



# MACHINE MILKING PROTOCOL

A Science-Based Guide to Udder Health & MilkQuality.



**EXCLUSIVELY PRACTICED BY:**

**MANAGEMENT AND MILKING TEAM, TASSELLS FARM LIMITED**

**Authored by Tassells Farm Limited (TFL) Research Division**

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*“Achieving premium milk is not an accident—it is the inevitable result of science, precision, and consistency.”*

Tassells Farm Limited (TFL)  
Research & Management Division

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**Progressive Farm Manual.**

## **MACHINE MILKING PROTOCOL**

### **A Science-Based Guide to Udder Health & Milk Quality**

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**Exclusively practiced by:**

***Management and Milking Team, Tassells Farm Limited.***



**This comprehensive booklet provides dairy farmers, livestock practitioners, and researchers with a scientifically backed guide to milking high-yielding hybrid dairy cows. It reflects the innovations and lessons from Tassells Farm Limited, an award-winning agribusiness redefining dairy farming.**

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## **1. An expression to impact.**

To the dedicated team at Tassells Farm Limited (TFL)

The pursuit of excellence in dairy farming is a journey of continuous learning and meticulous attention to detail. Your investment in a modern intensive system is a powerful statement of intent. This booklet is designed to be your practical, day-to-day guide to unlocking the full potential of that investment, starting with the most critical routine on the farm: milking.

The protocols within these pages are not just theory; they are the distilled essence of global best practices and sound animal science. Implementing them with consistency and pride will directly translate to healthier cows, less stress for your team, and a superior product that commands the best market price.

This is a manual for making Tassells Farm Limited a benchmark for quality and professionalism in dairy farming.

Yours in service of agriculture,

**Muturi Njoroge**

Agri-preneur

## **2. Introduction: The Parlour as the Heart of TFL Business**

In intensive dairying, the milking parlour is not just a milk extraction point—it is the **epicenter of :-**

- **Profitability.**
- **Animal welfare.**
- **Food safety.**

is where your careful breeding, nutrition, and housing efforts are ultimately harvested.

Milking is a **complex biological interaction** between **cow physiology, microbiology, mechanics, and human skill**. Every step is a critical control point designed to achieve one primary goal for **TFL**.

**To harvest a large volume of clean, healthy milk from a comfortable cow in the shortest time possible, while preserving the integrity of her teat canal and udder defense systems.**

Here Mr. Muturi breaks down this process into a simple, four-phase protocol that, when followed precisely, will ensure your milk meets the highest standards of quality.

### **3. Phase 1: Pre-Milking Preparation – The Foundation of Quality**

#### **3.1. The Critical Role of Pre-Dipping (Pre-dipping)**

- **The Science:** The teat end is the primary gateway for mastitis-causing pathogens. A film of milk on the teat skin is a perfect breeding ground for bacteria. The pre-dip is a germicidal solution designed to drastically reduce this bacterial load *before* the milking unit is attached.
- **The Tassells Farm Protocol:**
  1. **GLOVES ARE MANDATORY.** This is our first rule to prevent spreading pathogens between cows.
  2. **Apply Dip Correctly:** Immediately after fore-stripping, apply the approved pre-dip ( iodine-based), ensuring complete coverage of the entire teat.

3. **30-SECOND CONTACT TIME:** This is non-negotiable. This is the time required for the antiseptic to kill microorganisms. Time it!

#### Pre-Dip Target Outcomes

Parameter	Target for TFL Farm	Action if Not Met
Teat Skin Bacterial Load	>95% reduction	Check dip concentration, contact time, and product efficacy.
Teat Skin Condition	Smooth, supple, no chapping	Switch to a dip with higher emollient content.

### 3.2. Fore-stripping: The Diagnostic Tool

- **The Science:** Drawing 2-3 streams of milk by hand serves two purposes:
  1. **Stimulation:** It triggers the release of oxytocin, the hormone responsible for milk let-down. This process takes **60-90 seconds** to peak.
  2. **Detection:** It identifies abnormal milk (flakes, clots, wateriness), signaling clinical mastitis. **This cow must be marked and milked last.**
- **The TFL Protocol:** Perform this on every cow, every milking. It is the most powerful real-time diagnostic tool.

### 3.3. The Art of Drying & The Let-Down Wait

- **The Science:** Water can dilute the pre-dip and carry pathogens into the milking liner.
- **The Tassells Protocol:**
  1. Use **ONE single-service paper towel per cow**. Do not use cloth towels.
  2. Dry each teat vigorously, paying special attention to the teat end.
  3. Ensure teats are completely **clean, dry, and shiny** before attachment.



4. **THE PAUSE:** After drying, pause for **60-90 seconds** before attaching the unit. This allows the oxytocin to take effect, ensuring the cow is ready. This prevents "empty milking" and stress.

## 4. Phase 2: The Machine Milking Process

### 4.1. Unit Attachment & Alignment

- **The Science:** The machine mimics a calf's suckling through a cycle of vacuum (milking) and compression (rest). Incorrect attachment causes uneven milking and liner slips.
- **The Tassells Farm Protocol:**
  1. Attach the unit gently and ensure it is balanced and straight to avoid twisting teats.
  2. Check that all milk lines are seated properly to maintain stable vacuum.

### 4.2. Monitoring Flow & Preventing Overmilking

- **The Science:** Overmilking—applying vacuum to an empty teat—is severely damaging. It causes teat congestion, compromises the teat canal, and opens the door to new infections.
- **The Tassells Farm Protocol:**
  1. **If using Automatic Take-Offs (ATOs):** Trust the system. Ensure sensors are cleaned regularly.
  2. **If milking manually:** Watch the milk flow closely. Shut off the vacuum *before* removing the unit. Do not allow units to swing freely.

## 5. Phase 3: Post-Milking Care

### 5.1. Post-Dipping: Sealing the Gateway

- **The Science:** The teat canal remains open for up to 30 minutes after milking. This is the cow's most vulnerable period. Post-dipping creates a protective antibacterial barrier as the canal closes.
- **The Tassells Farm Protocol:**
  1. **IMMEDIATE APPLICATION:** Dip or spray each teat thoroughly within **30 seconds** of unit removal.
  2. **FULL COVERAGE:** Cover the entire teat.
  3. **DO NOT WIPE:** Allow the dip to air dry.
  4. **ENCOURAGE STANDING:** Cows should be encouraged to remain standing for at least 30 minutes after milking by providing fresh feed. This allows the teat canal to close fully.

## 6. Phase 4: Milk Storage & Equipment Hygiene

### 6.1. The Science of Rapid Cooling

- **The Science:** Milk is an ideal bacterial food. To inhibit exponential growth, we must shock it through the "danger zone" (4°C - 60°C) as fast as possible.
- **The Tassells Farm Golden Rule:** Cool milk from 37°C to **4°C or below within 2 hours** of the start of milking.

*Table 2: Milk Cooling Temperature Log*

Time	Maximum Allowable Temperature	Tassells Farm Actual Temp	Initialed by
Start of Milking	37°C		
2 Hours After Start	4°C		
Next Milking (Holding Temp)	4°C		

## 6.2. Mastering the Clean-in-Place (CIP) System

- **The Protocol:** The pipeline and tank must be cleaned after every milking.
  1. **Pre-Rinse:** Warm water (35-45°C) to rinse milk residue.
  2. **Hot Wash:** Circulate hot water (75-85°C) with alkaline detergent for 5-10 minutes.
  3. **Acid Rinse:** Circulate an acid detergent rinse weekly to remove milkstone.
  4. **Sanitize:** Before next milking, rinse with a cold sanitizing solution.
- **Action:** Regularly inspect and replace liners, hoses, and rubber parts according to the manufacturer's schedule (e.g., liners every 2,500 milkings or 6 months).

## 7. Tassells Farm Limited: Key Performance Indicators (KPIs)

Your success will be measured by these metrics. Track them monthly.

*Table 3: Tassells Farm Quality Dashboard*

Key Performance Indicator (KPI)	World-Class Target	Good	Needs Attention
<b>Bulk Tank Somatic Cell Count (BTSCC)</b>	<b>&lt; 150,000 cells/mL</b>	150,000 - 250,000	> 250,000
<b>Bacteria Count (TBC)</b>	<b>&lt; 10,000 CFU/mL</b>	10,000 - 50,000	> 50,000
<b>Clinical Mastitis Cases (per 100 cows per year)</b>	<b>&lt; 15 cases</b>	15 - 25 cases	> 25 cases
<b>Liner Replacement Schedule</b>	<b>Every 2,500 milkings</b>	-	-

## 8. Conclusion: The Path to Premium Quality

Achieving milk of *exceptional quality* is **not an** accident; it is the *inevitable result* of

- Executing a precise
- Science-backed protocol
- With unwavering consistency.

It is a *symphony* where each step—from the initial stimulation to the final chill—plays a critical note.

For the team at **Tassells Farm Limited**, mastering this art-form, will yield

- Tangible returns.
- Premium quality targets.
- reduced veterinary costs.
- improved herd longevity.
- The profound satisfaction of producing a truly superior product.

*This is TFL roadmap.....*

*Implementing it with pride.....*



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