



**Technology Match Maker | Veterinary Diagnostics | Dec 2024**

# **Quadmastest [QMT]**

## **Reagent –free subclinical mastitis detection device for dairy animals**



**Founder: Dr Ragul Paramasivam**

**Organization: Chimertech Private Limited**

**TechEx.in Case Manager: Pradnya Aradhye ([pradnya@venturecenter.co.in](mailto:pradnya@venturecenter.co.in))**

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# Problem definition



## Sub-Clinical Mastitis

**Inconsistent and inaccurate detection methods**

**Impact on milk production and quality**

**Limited availability of resources**

## Why our solution is needed now?



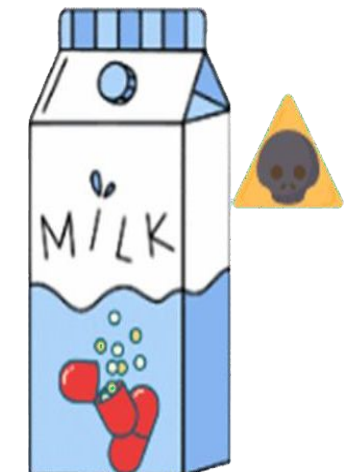
**Decrease milk production by 50% to 80%**



**Cost of treatment and overall loss incurred by mastitis per cattle is 7000 to 35000 per year**



**High dependency on veterinarians for Mastitis management**



**Bioaccumulation of residual antibiotics in milk**



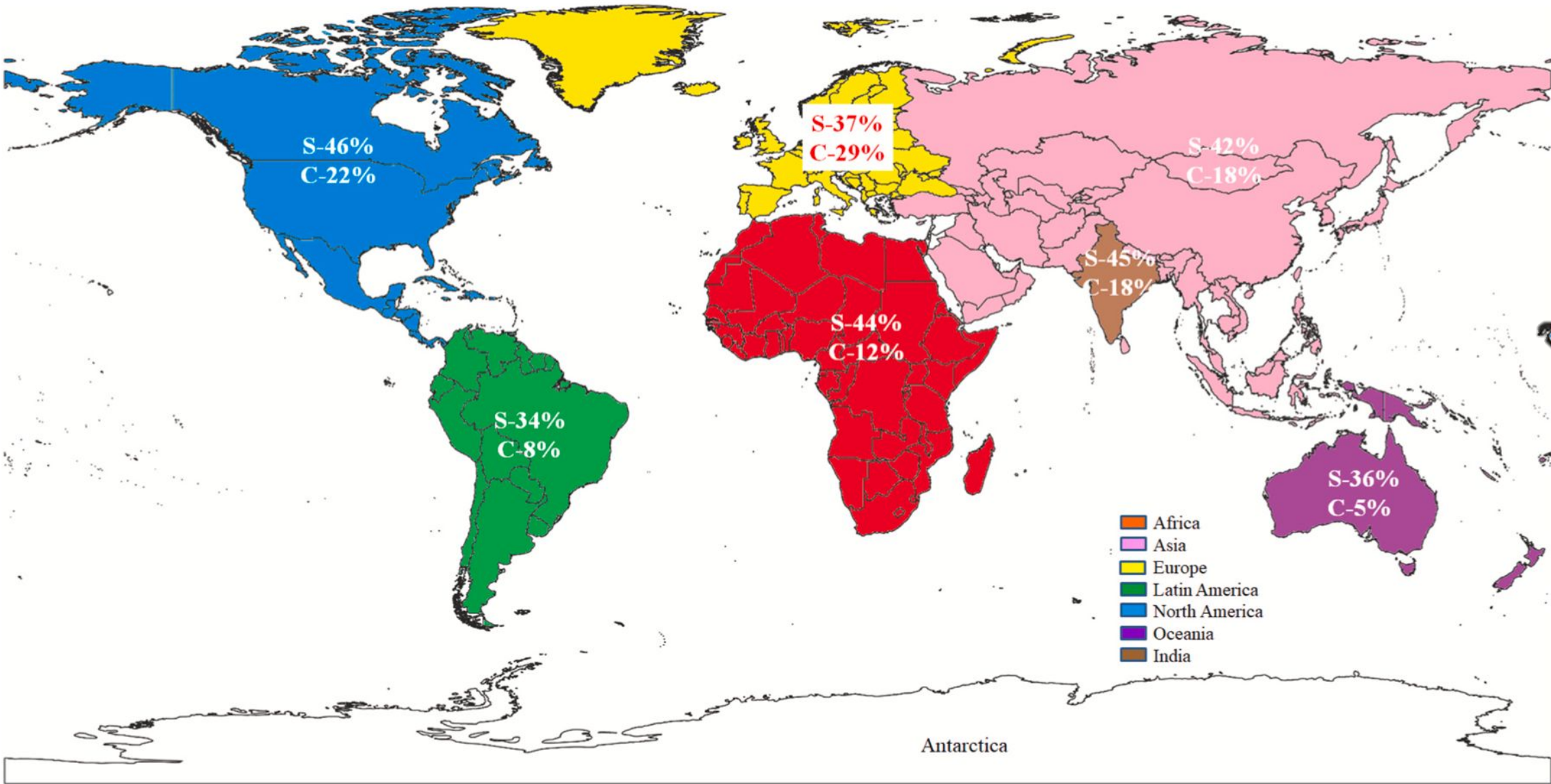
## Economical Impact

- Total Global economic loss  
INR 7824/cow - National  
INR 14530 to 65,023 /cow - Global
- Annual economic losses due to bovine mastitis are estimated to be Rs. 7165.51 crores in India, out of which 57.93% (Rs. 4151.16 crores losses) has been attributed to subclinical mastitis.



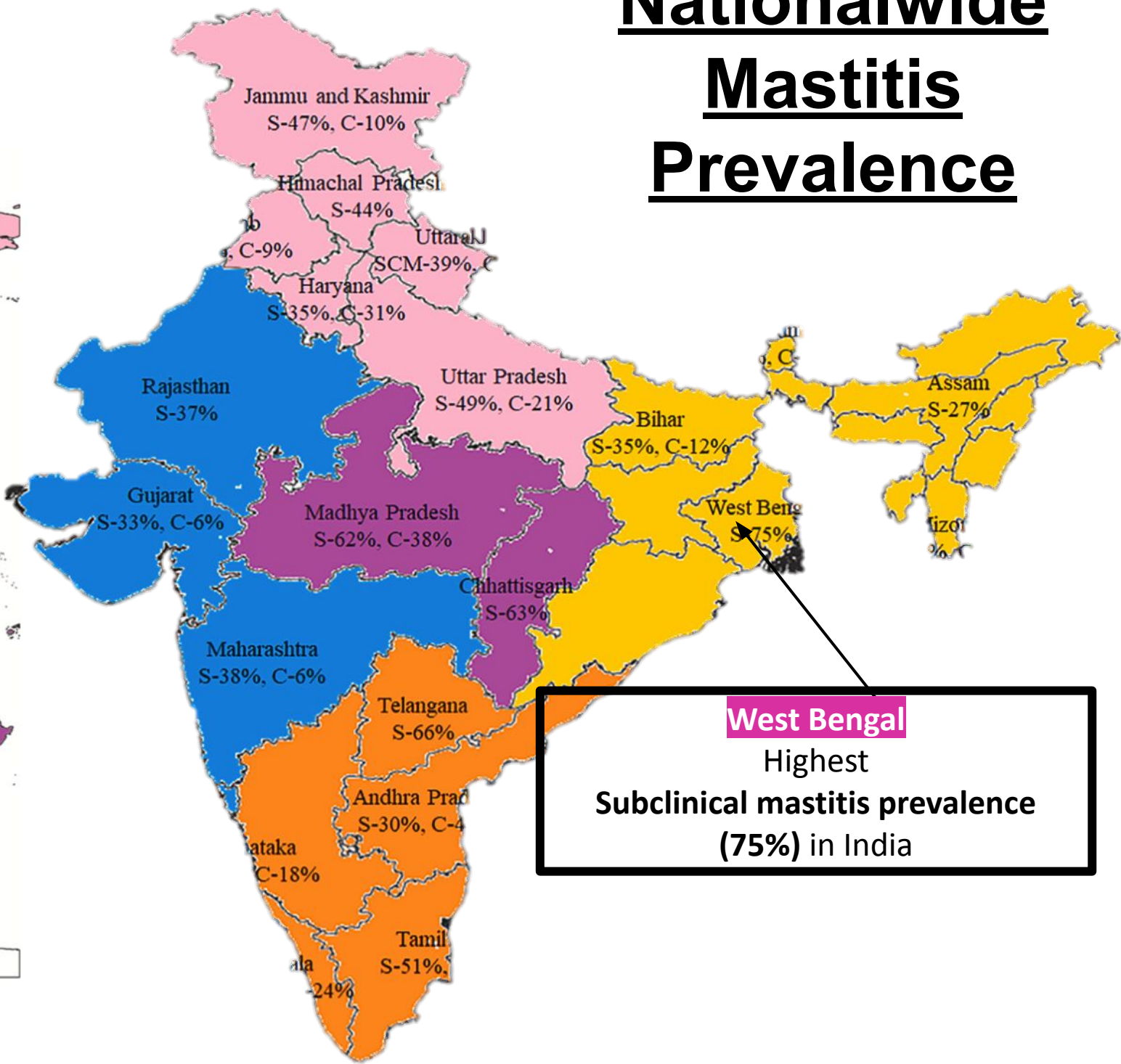


# Bovine Mastitis Prevalence Worldwide



Clinical Mastitis prevalence ranging 4.77% - 18.74% and Subclinical Mastitis 19% and 78% in bovines.

## Nationalwide Mastitis Prevalence



**West Bengal**  
Highest  
Subclinical mastitis prevalence  
(75%) in India

Every **3 out of 4** cow is infected with subclinical mastitis in **West Bengal**

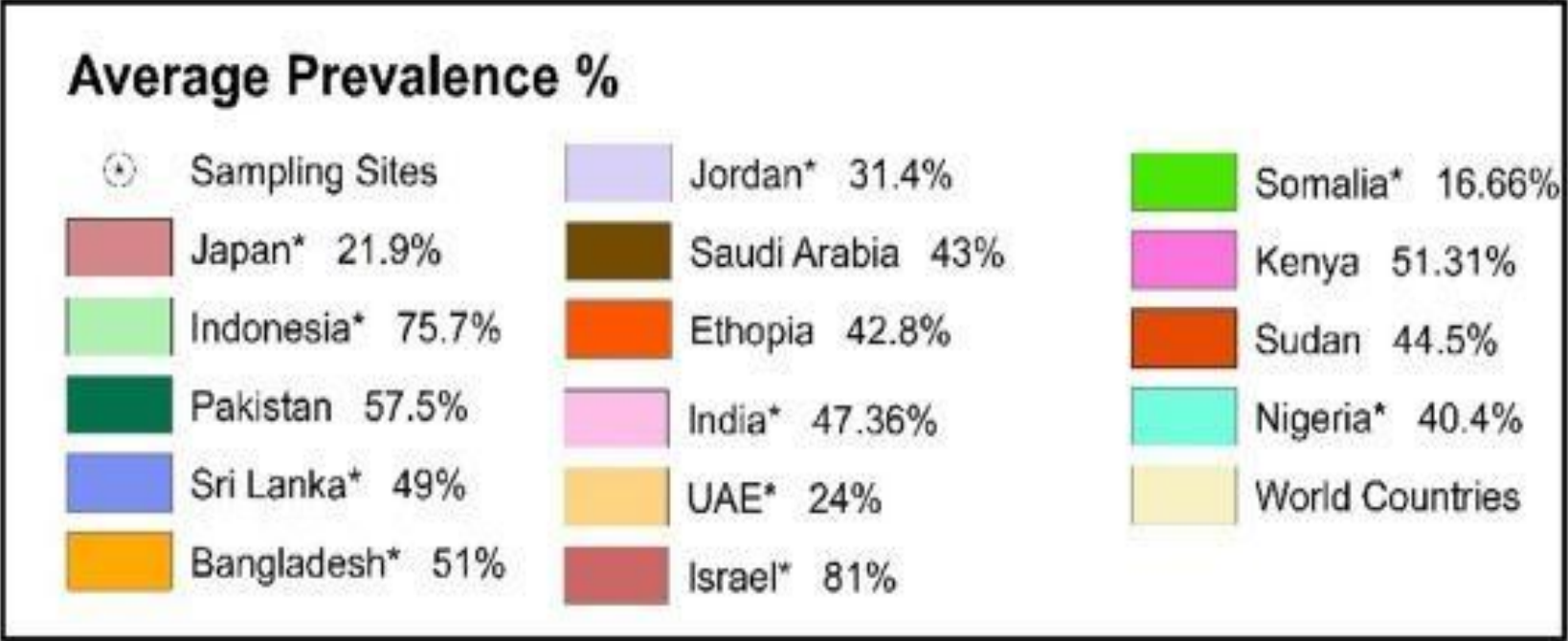
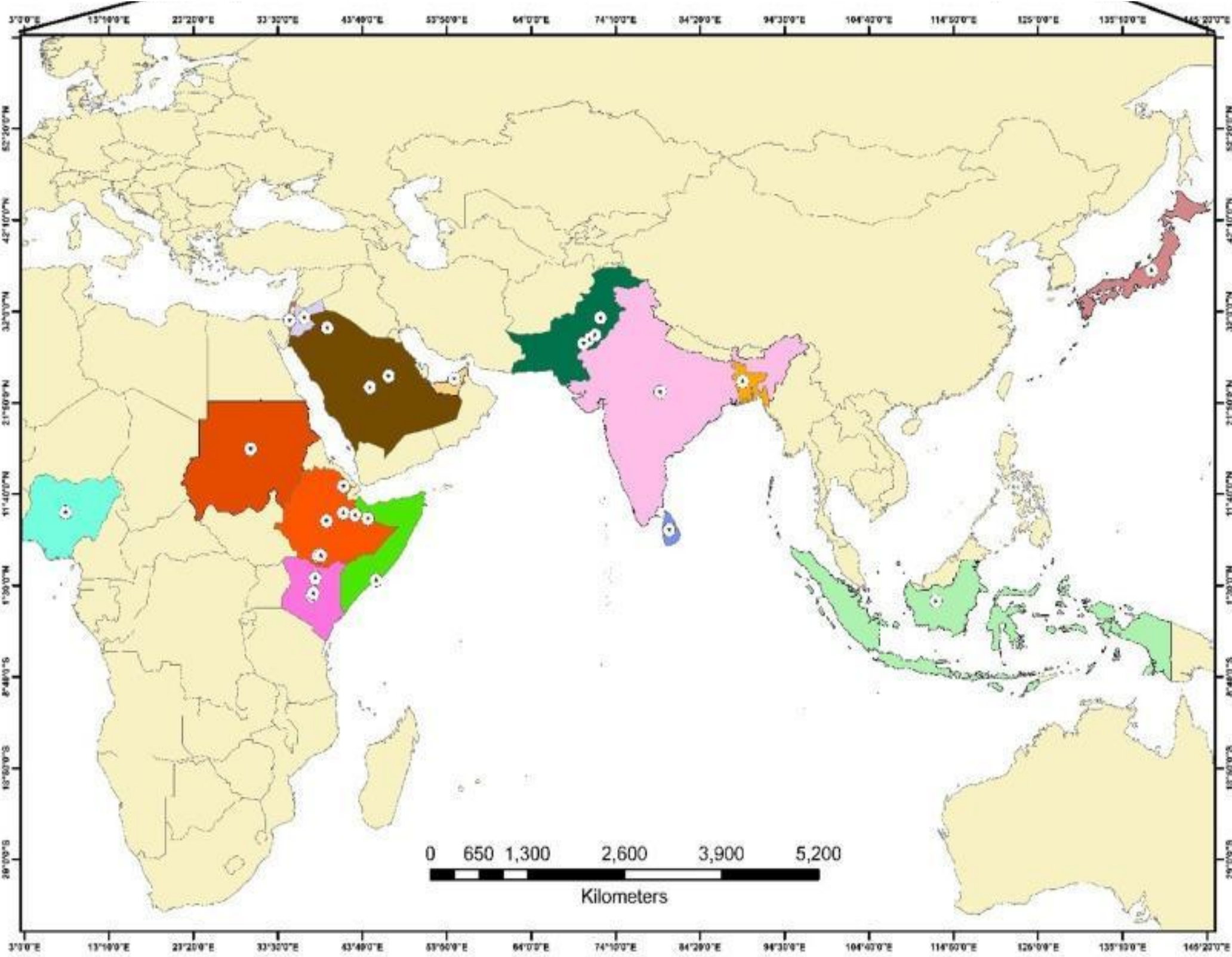
Every **2 out of 3** cow is infected with subclinical mastitis in **Telangana**

Krishnamoorthy, Paramanandham, et al. "Global and countrywide prevalence of subclinical and clinical mastitis in dairy cattle and buffaloes by systematic review and meta-analysis." *Research in Veterinary Science* (2021).

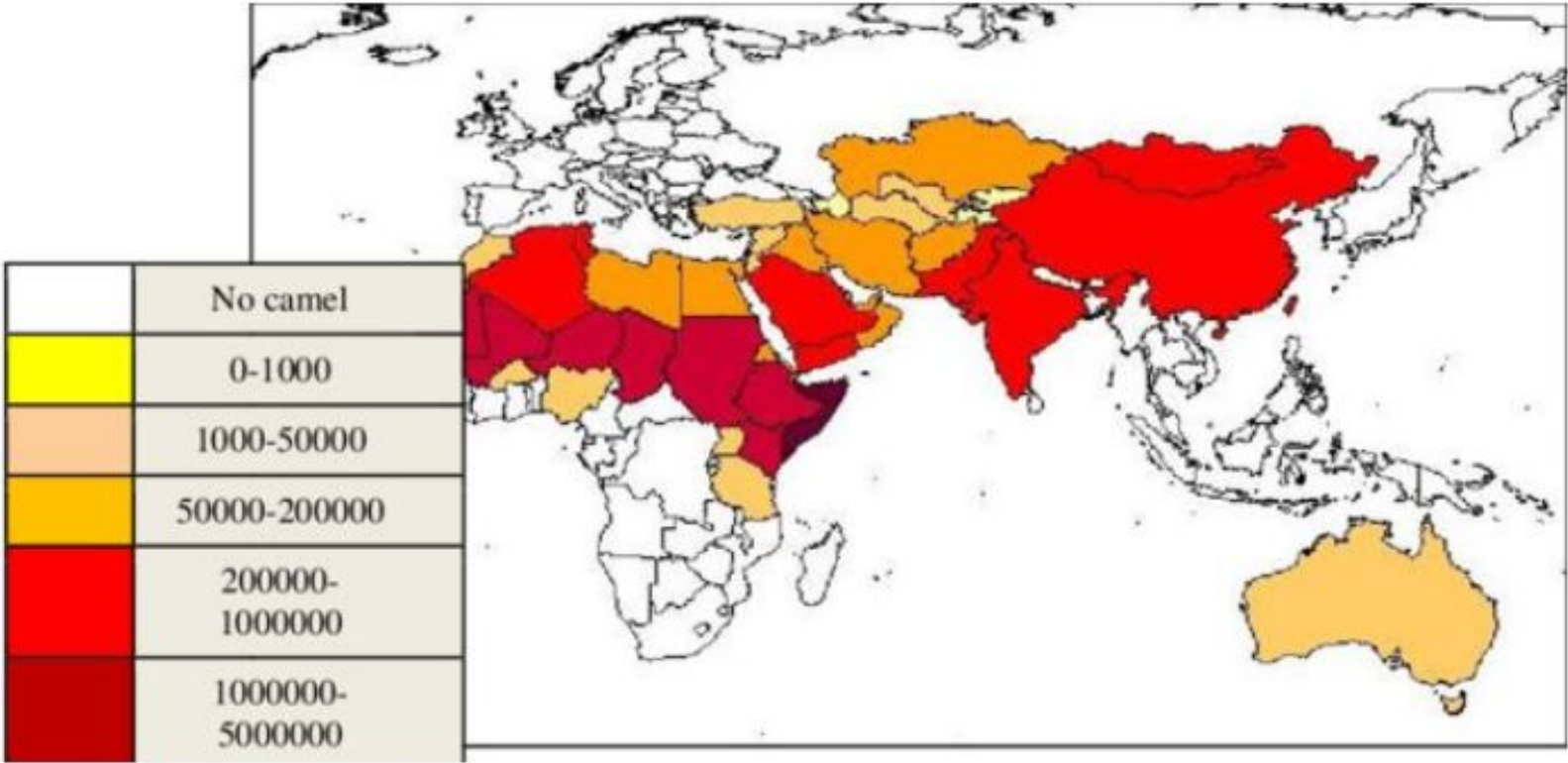
Dasohari, A., Somasani, A., Nagaraj, P., Gopala, R.A., 2017. Epidemiological studies of suclinical mastitis in cows in and around Hyderabad. *Pharma Innov. J.* 6, 975–979.



# Camel Mastitis Prevalence Worldwide



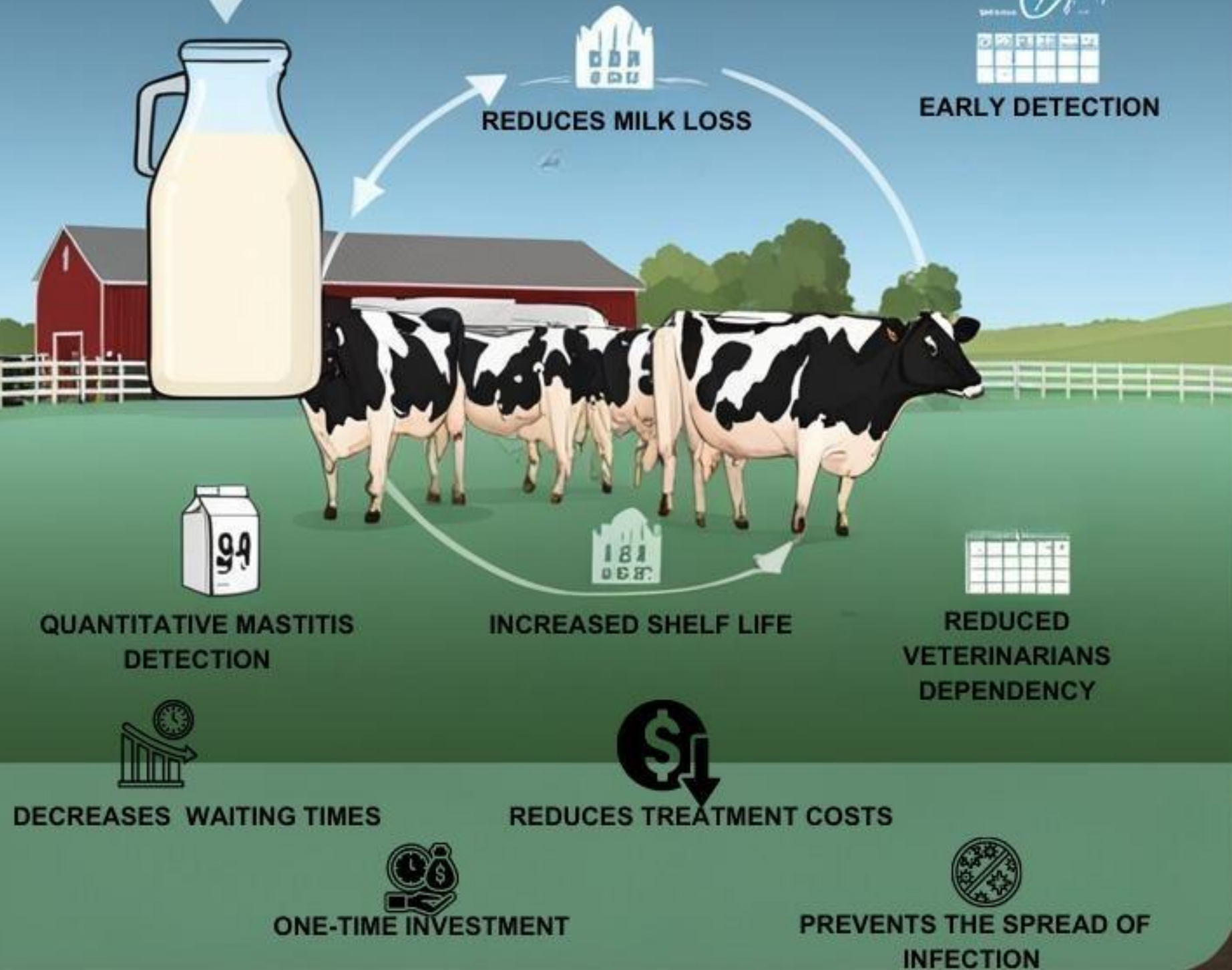
# Camel Population Worldwide



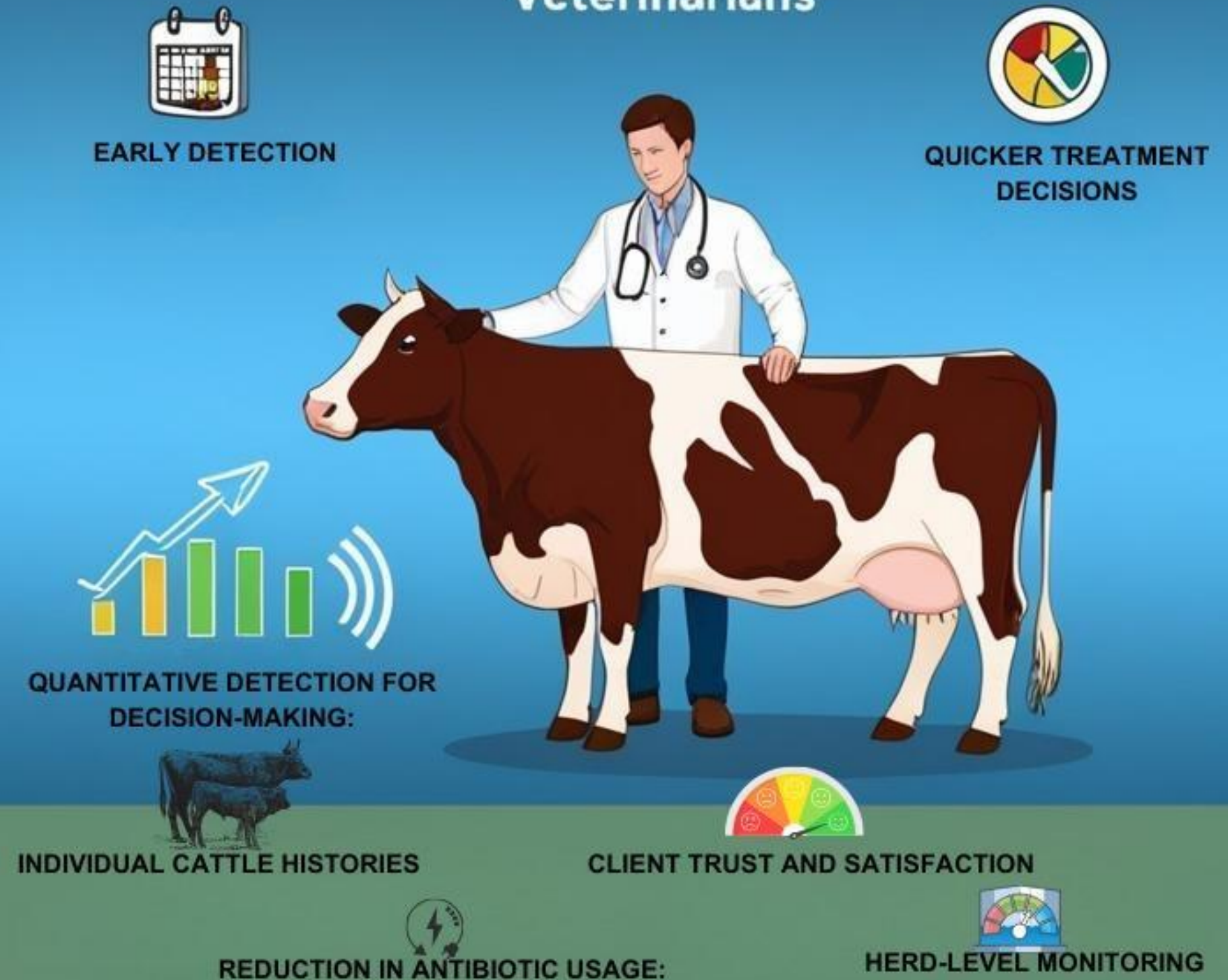


# Value Proposition

## Customer Segment 1: Dairy Farmers

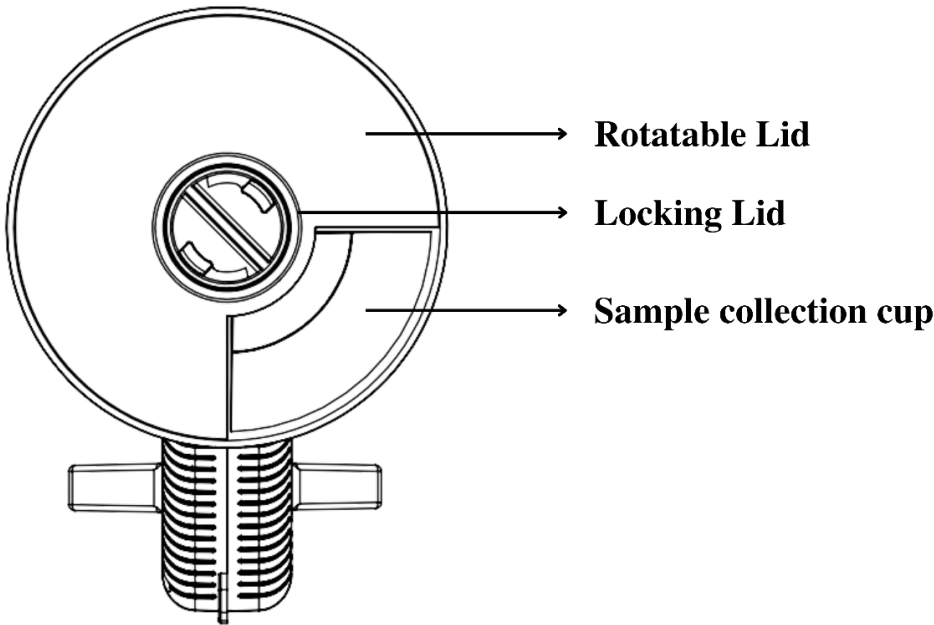
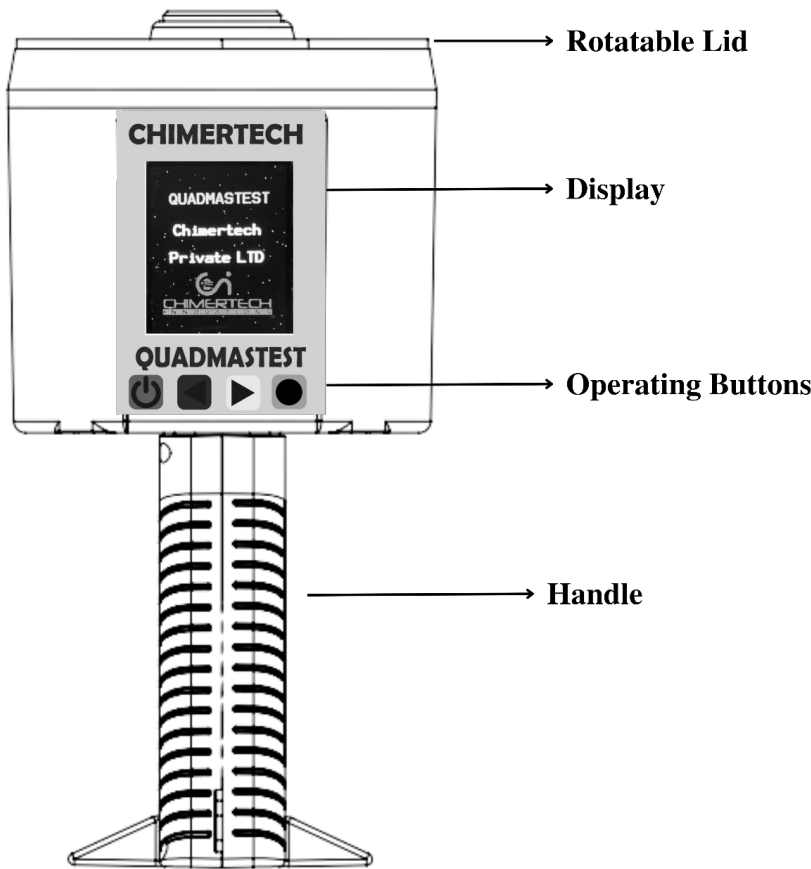


## Customer Segment 2 Veterinarians

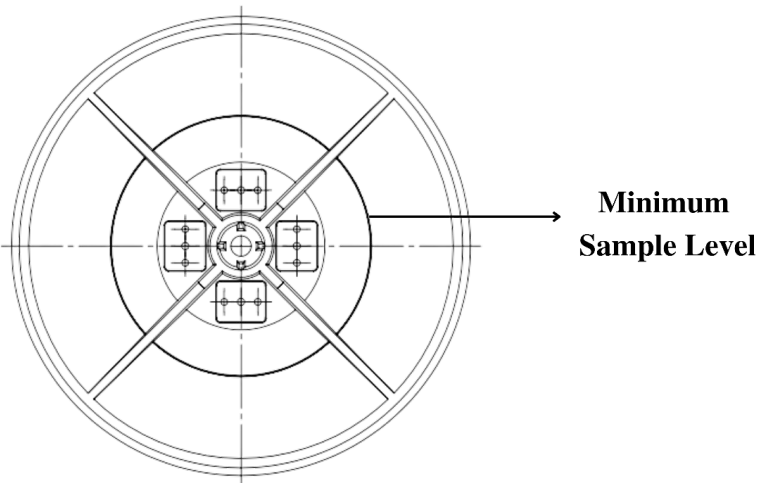
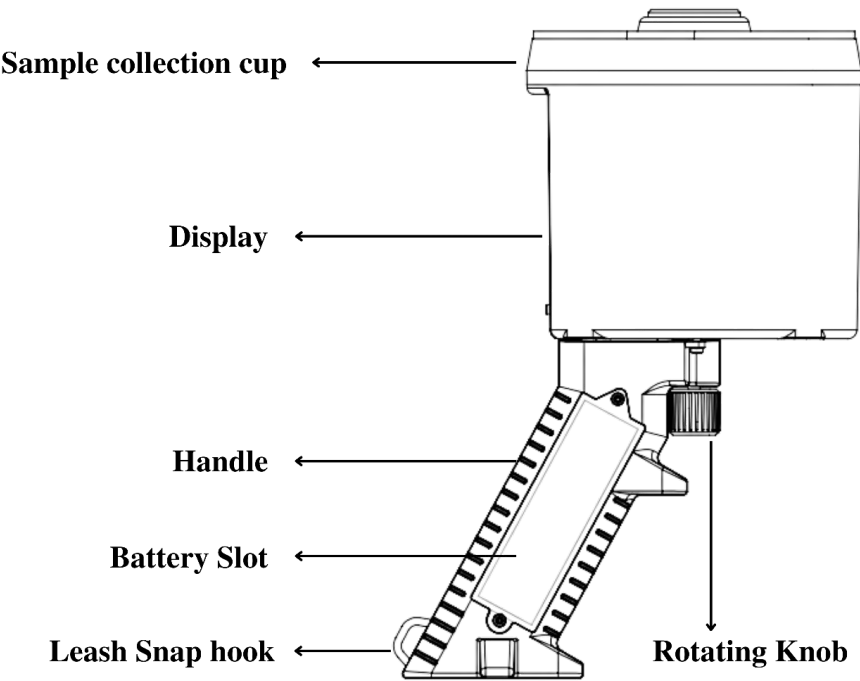




# About the Technology



Clear indication  
of disease status  
in Colors









# Features





# About the Technology

## FEATURES



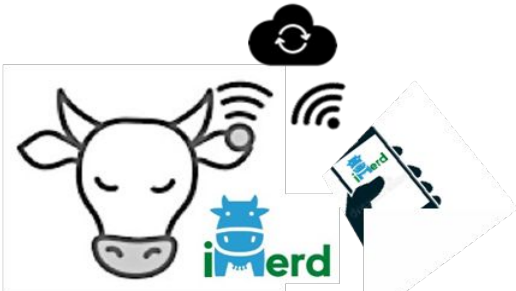
8 hours  
battery backup



Power display  
for Outdoor  
visibility



ABS Built for  
durability and robust  
handling



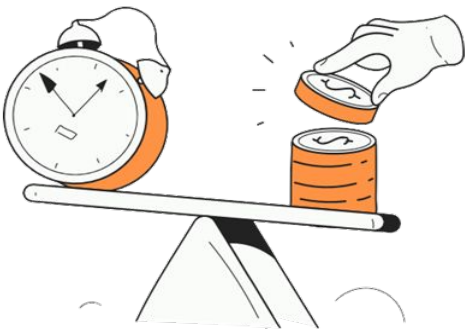
RFID based animal  
identification and  
traceable data collection



Completely Waterproof  
Fully submersible in  
Water



One-Click Auto  
Calibration



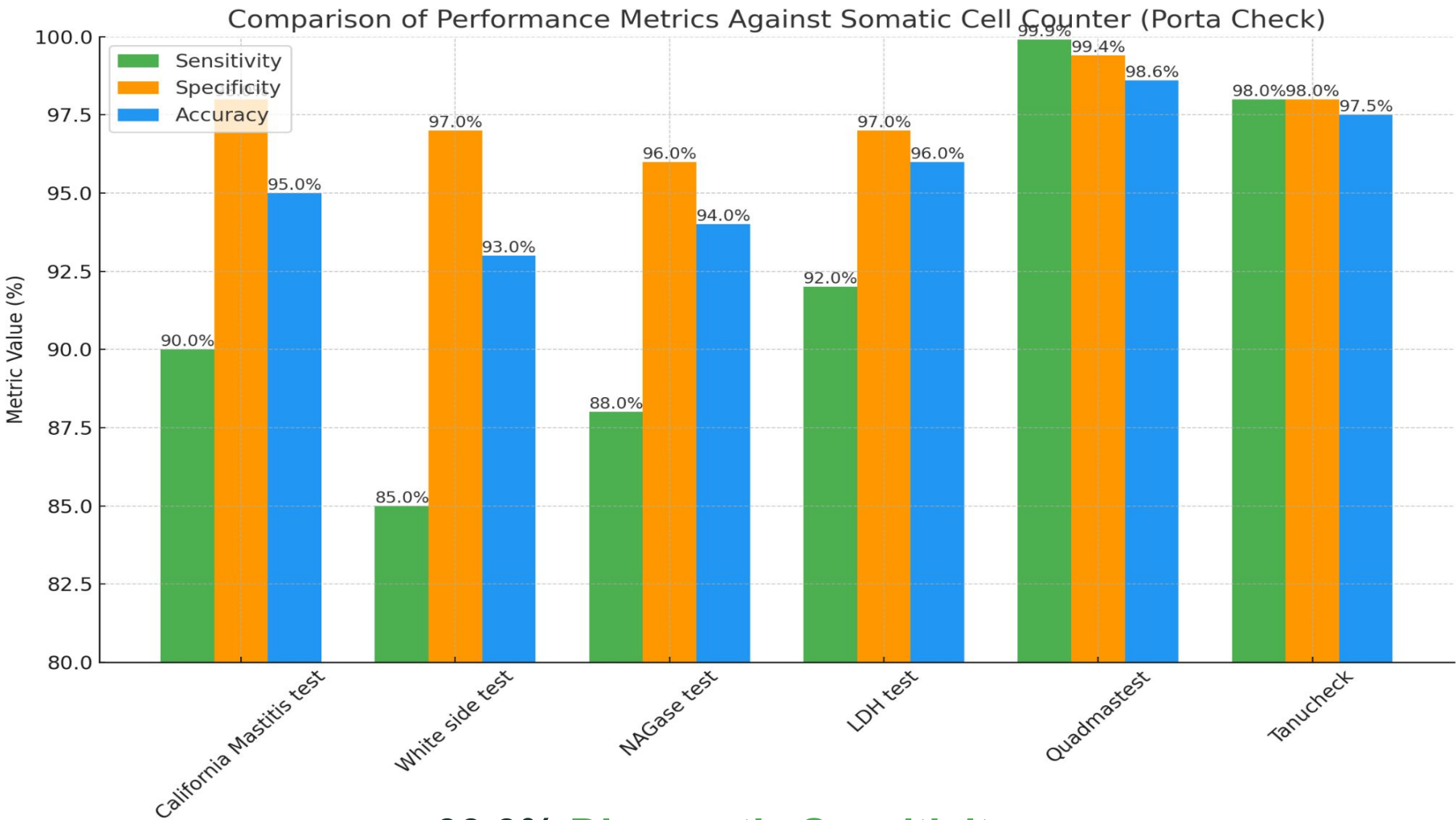
Immediate results  
in 10 Sec



Clear indication  
of disease status  
in Colors



One Year Warranty  
Five Year Life time  
Data storage and data value  
visualization on iHerd  
mobile application



99.9% Diagnostic Sensitivity  
99.4 % Diagnostic Specificity  
98.6 % Diagnostic Accuracy

363  
ANIMALS

1446  
SAMPLES

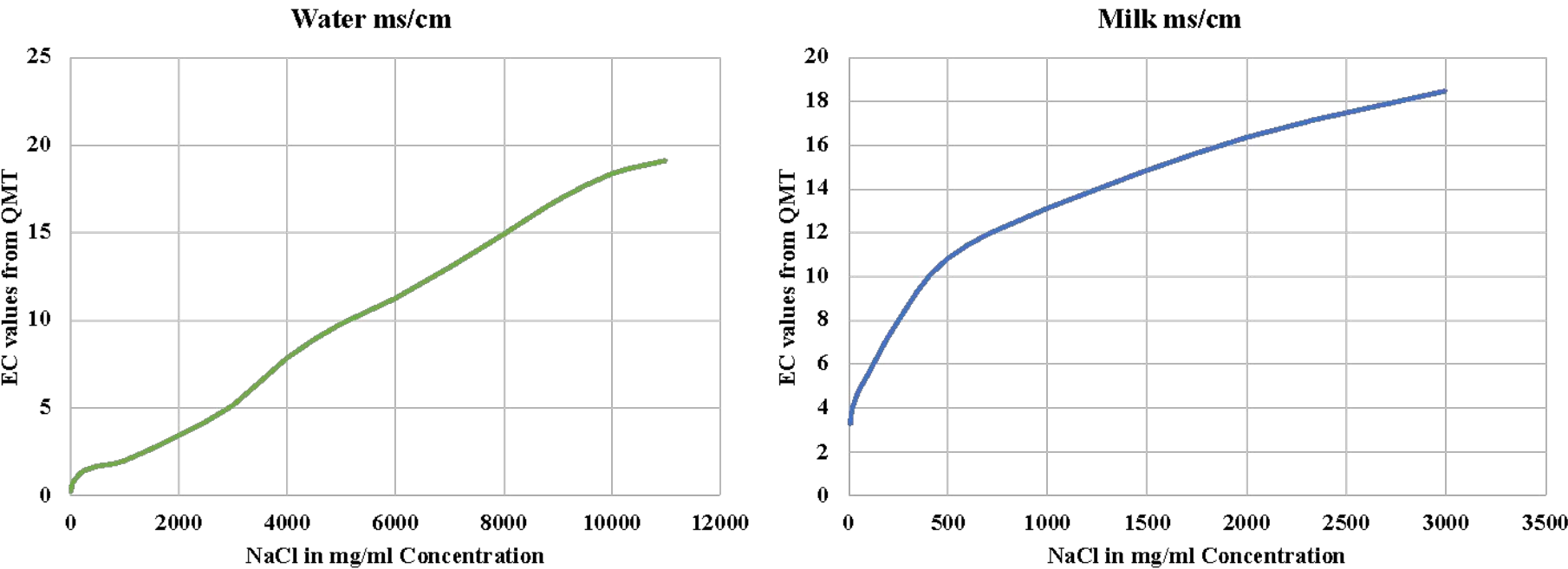


1117- Subclinical & Clinical Mastitis Negative Samples  
329 - Subclinical & Clinical Mastitis Positive Samples

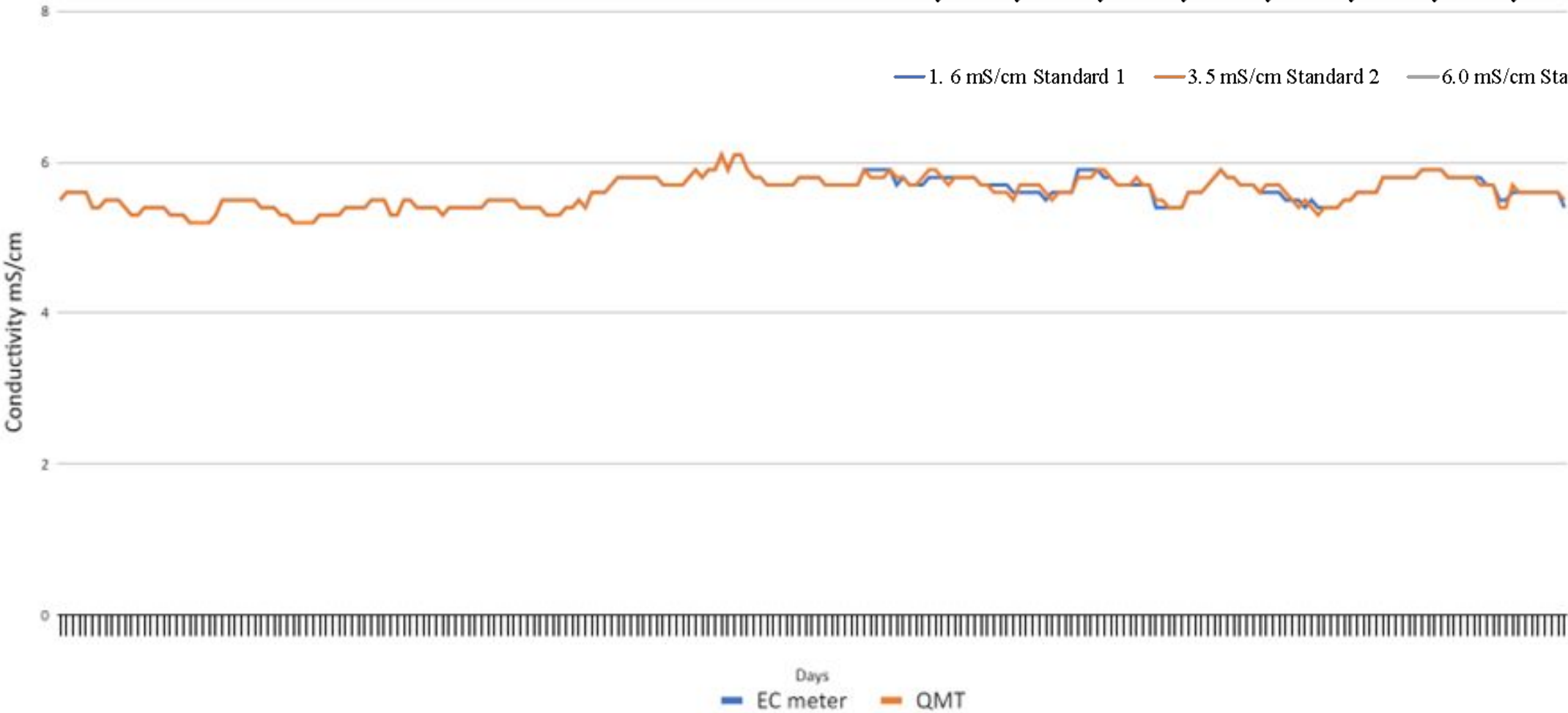
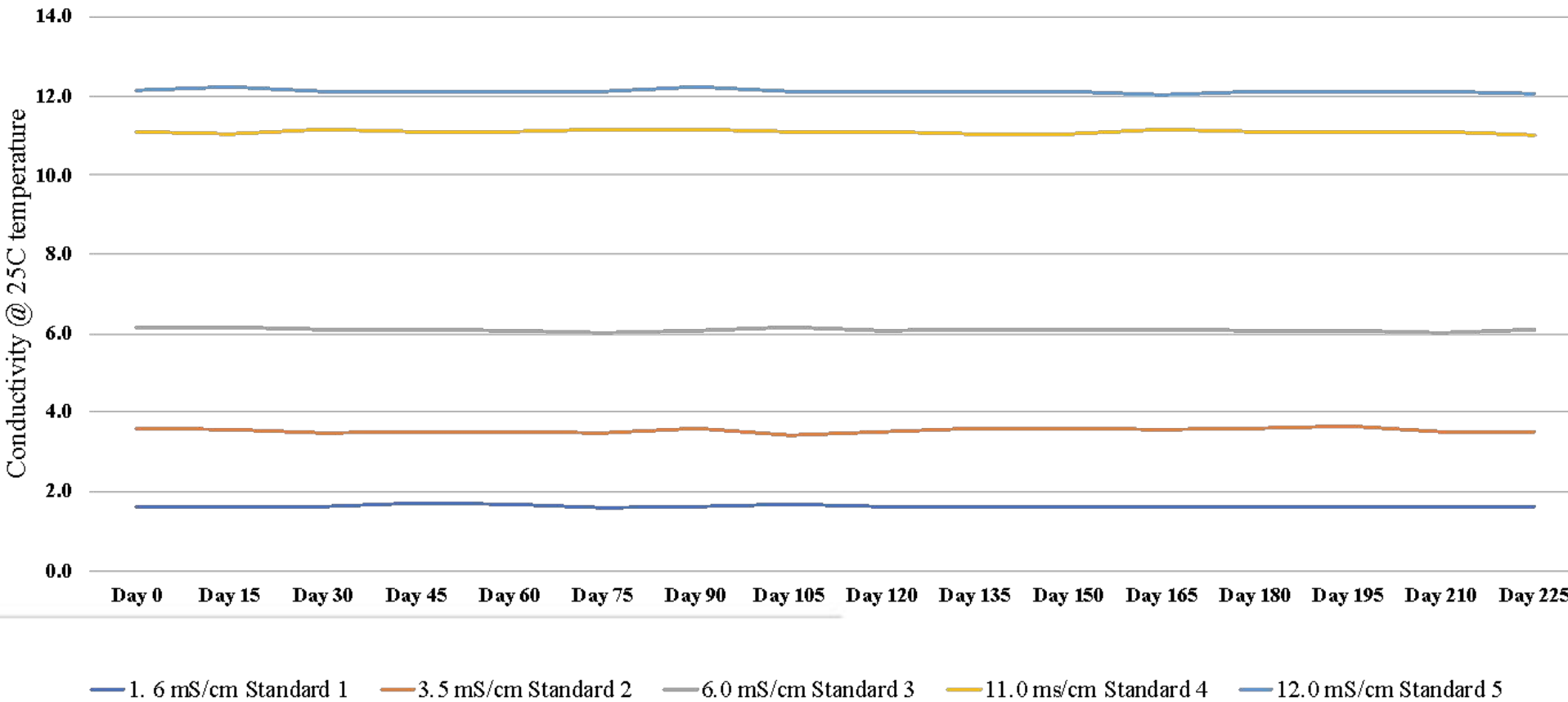


# About the Technology

## Quadmastest conductivity sensor detection range in water and milk



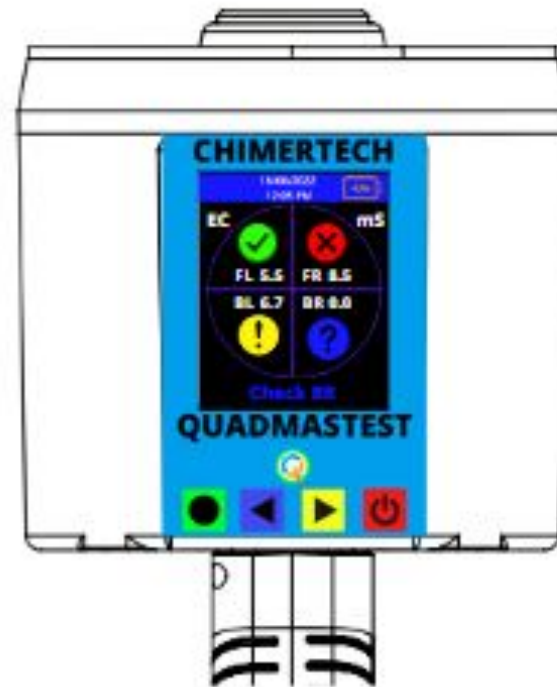
## Repeatability performance of Quadmastest conductivity sensor over difference standard concentrations









# Validation

## INTERPRETATION OF RESULTS



The QuadMastest provides results through a color-coded visual indicator, each carrying a specific meaning:

-  Red - Cattle is infected, indicating a positive case of clinical mastitis. Look for the cross symbol.
-  Green- Cattle is without mastitis infection which is a Normal case. Look for tick symbol.
-  Yellow - Cattle is infected, indicating a positive case of sub clinical mastitis. Look for a Exclamation symbol.
-  Blue - If you see blue, it suggests that you need to check the specific quarter further. This could imply an uncertain result that requires closer examination.

EDII - CHENNAI - VETERINARY INCUBATION FOUNDATION @ TANUVAS



TAMIL NADU VETERINARY AND ANIMAL SCIENCES UNIVERSITY  
Chennai – 600051, Tamil Nadu, India  
Registered as Section 8 Company  
Certificate of Incorporation No. U73100TN2018NPL123600  
Dated 09.07. 2018



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Tech Transfer Hub at Venture Center  
Supported by NBM - BIRAC

### Validation Certificate

This is to certify that the instrument “Quadmastest” that has been developed by M/s. Chimertech Innovations LLP, an incubatee of VIF@TANUVAS, has been successfully validated through The Directorate of Animal Health and Extension Education of Tamilnadu Veterinary and Animal Science University (TANUVAS). Four devices were provided to four farmers enrolled as Progressive farmers in Progressive Livestock Farmers Network (PLFN). They tested it on 18 cows in Tiruvallur and Kanchipuram districts of Tamil Nadu. This device was found useful in detection of sub clinical mastitis in bovines by measuring the increase in conductivity. Milk collected from all four teats can be tested simultaneously. The device works on the principle of difference in teat-to-teat variation in electrical conductivity in any bovine irrespective of breed, parity and feed variation. This provision is not available in any other equipment. There is no recurrent cost or consumable cost to this equipment in terms of chemicals/reagents. Quadmastest is completely waterproof and results are displayed in 10 seconds.

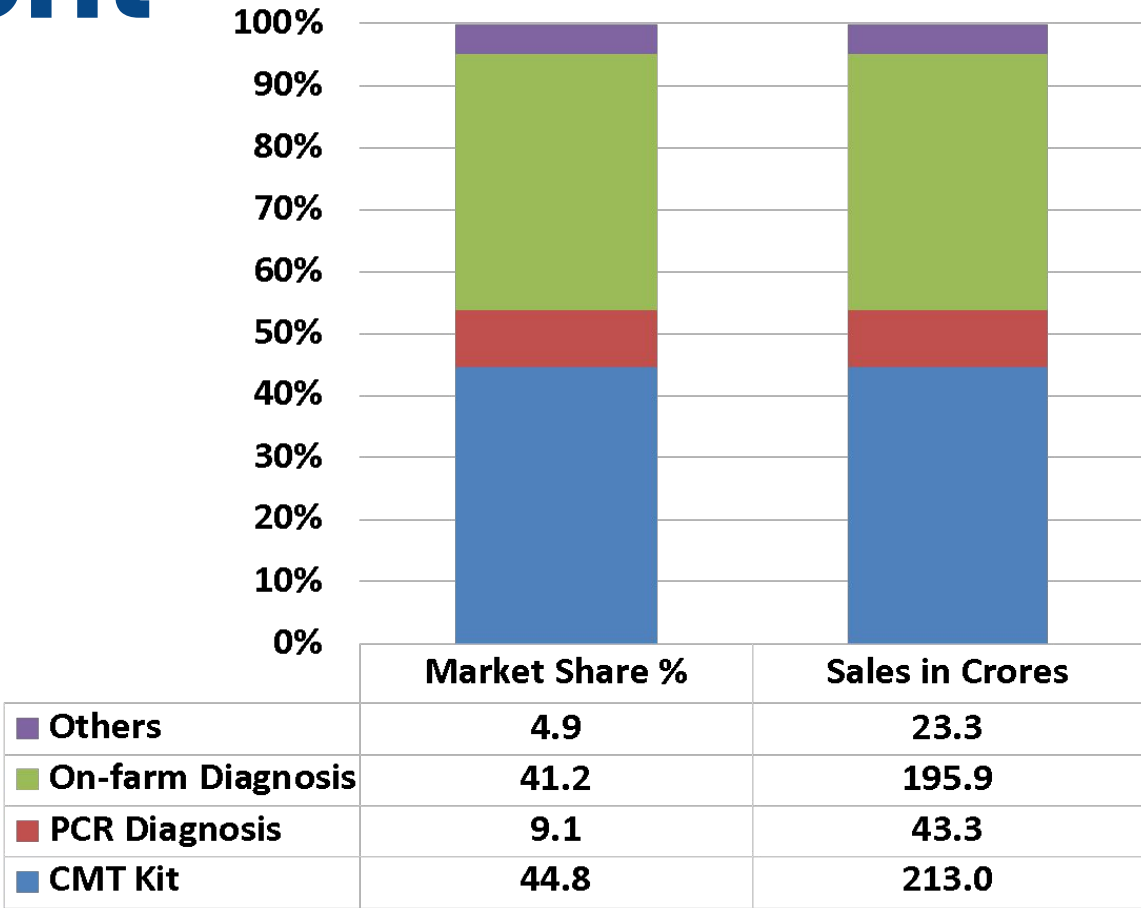
The instrument, Quadmastest would be highly useful for farmers and cattle owners in reducing the incidence of mastitis thereby resulting in economic gain.



  
26/8/2021  
Dr. G. DHINAKAR RAJ, M.V.Sc., Ph.D.(U.K.)  
Director  
Centre for Animal Health Studies  
TANUVAS, Madhavaram Milk Colony  
Chennai-600 051.



# Market segment



**CAGR 5.2%**  
(2020-2027)

## Equipment Manufactures



## Milk aggregators & Cooperatives





# Currently available solutions

Type	Diagnostic device *Indian Brands	Tim *without preparation.	Cost *Per Test	Reagent	Preparatio n	Expertise	Inter pretation	Data Tracea bility	Data Visualization Access
Reagent Based Field Test	TANUCHEK*	45 min	Rs 3*	Yes	Yes	Yes	Easy	No	No
	•California mastitis test*	2 min*	Rs 6-7*	Yes	Yes	Yes	Difficult	No	No
	•Surf field mastitis test • White side test (WST)		Rs 4-5* Rs 4-5*						
Reagent + Reader Field Test	PortaSCC® Milk Test PortaReader	1 hr	Rs 236* Rs 47,200	Yes	Yes	Yes	Easy	No	On Device
	Faunatech*	60 Sec	Rs 59* Rs 94,400	Yes	Yes	Yes	Easy	Yes	Info Unavailable
Reagent Based Lab Test	•PCR based detection •qPCR based detection	5 hr	Rs 700* Rs 1250*	Yes	Yes	Yes	Yes	Yes	Yes
	• NucleoCounter SCC •Lactoscan SCC	60 Sec	Rs 18.00,000 -30,00,000	Yes	Yes	Yes	Yes	Yes	Yes
Reagent free On Field	Labby.Inc	2 min*	Rs 415,000	Yes	Yes	Yes	Easy	Yes	On Mobile App
	MDI 4QF Analyzer	20 sec	Rs 32,400	No	No	No	Difficult	No	On Device
	Afimilk	On-flow	Rs 35,005	No	No	Yes	Difficult	Yes	On Mobile App
	4x4Q DRAMIŃSKI S.A	20 sec	Rs 36,762	No	No	No	Difficult	No	On Device
	QUADMASTEST* By Chimertech Pvt Ltd	10 Sec	Rs 19,500	No	No	No	Easy	Yes	On Mobile Application



# Current Status



## Technology Status:

- Validated by Tamil Nadu Veterinary and animal science University.

## IP Status: Indian Patent FER Submitted

Patent application number : 202241032626

Title: “ A Device For Early Detection Of Subclinical Mastitis In The Milk Of Dairy Animal “ in June 2022.

# Product Pilots

Organization Type	Organization	Type	Units
Veterinary Institute	Tamil Nadu Veterinary and Animal Sciences University (TANUVAS), Tamil Nadu	PAID	2
Veterinary Institute	Guru Angad Dev Veterinary and Animal Sciences University (GADVASU], Punjab	PAID	2
Dairy Processing Industry	Milky Mist, Tamil Nadu	PAID	4
Dairy Processing Industry	Bharat Mandi	PAID	1
Dairy Instrument Manufacturer	Promethean Spenta Technologies Pvt Ltd	PAID	1
Dairy Instrument Manufacturer	Prompt Equipments Pvt. Ltd. Gujarat	UNPAID	1
Dairy Instrument Manufacturer	Regenta Biodiagnostics Pvt Ltd, Bangalore	UNPAID	1
Dairy Processing Industry	Aavin (Erode & China Salem)	UNPAID	1

# Clients





# Team & Organisation

## About the organization

11. Team Members	07. Products	800+. Customers	02. Patent Filed	02. Trademark Filed	09. Academic Collaboration	26. Awards & Honors	2.2 Cr+. Fund Raised	25. Research Publication
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## TEAM



**CEO & Co Founder**  
**Dr. Ragul Paramasivam**

Monash Doctorate & 12-year experience in the field of veterinary science holds 50% equity

### Lead Scientist:

- **Honors and Awards:** *Merck Young Scientist Award Etc.*
- **Expertise:** *Point Of Care IVD Diagnostics, Zoonotic Diseases, Sexually Transmitted Diseases*



**CTO**  
**Mr. Siddarth Pa**  
Ex Amagi Media [Unicorn]  
MS.S.Engg - 7-year experience in Software Engg



**BDE**  
**Mr. Adi Narayanana**  
Ex - HDFC  
BTech & MBA - 14-year experience in Finance



**CSO**  
**Dr. Ramalakshmi**  
Monash Doctorate & 8-year experience in Protein Engg

## Advisor



**Dr. G. Dhinakar Raj, Ph.D. (UK),**  
Former Director, Centre for Animal Health Studies, TANUVAS  
Former Project Director, TRPVB & VIF@ TANUVAS  
Former Professor and Head, Department of Animal Biotechnology Madras Veterinary College



# Next Steps

- Standalone **API for data visualization** in mobile application
- Quadmastest integration with **Chimertech's iHERD** mobile application
- Product trials on **dairy Camels** for subclinical mastitis detection

## Ask:

- Looking for paid pilots from potential buyers
- Potential licensee who manufacture and sell
- Strategic investors and partners
- CSR funding for projects aimed at saving farmer livelihoods





**For More Information Contact:**

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Krishnamoorthy, Paramanandham, et al. "Global and countrywide prevalence of subclinical and clinical mastitis in dairy cattle and buffaloes by systematic review and meta-analysis." *Research in Veterinary Science* (2021).

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## References

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Aqib Al, Muzammil I, Naseer MA, Shoaib M, Bakht P, Zaheer T, et al. Pathological insights into camel mastitis. Acta Trop. 2022: 106415. doi: 10.1016/j.actatropica.2022.106415

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