on the following page.

### **Procedures for Rotary Parlors**

*Procedure #10.* Internal rotary routine using pre-dip. Two milkers assigned tasks. The corresponding Evaluation checklist is on the following page.

*Procedure #11* Internal or external rotary routine using pre-dip. Three milkers assigned tasks. The corresponding Evaluation checklist is on the following page.

*Procedure #12.* External rotary routine using pre-dip. Four milkers assigned tasks. The corresponding Evaluation checklist is on the following page.

*Procedure #13.* External rotary routine using pre-dip. Five milkers assigned tasks. The corresponding Evaluation checklist is on the following page.

Note: Udder wash or germicidal wipes can replace pre-dip in these procedures for rotary parlors. Refer to Procedure #7 (one person) or Procedure #9 (two people) for the appropriate wording of the written procedure.

Note: Effort was not made to provide a procedure for milking in an external rotary parlor with fewer than three milkers or an internal rotary with fewer than two milkers. In these small parlors, this is difficult because the operator must move with the cow making this a difficult routine to design, to maintain all key elements, and to simultaneously allow for establishment of a consistent routine that can be assured for every cow, every time she is milked.

<b>PROCEDURE #1 — TERRITORIAL ROUTINE FOR PARLORS USING PRE-DIP</b> <b>ONE MILKER PERFORMS ALL TASKS</b>
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General practices:

1. All milkers wear gloves, comfortably tight.
2. Check vacuum gauge to assure proper milking vacuum level.
3. Allow cows to enter parlor voluntarily.
4. Cows are handled gently and quietly.
5. Towels are never used on more than one cow.
6. Keep music and other noises to a minimum.
7. Strict adherence to the timing of the tasks and between the tasks is expected.
8. Start prep as soon as cow is in stall.

FIRST VISIT TO COW (clean, pre-dip and stimulate):

[Can perform routine in groups of 3 to 6 cows as long as there is at least 60 to about 90 seconds elapse between start of stimulation and attachment]

1. **Gently brush** loose soil and bedding from teats using clean gloved hand and/or towel.
2. Pre-dip technique (**20 seconds preferred** per cow, 10 seconds minimum):
  - a. Apply pre-dip to assure **complete coverage** of teat skin.
  - b. Gently but firmly **massage** pre-dip on teat skin. This starts stimulation.
  - c. Gently but firmly rub **across teat end** with thumb until clean.
  - d. **Pre-strip** foremilk from each quarter and observe for abnormalities.
3. Allow at least **30 seconds or recommended** kill time for pre-dip from time of application. (During kill time, repeat steps 1 to 3 on next 2, 3, 4 or 5 cows.)

SECOND VISIT TO COW (wipe dry and attach):

4. Return to each cow no later than **55 to 75 seconds** after the start of stimulation.
5. Use **clean** towel with a gentle, **twisting** motion to ensure **all** pre-dip is wiped off teat skin. Using other side of towel **draped over thumb**, firmly wipe across **each teat end**.
6. Immediately attach unit **gently with minimal air admission**. Target attachment at least **60 to about 90 seconds** from start of stimulation.
7. Properly **align** unit to hang straight and square.
8. Select **'automatic'** mode for automatic take-offs.  
(Repeat steps 4 to 8 on the next 2, 3, 4 or 5 cows already prepped)

Continue this routine for groups of 3, 4, 5 or 6 cows until all units are attached.

FINAL VISIT TO COW (detach and apply post-dip):

1. For manual equipment, shut off claw vacuum and detach unit in a **timely** manner.
2. Apply post-dip as **soon as practical** after unit is detached, covering **all** teat skin.

General Parlor Activities:

1. **Immediately attend to** squawking inflations, realignments and kickoffs.
2. Rinse gloves when **dirty** or exposed to **milk**. **Change** gloves as necessary.
3. Rinse outside of milking **units** when dirty, ensuring that vacuum is off.
4. Clean **cow platform** as needed.
5. Keep teat dip **applicators** clean.
6. Follow farm protocol for **handling special needs cows**.

**EVALUATION FOR PROCEDURE #1**  
**TERRITORIAL ROUTINE FOR PARLORS USING PRE-DIP**  
**ONE MILKER PERFORMS ALL TASKS**

Name: \_\_\_\_\_ Date: \_\_\_\_\_

FIRST VISIT TO COW (clean, pre-dip and stimulate):

- 1. Gently brushes loose soil and bedding from teats ..... Y N
- 2. Applies pre-dip to assure complete coverage of teat skin ..... Y N
- 3. Gently but firmly massages pre-dip on teat skin ..... Y N
- 4. Gently but firmly rubs across teat end with thumb until clean ..... Y N
- 5. Pre-strips foremilk from each quarter ..... Y N
- 6. Spends a minimum of 10 seconds for steps 3 thru 5 ..... Y N
- 7. Allows at least 30 seconds or recommended kill time for pre-dip ..... Y N
- 8. Stimulates and cleans in groups of 3 to 6 cows ..... Y N

SECOND VISIT TO COW (wipe dry and attach):

- 9. Returns to each cow no later than 55 to 75 seconds after start of stimulation ..... Y N
- 10. Uses clean towel with twisting motion to wipe all pre-dip off teat skin ..... Y N
- 11. Uses other side of towel draped over thumb to wipe across each teat end ..... Y N
- 12. Immediately attaches unit gently with minimal air admission ..... Y N
- 13. Unit is attached at least 60 to about 90 seconds after start of stimulation ..... Y N
- 14. Teats and teat ends are clean and properly stimulated when milking unit is attached ..... Y N
- 15. Properly aligns unit ..... Y N
- 16. Selects 'automatic' mode for automatic take-offs ..... Y N
- 17. Wipes and attaches units in groups of 3 to 6 cows ..... Y N

FINAL VISIT TO COW (detach and post-dip):

- 18. Manual equipment: shuts off vacuum and detaches unit in a timely manner ..... Y N
- 19. Post dips as soon as practical covering all teat skin ..... Y N

General Parlor Activities:

- 1. Wears properly fitting gloves (comfortably tight) ..... Y N
- 2. Allows voluntary cow entry ..... Y N
- 3. Handles cows gently and quietly ..... Y N
- 4. Keeps music volume low ..... Y N
- 5. Attends to squawking inflations ..... Y N
- 6. Uses a towel on only one cow ..... Y N
- 7. Cleans or changes gloves when dirty or exposed to mastitic milk ..... Y N
- 8. Rinses manure from outside of units when dirty, with vacuum off ..... Y N
- 9. Rinses manure from cow platform ..... Y N
- 10. Keeps teat dip applicators clean ..... Y N

Comments:

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Employee's Signature: \_\_\_\_\_

Evaluator's Signature: \_\_\_\_\_

## PROCEDURE # 2 — SEQUENTIAL ROUTINE FOR PARLORS USING PRE-DIP

### TASKS ASSIGNED TO TWO MILKERS

General practices:

1. All milkers wear gloves, comfortably tight.
2. Check vacuum gauge to assure proper milking vacuum level.
3. Allow cows to enter parlor voluntarily.
4. Cows are handled gently and quietly.
5. Towels are never used on more than one cow.
6. Keep music and other noises to a minimum.
7. Strict adherence to the timing of the tasks and between the tasks is expected.
8. Start prep as soon as cow is in stall.

FIRST MILKER TO COW (clean, pre-dip and stimulate):

1. **Gently brush** loose soil and bedding from teats using clean gloved hand and/or towel.
2. Pre-dip technique (**20 seconds preferred** per cow, 10 seconds minimum):
  - a. Apply pre-dip to assure **complete coverage** of teat skin.
  - b. Gently but firmly **massage** pre-dip on teat skin. This starts stimulation.
  - c. Gently but firmly rub **across teat end** with thumb until clean.
  - d. **Pre-strip** foremilk from each quarter and observe for abnormalities.
3. Proceed with steps 1 and 2 on all cows on side.

SECOND MILKER TO COW (wipe dry and attach):

4. Begins wiping each cow **no sooner than 30 seconds** after pre-dip is applied.
5. Use **clean** towel with a gentle, **twisting** motion to ensure **all** pre-dip is wiped off teat skin. Using other side of towel **draped over thumb**, firmly wipe across **each teat end**.
6. Immediately attach unit **gently with minimal air admission** to target attachment with in **at least 60 to about 90 seconds** from start of stimulation.
7. Properly **align** unit to hang straight and square.
8. Select '**automatic**' mode for automatic take-offs.
9. Proceed with steps 4 to 8 on all cows on side.

**Generally maintaining 4 to 6 cows between first and second milker will accomplish the goal of at least 60 to about 90 seconds between start of stimulation and attachment.**

FIRST MILKER FINAL VISIT TO COW (detach and apply post-dip):

1. For manual equipment, shut off claw vacuum and detach unit in a **timely** manner.
2. Apply post-dip as **soon as practical** after unit is detached covering **all** teat skin.

When finished attaching units, **second** milker assists first milker or attends to other tasks.

General Parlor Activities:

1. **Immediately attend to** squawking liners, realignments and kickoffs.
2. Rinse gloves when **dirty** or exposed to **milk**. **Change** gloves as necessary.
3. Rinse outside of milking **units** when dirty, with vacuum off.
4. Clean **cow platform** as needed.
5. Keep teat dip **applicators** clean.
6. Follow farm protocol for **handling special needs cows**.

**EVALUATION FOR PROCEDURE #2**  
**SEQUENTIAL ROUTINE FOR PARLORS USING PRE-DIP**  
**TASKS ASSIGNED TO TWO MILKERS**

Name: \_\_\_\_\_ Date: \_\_\_\_\_

**FIRST MILKER TO COW (clean, pre-dip and stimulate):**

- 1. Gently brushes loose soil and bedding from teats ..... Y N
- 2. Applies pre-dip to assure complete coverage of teat skin ..... Y N
- 3. Gently but firmly massages pre-dip on teat skin ..... Y N
- 4. Gently but firmly rubs across teat end with thumb until clean ..... Y N
- 5. Pre-strips foremilk from each quarter ..... Y N
- 6. Spends a minimum of 10 seconds for steps 3 thru 5 ..... Y N

**SECOND MILKER TO COW (wipe dry and attach):**

- 7. Begins wiping each cow no sooner than 30 seconds after pre-dip is applied..... Y N
- 8. Uses clean towel with twisting motion to wipe all pre-dip off teat skin ..... Y N
- 9. Uses other side of towel draped over thumb to wipe across each teat end..... Y N
- 10. Immediately attaches unit gently with minimal air admission ..... Y N
- 11. Unit is attached within at least 60 to about 90 seconds after start of stimulation..... Y N
- 12. Teats and teat ends are clean and properly stimulated when milking unit is attached ..... Y N
- 13. Properly aligns unit ..... Y N
- 14. Selects 'automatic' mode for automatic take-offs ..... Y N
- 15. Keeps 4-6 cows behind 1<sup>st</sup> milker (attached at least 60 to about 90 seconds from stimulation) ..... Y N

**FIRST MILKER FINAL VISIT TO COW (detach and post-dip):**

- 1. Manual equipment: shuts off vacuum and detaches unit in a timely manner ..... Y N
- 2. Post-dips as soon as practical covering all teat skin ..... Y N

**General Parlor Activities:**

- 1. Wears properly fitting gloves (comfortably tight) ..... Y N
- 2. Allows voluntary cow entry ..... Y N
- 3. Handles cows gently and quietly ..... Y N
- 4. Keeps music volume low ..... Y N
- 5. Attends to squawking inflations ..... Y N
- 6. Uses a towel on only one cow ..... Y N
- 7. Rinses or changes gloves when dirty or exposed to mastitic milk ..... Y N
- 8. Rinses manure from outside of units when dirty, with vacuum off ..... Y N
- 9. Rinses manure from cow platform ..... Y N
- 10. Keeps teat dip applicators clean ..... Y N

Comments:

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Employee's Signature: \_\_\_\_\_

Evaluator's Signature: \_\_\_\_\_

## PROCEDURE # 3 — SEQUENTIAL ROUTINE FOR PARLORS USING PRE-DIP

### TASKS ASSIGNED TO THREE MILKERS

General practices:

1. All milkers wear gloves, comfortably tight.
2. Check vacuum gauge to assure proper milking vacuum level.
3. Allow cows to enter parlor voluntarily.
4. Cows are handled gently and quietly.
5. Towels are never used on more than one cow.
6. Keep music and other noises to a minimum.
7. Strict adherence to the timing of the tasks and between the tasks is expected.
8. Start prep as soon as cow is in stall.

FIRST MILKER TO COW (clean, pre-dip and stimulate):

1. **Gently brush** loose soil and bedding from teats using clean gloved hand and/or towel.
2. Pre-dip technique (**20 seconds preferred** per cow, 10 seconds minimum):
  - a. Apply pre-dip to assure **complete coverage** of teat skin.
  - b. Gently but firmly **massage** pre-dip on teat skin. This starts stimulation.
  - c. Gently but firmly rub **across teat end** with thumb until clean.
  - d. **Pre-strip** foremilk from each quarter and observe for abnormalities.
3. Proceed with steps 1 and 2 on all cows on side.

SECOND MILKER TO COW (wipe dry):

4. Begins wiping each cow **no sooner than 30 seconds** after pre-dip is applied.
5. Use **clean** towel with a gentle, **twisting** motion to ensure **all** pre-dip is wiped off teat skin. Using other side of towel **draped over thumb**, firmly wipe across **each teat end**.
6. Proceed with steps 4 to 5 on all cows on the side.

**Generally maintaining 2 to 3 cows between first and second milker will accomplish the goal of 30 seconds kill time and oxytocin release time.**

THIRD MILKER TO COW (attach):

7. Begins attaching unit **gently with minimal air admission** immediately after the cow is dried to target attachment within at least **60 to about 90 seconds** from start of stimulation.
8. Properly **align** unit to hang straight and square.
9. Select **'automatic'** mode for automatic takeoffs.
10. Proceed with steps 7 to 9 on all cows on side.

**Generally when the third milker closely follows the second milker the goal of at least 60 to about 90 seconds between start of stimulation and attachment is accomplished.**

FIRST MILKER FINAL VISIT TO COW (detach and apply post-dip):

1. For manual equipment, shut off claw vacuum and detach unit in a **timely** manner.
2. Apply post-dip as **soon as practical** after unit is detached covering **all** teat skin.

When finished wiping and attaching, **second** and **third** milkers assist first milker or attend to other tasks.

General Parlor Activities:

1. **Immediately attend to** squawking liners, realignments and kickoffs.
2. Rinse gloves when **dirty** or exposed to **milk**. **Change** gloves as necessary.
3. Rinse **units** when dirty.
4. Clean **cow platform** as needed.
5. Keep teat dip **applicators** clean.
6. Follow farm protocol for **handling special needs cows**.

**EVALUATION FOR PROCEDURE #3**  
**SEQUENTIAL ROUTINE FOR PARLORS USING PRE-DIP**  
**TASKS ASSIGNED TO THREE MILKERS**

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**FIRST MILKER TO COW (clean, pre-dip and stimulate):**

- 1. Gently brushes loose soil and bedding from teats ..... Y N
- 2. Applies pre-dip to assure complete coverage of teat skin ..... Y N
- 3. Gently but firmly massages pre-dip on teat skin ..... Y N
- 4. Gently but firmly rubs across teat end with thumb until clean ..... Y N
- 5. Pre-strips foremilk from each quarter ..... Y N
- 6. Spends a minimum of 10 seconds for steps 3 thru 5 ..... Y N

**SECOND MILKER TO COW (wipe dry):**

- 7. Begins wiping each cow no sooner than 30 seconds after pre-dip is applied..... Y N
- 8. Uses clean towel with twisting motion to wipe all pre-dip off teat skin ..... Y N
- 9. Uses other side of towel draped over thumb to wipe across each teat end ..... Y N
- 10. Keeps 2-3 cows behind 1<sup>st</sup> milker (this helps maintain adequate kill time) ..... Y N
- 11. Teats and teat ends are clean and properly stimulated when milking unit is attached ..... Y N

**THIRD MILKER TO COW (attach)**

- 12. Attaches unit gently with minimal air admission as soon as cow is dried ..... Y N
- 13. Unit is attached within at least 60 to about 90 seconds after start of stimulation..... Y N
- 14. Properly aligns unit ..... Y N
- 15. Selects 'automatic' mode for automatic take-offs ..... Y N
- 16. Keeps close behind 2<sup>nd</sup> milker (maintains at least 60 to about 90 seconds from stimulation)..... Y N

**FIRST MILKER FINAL VISIT TO COW (detach and post-dip):**

- 17. Manual equipment: shuts off vacuum and detaches unit in a timely manner..... Y N
- 18. Post dips as soon as practical covering all teat skin ..... Y N

**General Parlor Activities:**

- 1. Wears properly fitting gloves (comfortably tight) ..... Y N
- 2. Allows voluntary cow entry ..... Y N
- 3. Handles cows gently and quietly ..... Y N
- 4. Keeps music volume low ..... Y N
- 5. Attends to squawking inflations ..... Y N
- 6. Uses a towel on only one cow ..... Y N
- 7. Rinses or changes gloves when dirty or exposed to mastitic milk ..... Y N
- 8. Rinses manure from outside of units when dirty, with vacuum off ..... Y N
- 9. Rinses manure from cow platform ..... Y N
- 10. Keeps teat dip applicators clean ..... Y N

Comments:

\_\_\_\_\_  
\_\_\_\_\_

Employee's Signature: \_\_\_\_\_

Evaluator's Signature: \_\_\_\_\_

<b>PROCEDURE #4 — ONE STEP UDDER PREP ROUTINE USING PRE-DIP FOR STALL BARNs AND TANDEM, FLAT AND STEP-UP PARLORS</b>
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**ONE MILKER PERFORMS ALL TASKS**

General practices:

1. All milkers wear gloves, comfortably tight.
2. Check vacuum gauge to assure proper milking vacuum level.
3. Allow cows to enter parlor voluntarily.
4. Cows are handled gently and quietly.
5. Towels are never used on more than one cow.
6. Keep music and other noises to a minimum.
7. Strict adherence to the timing of the tasks and between the tasks is expected.
8. Start prep as soon as cow is in stall.

FIRST VISIT TO COW (stimulate, clean, wipe and attach):

[All cows are prepped individually with at least 60 to about 90 seconds between start of stimulation and attachment]

1. **Gently brush** loose soil and bedding from teats using clean gloved hand and/or towel.
2. Pre-dip technique (**30 seconds minimum** per cow):
  - a. Apply pre-dip to assure **complete coverage** of teat skin
  - b. Gently but firmly **massage** pre-dip on teat skin. This starts stimulation.
  - c. Gently but firmly rub **across teat end** with thumb until clean.
  - d. **Pre-strip** foremilk from each quarter and observe for abnormalities.
  - e. Use **clean** towel with a gentle, **twisting** motion to ensure **all** pre-dip is wiped off teat skin. Using other side of towel **draped over thumb**, firmly wipe across **each teat end**.

3. Properly **align** unit to hang straight and square.

Select '**automatic**' mode for automatic take-offs. **Allow at least 60 to about 90 seconds from start of stimulation before attaching unit.**

1. Attach unit **gently with minimal air admission.**

FINAL VISIT TO COW (detach and apply post-dip):

1. For manual equipment, shut off claw vacuum and detach unit in a **timely** manner.
2. Apply post-dip as **soon as practical** after unit is detached covering **all** teat skin.

General Parlor Activities:

1. **Immediately attend to** squawking liners, realignments and kickoffs.
2. Rinse gloves when **dirty** or exposed to **milk**. **Change** gloves as necessary.
3. Rinse **units** when dirty.
4. Clean **cow platform** as needed.
5. Keep teat dip **applicators** clean.
6. Follow farm protocol for **handling special needs cows.**

**EVALUATION FOR PROCEDURE #4**  
**ONE STEP UDDER PREP ROUTINE USING PRE-DIP FOR STALL BARNS AND**  
**TANDEM, FLAT AND STEP-UP PARLORS**  
**ONE MILKER PERFORMS ALL TASKS**

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**FIRST VISIT TO COW (stimulate, clean, wipe and attach):**

- 1. Gently brushes loose soil and bedding from teats ..... Y N
- 2. Applies pre-dip to assure complete coverage of teat skin ..... Y N
- 3. Gently but firmly massages pre-dip on teat skin ..... Y N
- 4. Gently but firmly rubs across teat end with thumb until clean..... Y N
- 5. Pre-strips foremilk from each quarter ..... Y N
- 6. Spends a minimum of 10 seconds for steps 3 thru 5 ..... Y N
- 7. Uses clean towel with twisting motion to wipe all pre-dip off teat skin ..... Y N
- 8. Uses other side of towel draped over thumb to wipe across each teat end..... Y N
- 9. Allows at least 60 to about 90 seconds from start of stimulation before attaching unit ..... Y N
- 10. Teats and teat ends are clean and properly stimulated when milking unit is attached ..... Y N
- 11. Attaches unit gently with minimal air admission ..... Y N
- 12. Properly aligns unit ..... Y N
- 13. Selects 'automatic' mode for automatic take-offs ..... Y N

**FINAL VISIT TO COW (detach and post-dip):**

- 14. Manual equipment: shuts off vacuum and detaches unit in a timely manner ..... Y N
- 15. Post dips as soon as practical covering all teat skin ..... Y N

**General Parlor Activities:**

- 1. Wears properly fitting gloves (comfortably tight) ..... Y N
- 2. Allows voluntary cow entry ..... Y N
- 3. Handles cows gently and quietly ..... Y N
- 4. Keeps music volume low ..... Y N
- 5. Attends to squawking inflations ..... Y N
- 6. Uses a towel on only one cow ..... Y N
- 7. Rinses or changes gloves when dirty or exposed to mastitic milk ..... Y N
- 8. Rinses manure from outside of units when dirty, with vacuum off ..... Y N
- 9. Rinses manure from cow platform ..... Y N
- 10. Keeps teat dip applicators clean ..... Y N

Comments:

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Employee's Signature: \_\_\_\_\_

Evaluator's Signature: \_\_\_\_\_

**PROCEDURE #5 — ONE STEP UDDER PREP ROUTINE  
USING UDDER WASH OR GERMICIDAL WIPES FOR  
STALL BARN AND TANDEM, FLAT AND STEP-UP PARLORS  
ONE MILKER PERFORMS ALL TASKS**

General practices:

1. All milkers wear gloves, comfortably tight.
2. Check vacuum gauge to assure proper milking vacuum level.
3. Allow cows to enter parlor voluntarily.
4. Cows are handled gently and quietly.
5. Towels are never used on more than one cow.
6. Keep music and other noises to a minimum.
7. Strict adherence to the timing of the tasks and between the tasks is expected.
8. Start prep as soon as cow is in stall.

FIRST VISIT TO COW (stimulate, clean, wipe and attach):

[All cows are prepped individually with at least 60 to about 90 seconds between start of stimulation and attachment]

1. **Gently brush** loose soil and bedding from teats using clean gloved hand and/or towel.
2. **Udder wash** technique (**30 seconds minimum** per cow):
  - a. Wet or dampen a single service towel with udder wash or use germicidal wipe
  - b. **Pre-strip** foremilk from each quarter and observe for abnormalities.
  - c. Gently but firmly **massage** all teat skin with a twisting, downward motion. This starts stimulation.
  - d. Using other side of towel/wipe **draped over thumb**, firmly rub across **each teat end**.
3. **Allow at least 60 to about 90 seconds from start of stimulation before attaching unit.**
4. If teats are wet, use a clean towel to wipe all udder wash off teat skin. Using other side of towel/wipe **draped over thumb**, firmly wipe across **each teat end**.
5. When teats are dry, attach unit **gently with minimal air admission**.
6. Properly **align** unit to hang straight and square.
7. Select '**automatic**' mode for automatic take-offs.

FINAL VISIT TO COW (detach and apply post-dip):

1. For manual equipment, shut off claw vacuum and detach unit in a **timely** manner.
2. Apply post-dip as **soon as practical** after unit is detached covering **all** teat skin.

General Parlor Activities:

1. **Immediately attend to** squawking liners, realignments and kickoffs.
2. Rinse gloves when **dirty** or exposed to **milk**. **Change** gloves as necessary.
3. Rinse **units** when dirty.
4. Clean **cow platform** as needed.
5. Keep teat dip **applicators** clean.
6. Follow farm protocol for **handling special needs cows**.

**EVALUATION FOR PROCEDURE #5**  
**ONE STEP UDDER PREP ROUTINE USING UDDER WASH OR GERMICIDAL WIPES FOR STALL BARNs AND TANDEM, FLAT AND STEP-UP PARLORS**  
**ONE MILKER PERFORMS ALL TASKS**

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**FIRST VISIT TO COW (stimulate, clean, wipe and attach):**

- 1. Gently brushes loose soil and bedding from teats ..... Y N
- 2. Uses a single service towel with udder wash or uses a germicidal wipe..... Y N
- 3. Pre-strip foremilk from each quarter ..... Y N
- 4. Gently but firmly massages all teat skin with towel/wipe..... Y N
- 5. Gently but firmly rubs across teat end with towel/wipe over thumb..... Y N
- 6. Assures steps 2-5 together takes a minimum of 30 seconds per cow ..... Y N
- 7. Allows at least 60 to about 90 seconds from start of stimulation before attaching unit ..... Y N
- 8. If teats are wet, uses clean, single service towel to wipe off all udder wash..... Y N
- 9. Uses other side of towel draped over thumb to wipe across each teat end..... Y N
- 10. Teats and teat ends are clean and properly stimulated when milking unit is attached ..... Y N
- 11. If teats are dry, attaches unit gently with minimal air admission ..... Y N
- 12. Properly aligns unit ..... Y N
- 13. Selects 'automatic' mode for automatic take-offs ..... Y N

**FINAL VISIT TO COW (detach and post-dip):**

- 14. Manual equipment: shuts off vacuum and detaches unit in a timely manner..... Y N
- 15. Post dips as soon as practical covering all teat skin ..... Y N

**General Parlor Activities:**

- 1. Wears properly fitting gloves (comfortably tight) ..... Y N
- 2. Allows voluntary cow entry ..... Y N
- 3. Handles cows gently and quietly ..... Y N
- 4. Keeps music volume low ..... Y N
- 5. Attends to squawking inflations ..... Y N
- 6. Uses a towel on only one cow ..... Y N
- 7. Rinses or changes gloves when dirty or exposed to mastitic milk ..... Y N
- 8. Rinses manure from outside of units when dirty, with vacuum off ..... Y N
- 9. Rinses manure from cow platform ..... Y N
- 10. Keeps teat dip applicators clean..... Y N

**Comments:**

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Employee's Signature: \_\_\_\_\_

Evaluator's Signature: \_\_\_\_\_

## PROCEDURE #6 — TWO STEP UDDER PREP ROUTINE USING PRE-DIP FOR STALL BARNs AND TANDEM, FLAT AND STEP-UP PARLORS

### ONE MILKER DOES ALL TASKS

General practices:

1. All milkers wear gloves, comfortably tight.
2. Check vacuum gauge to assure proper milking vacuum level.
3. Allow cows to enter parlor voluntarily.
4. Cows are handled gently and quietly.
5. Towels are never used on more than one cow.
6. Keep music and other noises to a minimum.
7. Strict adherence to the timing of the tasks and between the tasks is expected.
8. Start prep as soon as cow is in stall.

FIRST VISIT TO COW (clean, pre-dip and stimulate):

[Can perform routine in groups of 2 to 4 cows as long as no more than at least 60 to about 90 seconds **elapse** between start of stimulation and attachment]

1. **Gently brush** loose soil and bedding from teats using clean gloved hand and/or towel.
2. Pre-dip technique (**20 seconds preferred** per cow, 10 seconds minimum):
  - a. Apply pre-dip to assure **complete coverage** of teat skin.
  - b. Gently but firmly **massage** pre-dip on teat skin. This starts stimulation.
  - c. Gently but firmly rub **across teat end** with thumb until clean.
  - d. **Pre-strip** foremilk from each quarter and observe for abnormalities.
3. Allow at least **30 seconds or recommended** kill time for pre-dip from time of application.  
(During kill time, repeat steps 1 to 3 on next 1, 2 or 3 cows)

SECOND VISIT TO COW (wipe dry and attach):

4. Return to each cow no later than **55 to 75 seconds** after the start of stimulation.
5. Use **clean** towel with a gentle, **twisting** motion to ensure **all** pre-dip is wiped off teat skin. Use other side of towel and **thumb** to firmly wipe across the **teat ends**.
6. Immediately attach unit **gently with minimal air admission** to target attachment within **at least 60 to about 90 seconds** from start of stimulation.
7. Properly **align** unit to hang straight and square.
8. Select '**automatic**' mode for automatic take-offs.  
(Repeat steps 4 to 8 on the next 1, 2 or 3 cows already prepped)

Continue this routine for groups of 2, 3 or 4 cows until all units are attached.

FINAL VISIT TO COW (detach and apply post-dip):

1. For manual equipment, shut off claw vacuum and detach unit in a **timely** manner.
2. Apply post-dip as **soon as practical** after unit is detached covering **all** teat skin.

General Parlor Activities:

1. **Immediately attend to** squawking liners, realignments and kickoffs.
2. Rinse gloves when **dirty** or exposed to **milk**. **Change** gloves as necessary.
3. Rinse **units** when dirty.
4. Clean **cow platform** as needed.
5. Keep teat dip **applicators** clean.
6. Follow farm protocol for **handling special needs cows**.

**EVALUATION FOR PROCEDURE #6**  
**TWO STEP UDDER PREP ROUTINE USING PRE-DIP**  
**FOR STALL BARNS AND TANDEM, FLAT AND STEP-UP PARLORS**  
**ONE MILKER PERFORMS ALL TASKS**

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**FIRST VISIT TO COW (clean, pre-dip and stimulate):**

- 1. Gently brushes loose soil and bedding from teats ..... Y N
- 2. Applies pre-dip to assure complete coverage of teat skin ..... Y N
- 3. Gently but firmly massages pre-dip on teat skin (10 sec minimum per cow) ..... Y N
- 4. Gently but firmly rubs across teat end with thumb until clean ..... Y N
- 5. Pre-strips foremilk from each quarter ..... Y N
- 6. Assures steps 3-5 total a minimum of 10 seconds (20 seconds preferred) ..... Y N
- 7. Allows at least 30 seconds or recommended kill time for pre-dip ..... Y N
- 8. Stimulates and cleans in groups of 2 to 4 cows ..... Y N

**SECOND VISIT TO COW (wipe dry and attach):**

- 9. Returns to each cow no later than 55 to 75 seconds after start of stimulation ..... Y N
- 10. Uses clean towel with twisting motion to wipe all pre-dip off teat skin ..... Y N
- 11. Uses other side of towel draped over thumb to wipe across each teat end ..... Y N
- 12. Immediately attaches unit gently with minimal air admission ..... Y N
- 13. Teats and teat ends are clean and properly stimulated when milking unit is attached ..... Y N
- 14. Attaches unit at least 60 to about 90 seconds after start of stimulation ..... Y N
- 15. Properly aligns unit ..... Y N
- 16. Selects 'automatic' mode for automatic take-offs ..... Y N
- 17. Wipes and attaches units in groups of 2 to 4 cows ..... Y N

**FINAL VISIT TO COW (detach and post-dip):**

- 18. Manual equipment: shuts off vacuum and detaches unit in a timely manner ..... Y N
- 19. Post dips as soon as practical covering all teat skin ..... Y N

**General Parlor Activities:**

- 1. Wears properly fitting gloves (comfortably tight) ..... Y N
- 2. Allows voluntary cow entry ..... Y N
- 3. Handles cows gently and quietly ..... Y N
- 4. Keeps music volume low ..... Y N
- 5. Attends to squawking inflations ..... Y N
- 6. Uses a towel on only one cow ..... Y N
- 7. Rinses or changes gloves when dirty or exposed to mastitic milk ..... Y N
- 8. Rinses manure from outside of units when dirty, with vacuum off ..... Y N
- 9. Rinses manure from cow platform ..... Y N
- 10. Keeps teat dip applicators clean ..... Y N

Comments:

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Employee's Signature: \_\_\_\_\_

Evaluator's Signature: \_\_\_\_\_

## PROCEDURE #7 — TWO STEP UDDER PREP ROUTINE USING UDDER WASH OR GERMICIDAL WIPES FOR STALL BARNS AND TANDEM, FLAT AND STEP-UP PARLORS

### ONE MILKER PERFORMS ALL TASKS

General practices:

1. All milkers wear gloves, comfortably tight.
2. Check vacuum gauge to assure proper milking vacuum level.
3. Allow cows to enter parlor voluntarily.
4. Cows are handled gently and quietly.
5. Towels are never used on more than one cow.
6. Keep music and other noises to a minimum.
7. Strict adherence to the timing of the tasks and between the tasks is expected.
8. Start prep as soon as cow is in stall.

FIRST VISIT TO COW (clean, sanitize and stimulate):

[Can perform routine in groups of 2 to 4 cows as long as no more than at least 60 to about 90 seconds **elapse** between start of stimulation and attachment]

1. **Gently brush** loose soil and bedding from teats using clean gloved hand and/or towel.
2. **Udder wash** technique (**30 seconds minimum** per cow):
  - a. Wet or dampen a single service towel with udder wash or use germicidal wipe
  - b. **Pre-strip** foremilk from each quarter and observe for abnormalities.
  - c. Gently but firmly **massage** all teat skin with a twisting, downward motion. This starts stimulation.
  - d. Using other side of towel/wipe **draped over thumb**, firmly rub across **each teat end**.

SECOND VISIT TO COW (wipe dry and attach):

1. Return to each cow no later than **55 to 75 seconds** after the start of stimulation.
2. If teats are wet, use a clean towel to wipe all udder wash off teat skin.
3. Using other side of towel **draped over thumb**, firmly wipe across each **teat end**.
4. When teats are clean and dry, immediately attach unit **gently with minimal air admission** to target attachment within at least **60 to about 90 seconds** from start of stimulation.
5. Properly **align** unit to hang straight and square.
6. Select **'automatic'** mode for automatic take-offs.  
(Repeat steps 4 to 9 on the next 1, 2 or 3 cows already prepped)

Continue this routine for groups of 2, 3 or 4 cows until all units are attached.

FINAL VISIT TO COW (detach and apply post-dip):

1. For manual equipment, shut off claw vacuum and detach unit in a **timely** manner.
2. Apply post-dip as **soon as practical** after unit is detached covering **all** teat skin.

General Parlor Activities:

1. **Immediately attend to** squawking liners, realignments and kickoffs.
2. Rinse gloves when **dirty** or exposed to **milk**. **Change** gloves as necessary.
3. Rinse **units** when dirty.
4. Clean **cow platform** as needed.
5. Keep teat dip **applicators** clean.
6. Follow farm protocol for **handling special needs cows**.

**EVALUATION FOR PROCEDURE #7**

**TWO STEP UDDER PREP ROUTINE USING UDDER WASH OR GERMICIDAL WIPES FOR STALL BARN AND TANDEM, FLAT AND STEP-UP PARLORS  
ONE MILKER PERFORMS ALL TASKS**

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**FIRST VISIT TO COW (clean, sanitize and stimulate):**

- 1. Gently brushes loose soil and bedding from teats ..... Y N
- 2. Pre-strips foremilk from each quarter ..... Y N
- 3. Uses a single service towel with udder wash or uses a germicidal wipe..... Y N
- 4. Gently but firmly massages all teat skin with towel/wipe ..... Y N
- 5. Gently but firmly rubs across teat end with towel/wipe over thumb..... Y N
- 6. Assures steps 2-5 together takes a minimum of 30 seconds per cow ..... Y N
- 7. Allows at least 30 seconds kill time for udder wash/germicidal towel ..... Y N
- 8. Stimulates and cleans in groups of 2 to 4 cows..... Y N

**SECOND VISIT TO COW (wipe dry and attach):**

- 9. Returns to each cow no later than 55 to 75 seconds after start of stimulation ..... Y N
- 10. If teats are wet, uses clean, single service towel to wipe off all udder wash..... Y N
- 11. Uses other side of towel draped over thumb to wipe across each teat end..... Y N
- 12. Teats and teat ends are clean and properly stimulated when milking unit is attached ..... Y N
- 13. If teats are dry, attaches unit gently with minimal air admission ..... Y N
- 14. Attaches unit at least 60 to about 90 seconds after start of stimulation..... Y N
- 15. Properly aligns unit ..... Y N
- 16. Selects 'automatic' mode for automatic take-offs ..... Y N
- 17. Wipes and attaches units in groups of 2 to 4 cows..... Y N

**FINAL VISIT TO COW (detach and post-dip):**

- 18. Manual equipment: shuts off vacuum and detaches unit in a timely manner ..... Y N
- 19. Post dips as soon as practical covering all teat skin ..... Y N

**General Parlor Activities:**

- 1. Wears properly fitting gloves (comfortably tight) ..... Y N
- 2. Allows voluntary cow entry ..... Y N
- 3. Handles cows gently and quietly ..... Y N
- 4. Keeps music volume low ..... Y N
- 5. Attends to squawking inflations ..... Y N
- 6. Uses a towel on only one cow ..... Y N
- 7. Rinses or changes gloves when dirty or exposed to mastitic milk ..... Y N
- 8. Rinses manure from outside of units when dirty, with vacuum off ..... Y N
- 9. Rinses manure from cow platform ..... Y N
- 10. Keeps teat dip applicators clean ..... Y N

Comments:

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Employee's Signature: \_\_\_\_\_

Evaluator's Signature: \_\_\_\_\_

## PROCEDURE #8 — TWO STEP UDDER PREP ROUTINE USING PRE-DIP FOR STALL BARN AND TANDEM, FLAT AND STEP-UP PARLORS

### TASKS ASSIGNED TO TWO MILKERS

General practices:

1. All milkers wear gloves, comfortably tight.
2. Check vacuum gauge to assure proper milking vacuum level.
3. Allow cows to enter parlor voluntarily.
4. Cows are handled gently and quietly.
5. Towels are never used on more than one cow.
6. Keep music and other noises to a minimum.
7. Strict adherence to the timing of the tasks and between the tasks is expected.
8. Start prep as soon as cow is in stall.

FIRST MILKER TO COW (clean, pre-dip and stimulate):

**[Start prepping 55 to 75 seconds before the next unit is available to be attached]**

1. **Gently brush** loose soil and bedding from teats using clean gloved hand and/or towel.
2. Pre-dip technique (**20 seconds preferred** per cow, 10 seconds minimum):
  - a. Apply pre-dip to assure **complete coverage** of teat skin.
  - b. Gently but firmly **massage** pre-dip on teat skin. This starts stimulation.
  - c. Gently but firmly rub **across teat end** with thumb until clean.
  - d. **Pre-strip** foremilk from each quarter and observe for abnormalities.
3. Allow at least **30 seconds or recommended** kill time for pre-dip from time of application.  
(Repeat steps 1 to 3 on remaining cows **never prepping more than 40 to 60 seconds before the next unit is available to be attached**)

SECOND MILKER TO COW (wipe dry and attach):

**[No later than 55 to 75 seconds after the start of stimulation]**

4. Use **clean** towel with a gentle, **twisting** motion to ensure **all** pre-dip is wiped off teat skin. Using other side of towel **draped over thumb**, firmly wipe across **each teat end**.
5. Immediately attach unit **gently with minimal air admission** to target attachment within **at least 60 to about 90 seconds** from start of stimulation.
6. Properly **align** unit to hang straight and square.
7. Select **'automatic'** mode for automatic take-offs.

(Repeat steps 4 to 7 on each available cow to accomplish the goal of at least 60 to about 90 seconds between the start of stimulation and attachment)

FIRST MILKER FINAL VISIT TO COW (detach and apply post-dip):

1. For manual equipment, shut off claw vacuum and detach unit in a **timely** manner.
2. Apply post-dip as **soon as practical** after unit is detached covering **all** teat skin.

General Parlor Activities:

1. **Immediately attend to** squawking liners, realignments and kickoffs.
2. Rinse gloves when **dirty** or exposed to **milk**. **Change** gloves as necessary.
3. Rinse **units** when dirty.
4. Clean **cow platform** as needed.
5. Keep teat dip **applicators** clean.
6. Follow farm protocol for **handling special needs cows**.

**EVALUATION FOR PROCEDURE #8**

**TWO STEP UDDER PREP ROUTINE USING PRE-DIP FOR STALL BARN AND TANDEM, FLAT AND STEP-UP PARLORS  
TASKS ASSIGNED TO TWO MILKERS**

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**FIRST MILKER TO COW (clean, pre-dip and stimulate):**

- 1. Gently brushes loose soil and bedding from teats ..... Y N
- 2. Applies pre-dip to assure complete coverage of teat skin ..... Y N
- 3. Gently but firmly massages pre-dip on teat skin (10 sec minimum per cow) ..... Y N
- 4. Gently but firmly rubs across teat end with thumb until clean ..... Y N
- 5. Pre-strips foremilk from each quarter ..... Y N
- 6. Assures steps 3-5 total a minimum of 10 seconds (20 seconds preferred) ..... Y N
- 7. Allows at least 30 seconds or recommended kill time for pre-dip ..... Y N
- 8. Starts prepping next cow 55-75 seconds before the next unit is available ..... Y N

**SECOND MILKER TO COW (wipe dry and attach):**

- 9. Begins with each cow no later than 55 to 75 seconds after start of stimulation ..... Y N
- 10. Uses clean towel with twisting motion to wipe all pre-dip off teat skin ..... Y N
- 11. Uses other side of towel draped over thumb to wipe across each teat end ..... Y N
- 12. Teats and teat ends are clean and properly stimulated when milking unit is attached ..... Y N
- 13. Immediately attaches unit gently with minimal air admission ..... Y N
- 14. Attaches unit at least 60 to about 90 seconds after start of stimulation ..... Y N
- 15. Properly aligns unit ..... Y N
- 16. Selects 'automatic' mode for automatic take-offs ..... Y N
- 17. Continues on next available cow maintaining at least 60 to about 90 second lag time ..... Y N

**FIRST MILKER FINAL VISIT TO COW (detach and post-dip):**

- 18. Manual equipment: shuts off vacuum and detaches unit in a timely manner ..... Y N
- 19. Post dips as soon as practical covering all teat skin ..... Y N

**General Parlor Activities:**

- 1. Wears properly fitting gloves (comfortably tight) ..... Y N
- 2. Allows voluntary cow entry ..... Y N
- 3. Handles cows gently and quietly ..... Y N
- 4. Keeps music volume low ..... Y N
- 5. Attends to squawking inflations ..... Y N
- 6. Uses a towel on only one cow ..... Y N
- 7. Rinses or changes gloves when dirty or exposed to mastitic milk ..... Y N
- 8. Rinses manure from outside of units when dirty, with vacuum off ..... Y N
- 9. Rinses manure from cow platform ..... Y N
- 10. Keeps teat dip applicators clean ..... Y N

Comments:

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Employee's Signature: \_\_\_\_\_

Evaluator's Signature: \_\_\_\_\_

## PROCEDURE #9 — TWO STEP UDDER PREP ROUTINE USING UDDER WASH OR GERMICIDAL WIPES FOR STALL BARN AND TANDEM, FLAT AND STEP-UP PARLORS

### TASKS ASSIGNED TO TWO MILKERS

General practices:

1. All milkers wear gloves, comfortably tight.
2. Check vacuum gauge to assure proper milking vacuum level.
3. Allow cows to enter parlor voluntarily.
4. Cows are handled gently and quietly.
5. Towels are never used on more than one cow.
6. Keep music and other noises to a minimum.
7. Strict adherence to the timing of the tasks and between the tasks is expected.
8. Start prep as soon as cow is in stall.

FIRST MILKER TO COW (clean, sanitize and stimulate):

[Can perform routine in groups of 3 to 6 cows as long as at least 60 to about 90 seconds elapse between start of stimulation and attachment]

1. **Gently brush** loose soil and bedding from teats using clean gloved hand and/or towel.
2. **Pre-strip** foremilk from each quarter and observe for abnormalities.
3. **Udder wash** technique (**20 seconds preferred** per cow, 10 seconds minimum):
  - a. Wet or dampen a **single service** towel with udder wash or use germicidal wipe.
  - b. Gently but firmly **massage** all teat skin with a twisting, downward motion. This starts stimulation.
  - c. Gently but firmly rub **across teat end** with towel/wipe over thumb until clean.
 (During 30 second or recommended kill time, repeat steps 1 to 3 on next 2, 3, 4 or 5 cows)

SECOND MILKER TO COW (wipe dry and attach):

4. Begin each cow no later than **55 to 75 seconds** after the start of stimulation.
5. If teats are wet, use a clean towel with a gentle twisting motion to wipe all udder wash off teat skin. Using other side of towel, firmly wipe across the **teat end** with **towel/wipe over thumb**.
6. When teats are dry, immediately attach unit **gently with minimal air admission** to target attachment within **at least 60 to about 90 seconds** from start of stimulation.
7. Properly **align** unit to hang straight and square.
8. Select **'automatic'** mode for automatic take-offs.  
(Repeat steps 4 to 9 on the next 2, 3, 4, or 5 cows already prepped)

Continue this routine for groups of 3 to 6 cows until all units are attached.

FIRST MILKER FINAL VISIT TO COW (detach and apply post-dip):

1. For manual equipment, shut off claw vacuum and detach unit in a **timely** manner.
2. Apply post-dip as **soon as practical** after unit is detached covering **all** teat skin.

General Parlor Activities:

4. **Immediately attend to** squawking liners, realignments and kickoffs.
5. Rinse gloves when **dirty** or exposed to **milk**. **Change** gloves as necessary.
6. Rinse **units** when dirty.
7. Clean **cow platform** as needed.
8. Keep teat dip **applicators** clean.
9. Follow farm protocol for **handling special needs cows**.

**EVALUATION FOR PROCEDURE #9  
TWO STEP UDDER PREP ROUTINE FOR STALL BARN AND TANDEM,  
FLAT AND STEP-UP PARLORS  
TASKS ASSIGNED TO TWO MILKERS**

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**FIRST MILKER TO COW (clean, pre-dip and stimulate):**

- 1. Gently brushes loose soil and bedding from teats ..... Y N
- 2. Pre-strips foremilk from each quarter ..... Y N
- 3. Uses a single service towel with udder wash or uses a germicidal wipe..... Y N
- 4. Gently but firmly massages all teat skin with towel/wipe..... Y N
- 5. Gently but firmly rubs across teat end with towel/wipe over thumb..... Y N
- 6. Assures steps 2-5 total a minimum of 10 seconds (20 seconds preferred) ..... Y N
- 7. Starts prepping next cow 55 to 75 seconds before the next unit is available ..... Y N

**SECOND MILKER TO COW (wipe dry and attach):**

- 8. Begins each first cow no later than 55 to 75 seconds after start of stimulation ..... Y N
- 9. If teats are wet, uses clean, single service towel to wipe off all udder wash..... Y N
- 10. Using other side of towel, firmly wipes across the teat end with thumb..... Y N
- 11. If teats are dry, immediately attaches unit gently with minimal air admission ..... Y N
- 12. Teats and teat ends are clean and properly stimulated when milking unit is attached ..... Y N
- 13. Attaches unit at least 60 to about 90 seconds after start of stimulation..... Y N
- 14. Properly aligns unit ..... Y N
- 15. Selects 'automatic' mode for automatic take-offs ..... Y N
- 16. Continues on next available cow maintaining at least 60 to about 90 second lag time..... Y N

**FIRST MILKER FINAL VISIT TO COW (detach and post-dip):**

- 17. Manual equipment: shuts off vacuum and detaches unit in a timely manner..... Y N
- 18. Post dips as soon as practical covering all teat skin ..... Y N

**General Parlor Activities:**

- 1. Wears properly fitting gloves (comfortably tight) ..... Y N
- 2. Allows voluntary cow entry ..... Y N
- 3. Handles cows gently and quietly ..... Y N
- 4. Keeps music volume low ..... Y N
- 5. Attends to squawking inflations ..... Y N
- 6. Uses a towel on only one cow ..... Y N
- 7. Rinses or changes gloves when dirty or exposed to mastitic milk ..... Y N
- 8. Rinses manure from outside of units when dirty, with vacuum off ..... Y N
- 9. Rinses manure from cow platform ..... Y N
- 10. Keeps teat dip applicators clean..... Y N

Comments:

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Employee's Signature: \_\_\_\_\_

Evaluator's Signature: \_\_\_\_\_

<b>PROCEDURE #10 — INTERNAL ROTARY PARLOR ROUTINE USING PRE-DIP</b> <b>TASKS ASSIGNED TO TWO MILKERS</b>
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General practices:

1. All milkers wear gloves, comfortably tight.
2. Check vacuum gauge to assure proper milking vacuum level.
3. Allow cows to enter parlor voluntarily.
4. Cows are handled gently and quietly.
5. Towels are never used on more than one cow.
6. Keep music and other noises to a minimum.
7. Strict adherence to the timing of the tasks and between the tasks is expected.
8. Start prep as soon as cow is in stall.

COW TO FIRST MILKER (stimulate and clean; apply post-dip before cow leaves):

1. Moving with cow as needed, **gently brush** loose soil from teats using clean gloved hand and/or towel.
2. Pre-dip technique (**20 seconds preferred** per cow, 10 seconds minimum)
  - a. Apply pre-dip to assure **complete coverage** of teat skin.
  - b. Gently but firmly **massage** pre-dip on teat skin. This starts stimulation.
  - c. Gently but firmly rub **across teat end** with thumb until clean.
  - d. **Pre-strip** foremilk from each quarter and observe for abnormalities.
3. Return to starting position and proceed with steps 1 and 2 on next cow.

COW TO SECOND MILKER (wipe dry and attach)

4. Moving with cow as needed, wipe each cow within **55 to 75 seconds** from start of stimulation by first milker.
5. Use **clean** towel with a gentle, **twisting** motion to ensure **all** pre-dip is wiped off teat skin. Using other side of towel **draped over thumb**, firmly wipe across each **teat end**.
6. Immediately attach unit **gently with minimal air admission** to target attachment within **at least 60 to about 90 seconds** from start of stimulation.
7. Properly **align** unit to hang straight and square.
8. Select **'automatic'** mode for automatic take-offs.
9. Return to starting position and proceed with steps 4 to 8 on next cow.
10. Attend to cows while milking.

Maintain the proper space between first and second milker to accomplish the goal of **at least 60 to about 90 seconds** between start of stimulation and attachment. This space will be determined by parlor rotation speed.

OTHER TASKS (post-dip, kick-offs, liner slips, detaches, retain cows):

Note: Which milker is assigned to which tasks depends on the proximity to the cow needing attention and the task to be performed. **Regardless of who is responsible for which tasks, the tasks must be performed in a manner that allows the second milker to start tasks 4 thru 8 within 55 to 75 seconds after the start of stimulation by the first milker.**

1. Immediately attend to squawking liners, re-alignments and kick-offs.
2. For manual equipment, shut off the claw vacuum and detach the unit in a **timely** manner.
3. Verify that cow milk out is complete and if not reattach and secure the cow for another turn.
4. Apply post-dip **as soon as possible** after unit is detached, covering **all** teat skin.

General Parlor Activities:

1. Rinse gloves when **dirty** or exposed to **milk**. **Change** gloves as necessary.
2. Rinse **units** when dirty.
3. Clean **cow platform** as needed.
4. Keep teat dip **applicators** clean.
5. Follow farm protocol for **handling special needs cows**.

**EVALUATION FOR PROCEDURE #10**  
**INTERNAL ROUTINE FOR ROTARY PARLORS USING PRE-DIP**  
**TASKS ASSIGNED TO TWO MILKERS**

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**COW TO FIRST MILKER (clean, pre-dip and stimulate):**

- 1. Gently brushes loose soil and bedding from teats ..... Y N
- 2. Applies pre-dip to assure complete coverage of teat skin ..... Y N
- 3. Gently but firmly massages pre-dip on teat skin ..... Y N
- 4. Gently but firmly rubs across teat end with thumb until clean ..... Y N
- 5. Pre-strips foremilk from each quarter ..... Y N
- 6. Assures steps 3-5 total a minimum of 10 seconds (20 seconds preferred) ..... Y N

**COW TO SECOND MILKER (wipe dry and attach):**

- 7. Begins with each cow no later than 55 to 75 seconds from start of stimulation ..... Y N
- 8. Uses clean towel with twisting motion to wipe all pre-dip off teat skin ..... Y N
- 9. Uses other side of towel draped over thumb to wipe across each teat end ..... Y N
- 10. Teats and teat ends are clean and properly stimulated when milking unit is attached ..... Y N
- 11. Immediately attaches unit gently with minimal air admission ..... Y N
- 12. Unit is attached at least 60 to about 90 seconds after the start of stimulation ..... Y N
- 13. Properly aligns unit ..... Y N
- 14. Selects 'automatic' mode for automatic take-offs ..... Y N

**WHOEVER IS ASSIGNED OTHER TASKS:**

- 15. Attends to all cows still milking (squawking, realignment, kick-offs) ..... Y N
- 16. Manual equipment: shuts off vacuum and detaches unit in a timely manner ..... Y N
- 17. Verifies that cows is milked out and if not, secure for another turn ..... Y N
- 18. Post-dips as soon as practical covering all teat skin ..... Y N

**General Parlor Activities:**

- 1. Wears properly fitting gloves (comfortably tight) ..... Y N
- 2. Allows voluntary cow entry ..... Y N
- 3. Handles cows gently and quietly ..... Y N
- 4. Keeps music volume low ..... Y N
- 5. Attends to squawking inflations ..... Y N
- 6. Uses a towel on only one cow ..... Y N
- 7. Rinses or changes gloves when dirty or exposed to mastitic milk ..... Y N
- 8. Rinses manure from outside of units when dirty, with vacuum off ..... Y N
- 9. Rinses manure from cow platform ..... Y N
- 10. Keeps teat dip applicators clean ..... Y N

**Comments:**

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Employee's Signature: \_\_\_\_\_

Evaluator's Signature: \_\_\_\_\_

## PROCEDURE #11— EXTERNAL OR INTERNAL ROYARY PARLOR ROUTINE USING PRE-DIP

### TASKS ASSIGNED TO THREE MILKERS

#### General practices:

1. All milkers wear gloves, comfortably tight.
2. Check vacuum gauge to assure proper milking vacuum level.
3. Allow cows to enter parlor voluntarily.
4. Cows are handled gently and quietly.
5. Towels are never used on more than one cow.
6. Keep music and other noises to a minimum.
7. Strict adherence to the timing of the tasks and between the tasks is expected.
8. Start prep as soon as cow is in stall.

#### COW TO FIRST MILKER (clean, pre-dip and stimulate):

1. Moving with cow as needed, **gently brush** loose soil and bedding from teats using clean gloved hand and/or towel.
2. Pre-dip technique (**20 seconds preferred** per cow, 10 seconds minimum):
  - a. Apply pre-dip to assure **complete coverage** of teat skin.
  - b. Gently but firmly **massage** pre-dip on teat skin. This starts stimulation.
  - c. Gently but firmly rub **across teat end** with thumb until clean.
  - d. **Pre-strip** foremilk from each quarter and observe for abnormalities.
3. Return to starting position and proceed with steps 1 and 2 on next cow.

#### COW TO SECOND MILKER (wipe dry and attach):

4. Moving with cow as needed, begins with each cow within **55 to 75 seconds** from start of stimulation by first milker.
5. Use **clean** towel with a gentle, **twisting** motion to ensure **all** pre-dip is wiped off teat skin. Using other side of towel **draped over thumb**, firmly wipe across **each teat end**.
6. Immediately attach unit **gently with minimal air admission** to target attachment within **at least 60 to about 90 seconds** from start of stimulation.
7. Properly **align** unit to hang straight and square.
8. Select **'automatic'** mode for automatic take-offs.
9. Return to starting position and proceed with steps 4 to 8 on next cow.

**Maintain the proper space between first and second milker to accomplish the goal of at least 60 to about 90 seconds between start of stimulation and attachment. This space will be determined by parlor rotation speed.**

#### COW TO THIRD MILKER (detach and apply post-dip):

1. **Immediately attend to** squawking liners, realignments and kickoffs.
2. For manual equipment, shut off claw vacuum and detach unit in a **timely** manner.
3. Verify that cow milk out is complete and if not reattach and secure cow for another turn.
4. Apply post-dip as **soon as practical** after unit is detached covering **all** teat skin.

#### General Parlor Activities:

1. Rinse gloves when **dirty** or exposed to **milk**. **Change** gloves as necessary.
2. Rinse **units** when dirty.
3. Clean **cow platform** as needed.
4. Keep teat dip **applicators** clean.
5. Follow farm protocol for **handling special needs cows**.

**EVALUATION FOR PROCEDURE #11**  
**EXTERNAL OR INTERNAL ROUTINE FOR ROTARY PARLORS USING PRE-DIP**  
**TASKS ASSIGNED TO THREE MILKERS**

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**COW TO FIRST MILKER (clean, pre-dip and stimulate):**

- 1. Gently brushes loose soil and bedding from teats ..... Y N
- 2. Applies pre-dip to assure complete coverage of teat skin ..... Y N
- 3. Gently but firmly massages pre-dip on teat skin ..... Y N
- 4. Gently but firmly rubs across teat end with thumb until clean ..... Y N
- 5. Pre-strips foremilk from each quarter ..... Y N
- 6. Assures steps 3-5 total a minimum of 10 seconds (20 seconds preferred) ..... Y N

**COW TO SECOND MILKER (wipe dry and attach):**

- 7. Begins with each cow no later than 55 to 75 seconds from start of stimulation ..... Y N
- 8. Uses clean towel with twisting motion to wipe all pre-dip off teat skin ..... Y N
- 9. Uses other side of towel draped over thumb to wipe across each teat end ..... Y N
- 10. Teats and teat ends are clean and properly stimulated when milking unit is attached ..... Y N
- 11. Immediately attaches unit gently with minimal air admission ..... Y N
- 12. Unit is attached at least 60 to about 90 seconds after the start of stimulation ..... Y N
- 13. Properly aligns unit ..... Y N
- 14. Selects 'automatic' mode for automatic take-offs ..... Y N

**COW TO THIRD MILKER BEFORE EXITING (detach and apply post-dip):**

- 15. Attends to all cows still milking (squawking, realignment, kickoffs) ..... Y N
- 16. Manual equipment: shuts off vacuum and detaches unit in a timely manner ..... Y N
- 17. Verifies that cow is milked out and if not reattach and secure for another turn ..... Y N
- 18. Post dips as soon as practical covering all teat skin ..... Y N

**General Parlor Activities:**

- 1. Wears properly fitting gloves (comfortably tight) ..... Y N
- 2. Allows voluntary cow entry ..... Y N
- 3. Handles cows gently and quietly ..... Y N
- 4. Keeps music volume low ..... Y N
- 5. Attends to squawking inflations ..... Y N
- 6. Uses a towel on only one cow ..... Y N
- 7. Rinses or changes gloves when dirty or exposed to mastitic milk ..... Y N
- 8. Rinses manure from outside of units when dirty, with vacuum off ..... Y N
- 9. Rinses manure from cow platform ..... Y N
- 10. Keeps teat dip applicators clean ..... Y N

Comments:

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Employee's Signature: \_\_\_\_\_

Evaluator's Signature: \_\_\_\_\_

<b>PROCEDURE #12 — EXTERNAL ROTARY PARLOR ROUTINE USING PRE-DIP</b> <b>TASKS ASSIGNED TO FOUR MILKERS</b>
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## General practices:

1. All milkers wear gloves, comfortably tight.
2. Check vacuum gauge to assure proper milking vacuum level.
3. Allow cows to enter parlor voluntarily.
4. Cows are handled gently and quietly.
5. Towels are never used on more than one cow.
6. Keep music and other noises to a minimum.
7. Strict adherence to the timing of the tasks and between the tasks is expected.
8. Start prep as soon as cow is in stall.

## COW TO FIRST MILKER (clean, pre-dip and stimulate):

1. Moving as needed with cow, **gently brush** loose soil and bedding from teats using clean gloved hand and/or towel.
2. Pre-dip technique (**20 seconds preferred** per cow, 10 seconds minimum):
  - a. Apply pre-dip to assure **complete coverage** of teat skin.
  - b. Gently but firmly **massage** pre-dip on teat skin. This starts stimulation.
  - c. Gently but firmly rub **across teat end** with thumb until clean.
  - d. **Pre-strip** foremilk from each quarter and observe for abnormalities.
3. Return to starting position and proceed with steps 1 and 2 on next cow.

## COW TO SECOND MILKER (wipe dry):

4. Moving with cow as needed, begins with each cow within **55 to 75 seconds** from start of stimulation by first milker.
5. Use **clean** towel with a gentle, **twisting** motion to ensure **all** pre-dip is wiped off teat skin. Using other side of towel **draped over thumb**, firmly wipe across **each teat end**.
6. Return to starting position and proceed with steps 4 to 5 on the next cow.

## COW TO THIRD MILKER (attach):

7. Attach unit **gently with minimal air admission** to target attachment within **at least 60 to about 90 seconds** from start of stimulation.
8. Properly **align** unit to hang straight and square.
9. Select **'automatic'** mode for automatic takeoffs.
10. Return to starting position and proceed with steps 7 to 9 on next cow.

**Maintain the proper space between first and second and second and third milker to accomplish the goal of at least 60 to about 90 seconds between start of stimulation and attachment. This will be determined by parlor rotation speed.**

## COW TO FOURTH MILKER (detach and apply post-dip):

1. **Immediately attend to** squawking liners, realignments and kickoffs.
2. For manual equipment, shut off claw vacuum and detach unit in a **timely** manner.
3. Verify that cow milk out is complete and, if not, secure the cow for another turn.
4. Apply post-dip as **soon as practical** after unit is detached covering **all** teat skin.

## General Parlor Activities:

1. Rinse gloves when **dirty** or exposed to **milk**. **Change** gloves as necessary.
2. Rinse **units** when dirty.
3. Clean **cow platform** as needed.
4. Keep teat dip **applicators** clean.
5. Follow farm protocol for **handling special needs cows**.

**EVALUATION FOR PROCEDURE #12**  
**EXTERNAL ROUTINE FOR ROTARY PARLORS USING PRE-DIP**  
**TASKS ASSIGNED TO FOUR MILKERS**

Name: \_\_\_\_\_ Date: \_\_\_\_\_

**COW TO FIRST MILKER (clean, pre-dip and stimulate):**

- 1. Gently brushes loose soil and bedding from teats ..... YN
- 2. Applies pre-dip to assure complete coverage of teat skin ..... YN
- 3. Gently but firmly massages pre-dip on teat skin..... YN
- 4. Gently but firmly rubs across teat end with thumb until clean ..... YN
- 5. Pre-strips foremilk from each quarter ..... YN
- 6. Assures steps 3-5 total a minimum of 10 seconds (20 seconds preferred)..... YN

**COW TO SECOND MILKER (wipe dry):**

- 7. Begins with each cow no later than 55 to 75 seconds from start of stimulation ..... YN
- 8. Uses clean towel with twisting motion to wipe all pre-dip off teat skin ..... YN
- 9. Uses other side of towel draped over thumb to wipe across each teat end ..... YN
- 10. Teats and teat ends are clean and properly stimulated when milking unit is attached ..... YN

**COW TO THIRD MILKER (attach):**

- 11. Immediately attaches unit gently with minimal air admission ..... YN
- 12. Unit is attached at least 60 to about 90 seconds after the start of stimulation ..... YN
- 13. Properly aligns unit ..... YN
- 14. Selects 'automatic' mode for automatic take-offs ..... YN

**COW TO FOURTH MILKER (detach and apply post-dip):**

- 15. Attends to all cows still milking (squawking, realignment, kickoffs)..... YN
- 16. Manual equipment: shuts off vacuum and detaches unit in a timely manner ..... YN
- 17. Verifies that cow is milked out and, if not, secures for another turn ..... YN
- 18. Post dips as soon as practical covering all teat skin ..... YN

**General Parlor Activities:**

- 1. Wears properly fitting gloves (comfortably tight) ..... YN
- 2. Allows voluntary cow entry ..... YN
- 3. Handles cows gently and quietly ..... YN
- 4. Keeps music volume low ..... YN
- 5. Attends to squawking inflations ..... YN
- 6. Uses a towel on only one cow ..... YN
- 7. Rinses or changes gloves when dirty or exposed to mastitic milk ..... YN
- 8. Rinses manure from outside of units when dirty, with vacuum off ..... YN
- 9. Rinses manure from cow platform ..... YN
- 10. Keeps teat dip applicators clean ..... YN

Comments:

\_\_\_\_\_  
 \_\_\_\_\_

Employee's Signature: \_\_\_\_\_

Evaluator's Signature: \_\_\_\_\_

<b>PROCEDURE #13 — EXTERNAL ROTARY PARLOR ROUTINE USING PRE-DIP TASKS ASSIGNED TO FIVE MILKERS</b>
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## General practices:

1. All milkers wear gloves, comfortably tight.
2. Check vacuum gauge to assure proper milking vacuum level.
3. Allow cows to enter parlor voluntarily.
4. Cows are handled gently and quietly.
5. Towels are never used on more than one cow.
6. Keep music and other noises to a minimum.
7. Strict adherence to the timing of the tasks and between the tasks is expected.
8. Start prep as soon as cow is in stall.

## COW TO FIRST MILKER (clean, pre-dip and stimulate):

1. Moving with cow as needed, **gently brush** loose soil and bedding from teats using clean gloved hand and/or towel.
2. Pre-dip technique (**20 seconds preferred** per cow, 10 seconds minimum):
  - a. Apply pre-dip to assure **complete coverage** of teat skin.
  - b. Gently but firmly **massage** pre-dip on teat skin. This starts stimulation.
  - c. Gently but firmly rub **across teat end** with thumb until clean.
  - d. **Pre-strip** foremilk from each quarter and observe for abnormalities.
3. Return to starting position and proceed with steps 1 and 2 on next cow.

## COW TO SECOND MILKER (wipe dry):

4. Moving with cow as needed, begins with each cow no later than **55 to 75 seconds** from start of stimulation by first milker.
5. Use **clean** towel with a gentle, **twisting** motion to ensure **all** pre-dip is wiped off teat skin. Using other side of towel **draped over thumb**, firmly wipe across each **teat end**.
6. Return to starting position and proceed with steps 4 to 5 on next cow.

## COW TO THIRD MILKER (attach):

7. Attach unit **gently with minimal air admission** to target attachment within **at least 60 to about 90 seconds** from start of stimulation.
8. Properly **align** unit to hang straight and square.
9. Select **'automatic'** mode for automatic take-offs.
10. Return to starting position and proceed with steps 7 to 9 on next cow.

**Maintain the proper space between first and second and second and third milker to accomplish the goal of at least 60 to about 90 seconds between start of stimulation and attachment. This will be determined by parlor rotation speed.**

## FOURTH MILKER (attend to cows during milking):

1. **Immediately attend to** squawking liners, realignments and kickoffs.

## COW TO FIFTH MILKER (detach and apply post-dip):

1. For manual equipment, shut off claw vacuum and detach unit in a **timely** manner.
2. Verify that cow milk out is complete and, if not, secure the cow for another turn.
3. Apply post-dip as **soon as practical** after unit is detached covering **all** teat skin.

## General Parlor Activities:

1. Rinse gloves when **dirty** or exposed to **milk**. **Change** gloves as necessary.
2. Rinse **units** when dirty.
3. Clean **cow platform** as needed.
4. Keep teat dip **applicators** clean.
5. Follow farm protocol for **handling special needs cows**.

**EVALUATION FOR PROCEDURE #13**  
**EXTERNAL ROUTINE FOR ROTARY PARLORS USING PRE-DIP**  
**TASKS ASSIGNED TO FIVE MILKERS**

Name: \_\_\_\_\_ Date: \_\_\_\_\_

**COW TO FIRST MILKER (clean, pre-dip and stimulate):**

- 1. Gently brushes loose soil and bedding from teats..... YN
- 2. Applies pre-dip to assure complete coverage of teat skin..... YN
- 3. Gently but firmly massages pre-dip on teat skin..... YN
- 4. Gently but firmly rubs across teat end with thumb until clean ..... YN
- 5. Pre-strips foremilk from each quarter ..... YN
- 6. Assures steps 3-5 total a minimum of 10 seconds (20 seconds preferred) ..... YN

**COW TO SECOND MILKER (wipe dry):**

- 7. Begins with each cow no later than 55 to 75 seconds from start of stimulation ..... YN
- 8. Uses clean towel with twisting motion to wipe all pre-dip off teat skin ..... YN
- 9. Uses other side of towel draped over thumb to wipe across each teat end ..... YN
- 10. Teats and teat ends are clean and properly stimulated when milking unit is attached ..... YN

**COW TO THIRD MILKER (attach):**

- 11. Immediately attaches unit gently with minimal air admission..... YN
- 12. Unit is attached at least 60 to about 90 seconds after the start of stimulation ..... YN
- 13. Properly aligns unit ..... YN
- 14. Selects 'automatic' mode for automatic take-offs ..... YN

**COW TO FOURTH MILKER (attend to all cows still milking):**

- 15. Attends to all cows still milking (squawking, realignment, kickoffs)..... YN

**COW TO FIFTH MILKER (detach and apply post-dip):**

- 16. Manual equipment: shuts off vacuum and detaches unit in a timely manner ..... YN
- 17. Verifies that cow is milked out and, if not, secures for another turn ..... YN
- 18. Post dips as soon as practical covering all teat skin ..... YN

**General Parlor Activities:**

- 1. Wears properly fitting gloves (comfortably tight) ..... YN
- 2. Allows voluntary cow entry ..... YN
- 3. Handles cows gently and quietly ..... YN
- 4. Keeps music volume low ..... YN
- 5. Attends to squawking inflations ..... YN
- 6. Uses a towel on only one cow ..... YN
- 7. Rinses or changes gloves when dirty or exposed to mastitic milk ..... YN
- 8. Rinses manure from outside of units when dirty, with vacuum off ..... YN
- 9. Rinses manure from cow platform ..... YN
- 10. Keeps teat dip applicators clean..... YN

Comments:

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Employee's Signature: \_\_\_\_\_

Evaluator's Signature: \_\_\_\_\_