



# SiallSCM: a nation-wide tool for milking monitoring to enhance efficiency and welfare

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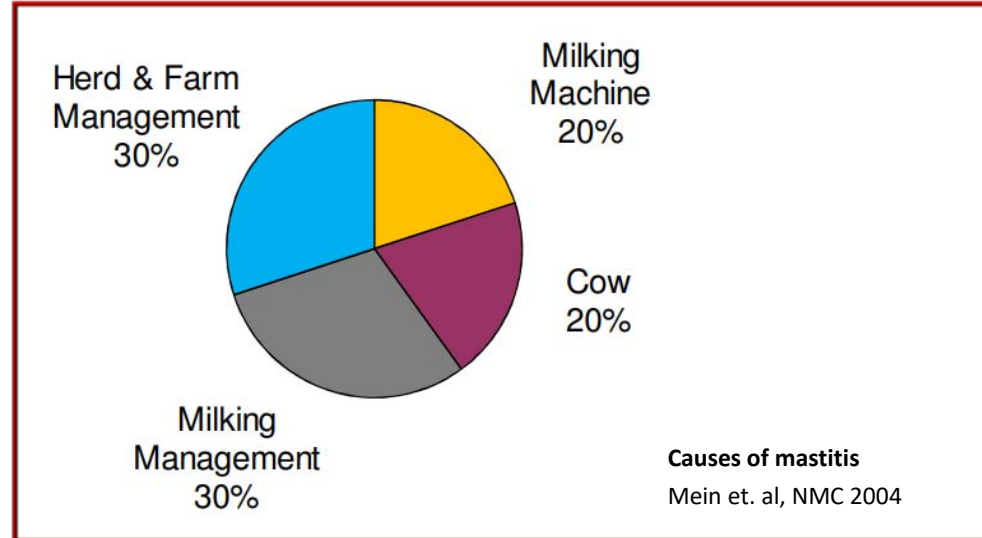




# The importance of milking

Monitoring milking machine operating parameters and milking procedures is a crucial factor in ensuring optimal **milk yield and quality, labor efficiency, and udder health** in dairy animals

*(Schroeder, 2000; Thomas et al., 2005; Besier et al., 2016; Odorčić et al., 2019)*

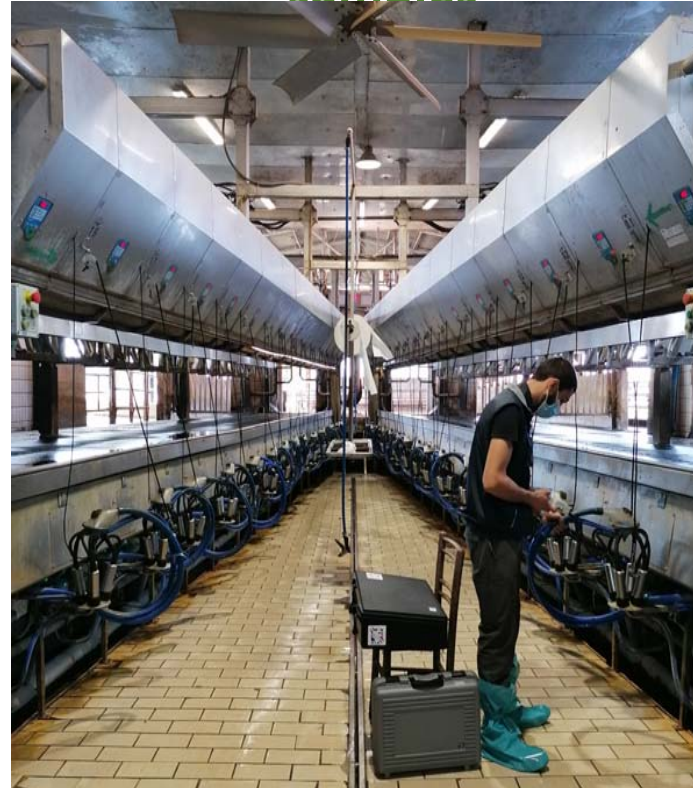




# Milking Control Service (SCM)

*SCM is part of the institutional activities carried out by AIA*

## Reliability of acquired data and samples



Checking the efficiency of milking machine and equipment

*(Dry test)*



Approval and periodic checking of milk recording devices

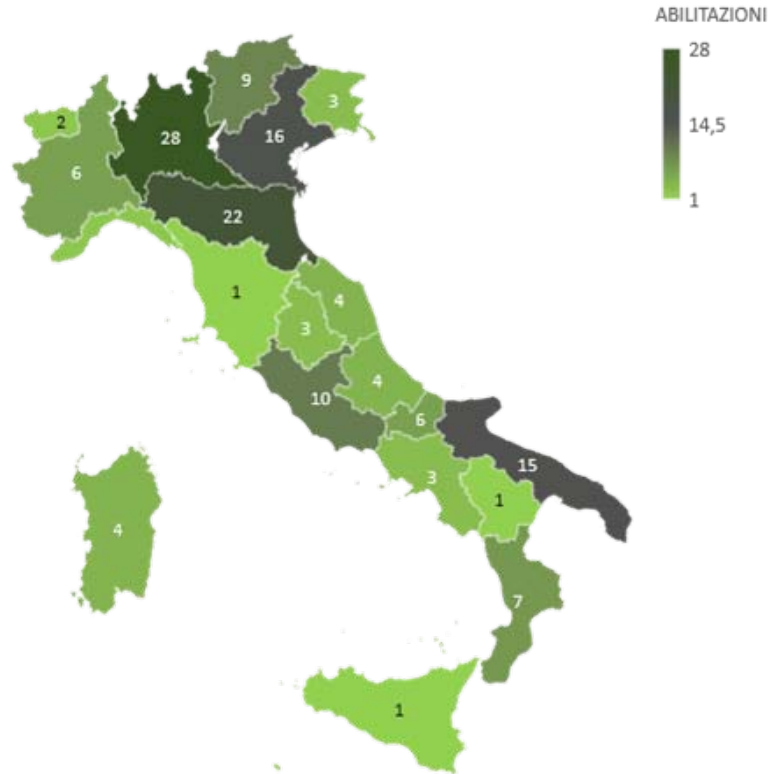
*ICAR recommendations*



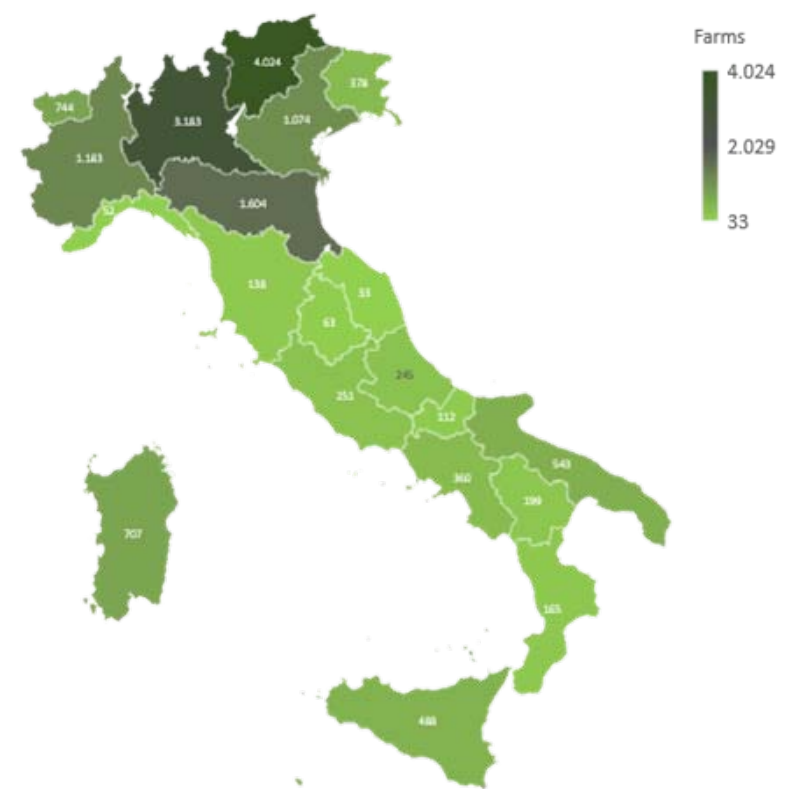


# Milking Control Service (SCM)

137 technicians qualified



15.581 farms checked in 2023





# Milking Control Service (SCM)

*The many activities of the SCM contribute directly to ensuring animal welfare, milk quality and farm economic sustainability.*

## ✓ **Wet test**

Integrated evaluation of milking efficiency

## ✓ **Milking routine assistance**

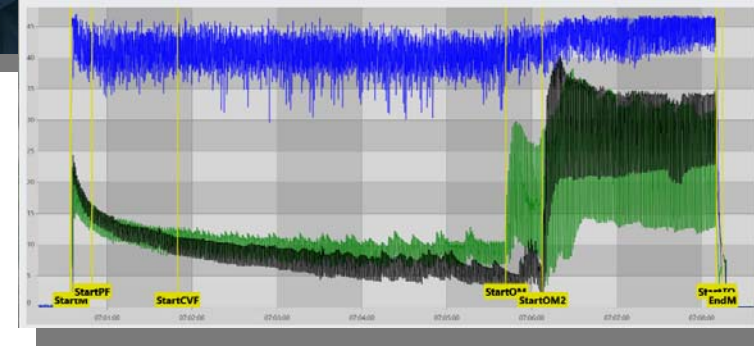
Identifies critical points and proposes the ideal routine for farm

## ✓ **Checking refrigeration (coolant) tanks**

Checks tank functionality providing indications as to the cooling efficiency of the milk

## ✓ **Checking the efficiency of washing plants**

Efficiency of the washing system to prevent microbiological proliferation





# The tool Si@LLSCM: why?

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- Different type of tests to evaluate milking
- Many different software and/or paper sheets
- Need to provide uniform assessments and support to farmers and stakeholders



*Develop a versatile tool for **comprehensive monitoring of milking processes** through multiple data collection and assessments*





# The tool SiallSCM: peculiarities

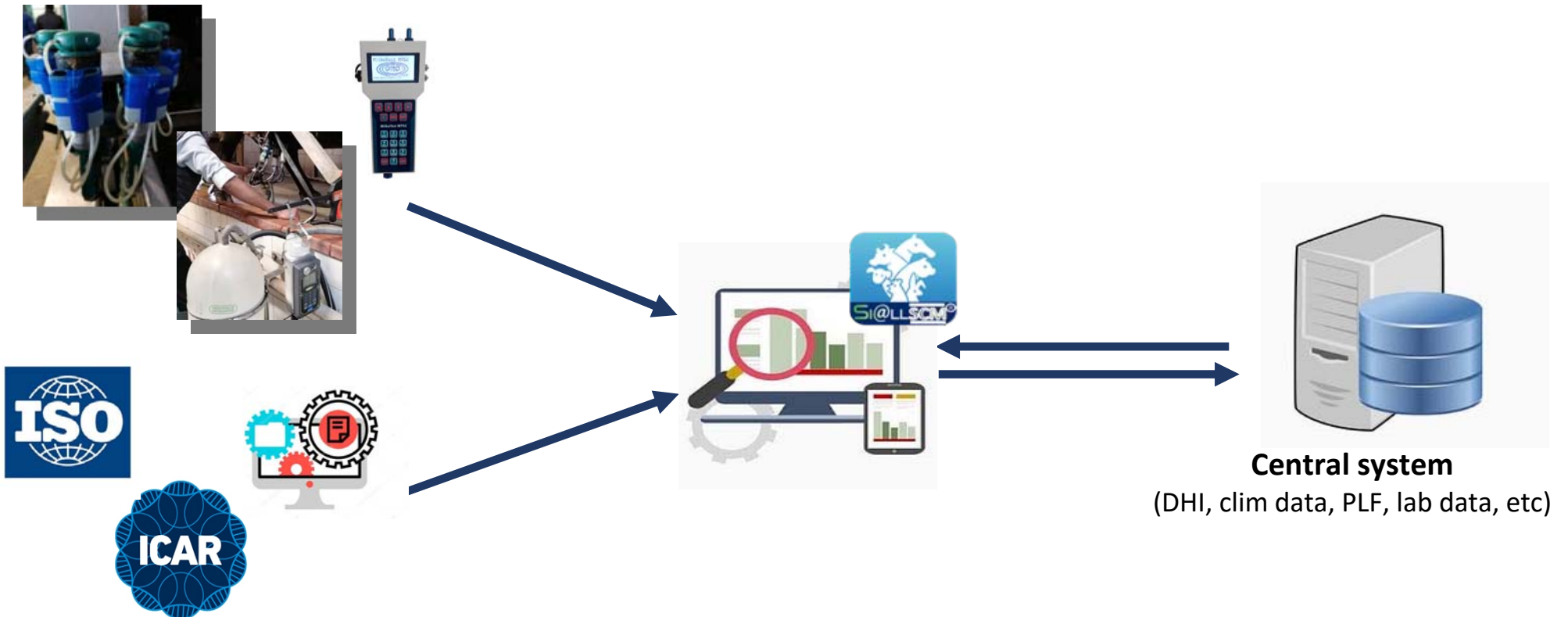
- ✓ Structured with a *per farm* approach to **collect all tests** and info at farm level
- ✓ Milking plant and equipment **complete configuration** as start point





# The tool SiallSCM: peculiarities

- ✓ Synchronized in real-time with **central AIA' DB** and merged with the **DHI data**
- ✓ Structured to gather data and info from the main **milking sensors and devices**







# The tool SiallSCM: peculiarities

✓ Two tiers of **normalization**:

1. ISO and ICAR standards, instruments and devices officially **calibrated**



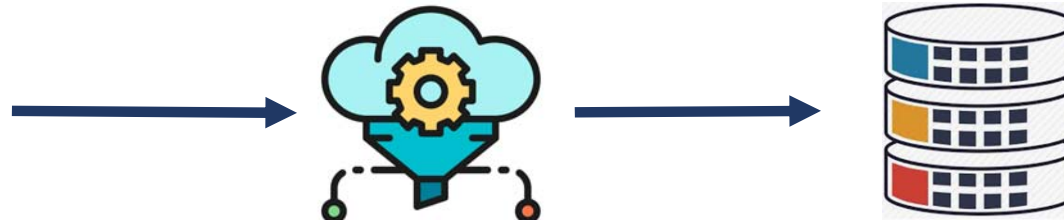
Metrological lab - AIA

2. Identification and flag of aberrant or outlier **data entries**

PULSATORI

	Rate (bpm)	Ratio	a (%)	a (ms)	b (%)	b (ms)	c (%)	c (ms)	d (%)	d (ms)	Vmax (kPa)	Limp
MIN	60	52 : 40	20	197	27	209	13	128	23	179	47.4	
MAX	78	60 : 48	27	231	39	393	21	205	28	275	51.5	8.0
AVG	63	59 : 41	23	217	36	345	15	144	26	251	50.4	
DIFF	23%	13% : 17%	24%	15%	31%	47%	37%	38%	16%	35%	8%	

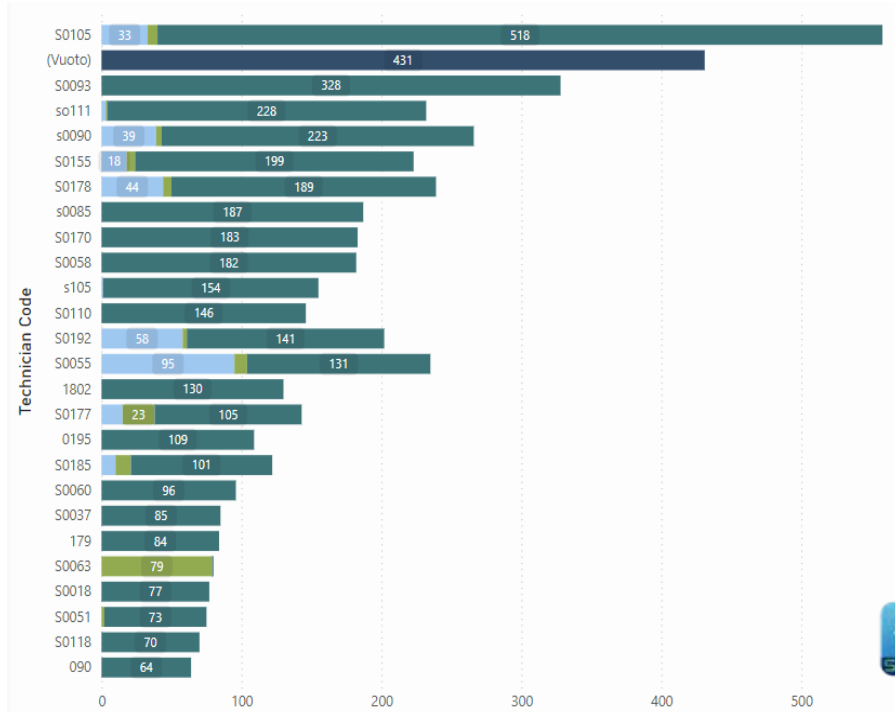
Puls. Nr.	Chan	Rate (bpm)	Ratio	a (%)	a (ms)	b (%)	b (ms)	c (%)	c (ms)	d (%)	d (ms)	Vmax (kPa)	Zoppica mento	Dip
1	1	60	59 : 41	23	229	38	381	13	129	28	275	50.5	1.0	3.2
1	2	60	60 : 40	23	217	38	384	14	141	28	290	50.8	1.0	3.1
2	1	60	60 : 40	22	224	38	373	14	140	26	260	51.2	0.0	3.0
2	2	60	60 : 40	22	214	38	378	14	135	27	288	50.6	0.0	3.0
3	1	60	60 : 40	23	226	38	375	15	140	25	247	51.1	0.0	3.2
3	2	60	60 : 40	20	204	38	383	13	131	27	270	50.6	0.0	3.0
4	1	60	60 : 40	22	219	38	379	15	145	26	266	50.9	0.0	3.1
4	2	60	60 : 40	22	229	30	294	23	209	27	273	51.5	0.0	3.2
5	1	60	60 : 40	22	216	38	380	14	143	26	269	51.2	1.0	3.1
5	2	60	59 : 41	22	220	37	372	14	142	26	263	50.8	1.0	3.2
6	1	78	60 : 40	38	197	34	284	17	128	23	179	48.1	0.0	3.2
6	2	78	54 : 48	37	207	27	205	19	141	27	208	47.4	0.0	3.3





# The tool SiallSCM: numbers

More than **500.000** milking machines configuration and setting parameters acquired  
*Inaugural campaign of SiallSCM*



Farms per technician



Farms per region

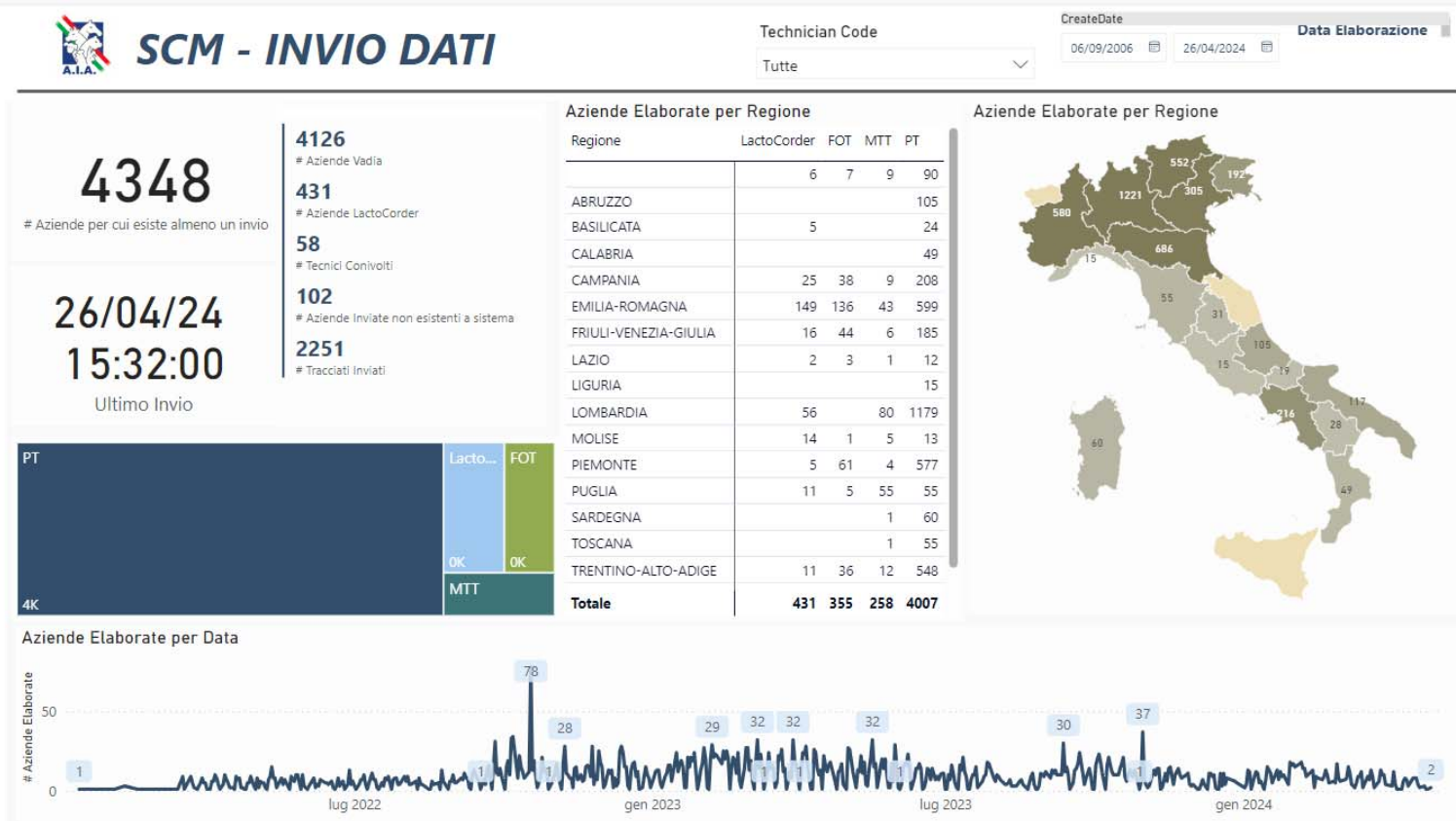
Milk and vacuum systems and pipelines, pulsations, recording devices, vac. pump, milking regulation, clusters and rubbers, air flow rates, EVR, vacuums, cleaning, etc.



# The tool SiallSCM: numbers

Current dataset (2024/29/04) comprises **4.348 milking tests** and **160.000 cows**

Information included 18 behaviour milking parameters



AIA's Powerbi pages for Siall-SCM data enter monitoring



# The tool SiallSCM: report



ASSOCIAZIONE ITALIANA ALLEVATORI  
Ente morale - D.P.R. N.1051 del 27-10-1950  
Ente Terzo Delegato ai sensi del D.lgs. 52/2018

SERVIZIO CONTROLLO MUNGITURA  
SCHEMA IMPIANTO DI MUNGITURA

AUA ASL Azienda \_\_\_\_\_ Fascia altitudine XXX-XXX

ID --- Tipo Impianto \_\_\_\_\_ Marca \_\_\_\_\_ Anno Installazione \_\_\_\_\_

N. gruppi --- N. poste --- Specie --- Caseifici \_\_\_\_\_

Descrizione \_\_\_\_\_

#### Pompe

N.	Marca	Modello	Tipo	Trasmissione	KW	Portata (l/min)	Giri/min
---	---	---	---	---	---	---	---

#### Regolazione del Vuoto

N. Regolatori ---				Inverter		
Marca	Modello	Tipo	Posizione	Marca	Possib. Esclusione SI/NO	Regolatore in attività SI/NO
---	---	---	---	---	---	---

#### Sistema del Vuoto

Diam. Principale --- mm	Materiale _____	Intercettore sanitario SI/NO	Capac. intercettore sanitario --- It
Diam. Secondario --- mm	Materiale _____	Drenaggio SI/NO	Presenza doppio vuoto SI/NO
Lung. Conduittura --- m			
N. Serbatoi del vuoto ---	Capac. Serbatoio del vuoto --- It	Capac. tot serbatoio + intercettore --- It	

#### Sistema del Latte

Tipo Lattodotto -----	Pendenza lattodotto --°	Diam. lattod. --- mm	Lung. lattod. --- m
Vaso Terminale SI/NO	Materiale Vaso term. -----	Capac. Vaso term. --- It	
Capac. Separatore Igienico --- It	Materiale Separatore igienico -----		
Tipo Pompa del latte -----			

#### Sistema di Lavaggio

Tipo Lavaggio -----
Diam. Lavaggio --- mm
Inverter durante lavaggio SI/NO
Vuoto lavaggio differente SI/NO

#### Gruppo di mungitura

Stacchi automatici SI/NO	Disinfezione gruppi SI/NO	Tipo flussimetro -----			
<b>Collettori</b>	Marca _____	Modello _____	Volume --- cl	Valvola chiusura SI/NO	
			--- cl	SI/NO	
<b>Guaine</b>	Portaguaina -----				
	Marca _____	Modello _____	Tipo ---	Materiale -----	Diametro --- mm

## Challenge

Provide meaningful reports  
for technicians and farmers



ASSOCIAZIONE ITALIANA ALLEVATORI  
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SERVIZIO CONTROLLO MUNGITURA  
CONTROLLO STATICO IMPIANTO DI MUNGITURA

AUA ASL Azienda \_\_\_\_\_ Data Controllo --/--/----

ID --- Tipo Impianto \_\_\_\_\_ Data Controllo precedente --/--/----

Motivo controllo \_\_\_\_\_

N. gruppi --- N. poste --- N. mungiture/di -- N. addetti -- Durata mungitura --:--

Regolatori	1	Consumo	0
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#### Parametri Pulsazione

Rapporto Pulsazione	Frequenza di pulsazione	Fase B (%)	Fase D (% o ms)	Zoppicamento (%)
64/36	62	0,00	0,00	0,00

Documento Stampato il 19/12/2023

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SCHEDA CONTROLLO STATICO

APA di PADOVA

AZIENDA CON SISTEMA QUALITA'  
CERTIFICATO DA DNV  
=UNI EN ISO 9001/2000=

Cod. Azienda:	20 23166	PALLARO SERGIO	Caseificio:	20 00295
Data Controllo:	15/01/2023	Numero Controllo:	1	
Impianto-Num.:	1 LATTODOTTO ALTO IN STALLA B WESTFALIA SURGE			

Routine Mungitura	A	ATTACCO G.M. SENZA LAVAGGIO CAPEZZOLI	Quota Caseificio	__-__
Igiene Impianto	B	BUONA	Quota Socio	__-__
Condizioni Parti in Gomma	S	SUFFICIENTE		
Data Ultimo Cambio Guaine			Elasticità	
Tariffe	15 30	BASTA SANDO		



# Conclusions

- ✓ Data exploiting: study and research the impact of milking
- ✓ Holistic assessment of milking efficiency using a combined machine-milker-animal approach.
- ✓ Identify crucial points and recommend the optimal strategy for the farm.





Thanks for your  
attention

