DairyRise: Improvement of medium and low-input dairy production systems in South Africa

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World Jersey Conference

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AGRICULTURAL RESEARCH COUNCIL

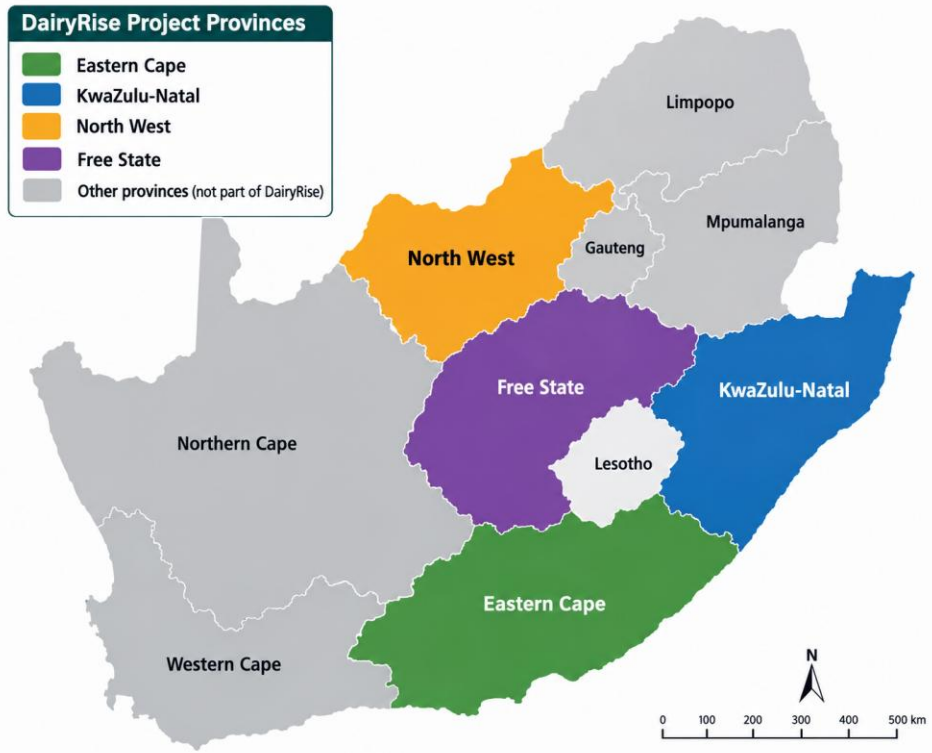
Background

agriculture
Department:
Agriculture
REPUBLIC OF SOUTH AFRICA

dairyRise

Stronger Farmers. Healthier Herds. A Brighter Future.

Research | Agro-processing | Reproduction Biotechnology | Milk Recording



Est: 2025

Goals!!!

dairyRise

Stronger Farmers. Healthier Herds. A Brighter Future.

Research | Agro-processing | Reproduction Biotechnology | Milk Recording









Pillars

01

RESEARCH

Generate data, knowledge and innovations for smallholder dairy production.

02

REPRODUCTION

Apply reproductive biotechnology to improve breeding efficiency.

03

MILK RECORDING

Measure performance to enable informed herd and genetic decisions.

04

AGRO-PROCESSING

Add value to milk and strengthen income opportunities.



Pillar 1 | Research

Evidence generation across genetics, reproduction, production and value chains

- Phenotypic and performance data collection to quantify economically important traits.
- Genomic approaches and genetic evaluation e.g parentage verification and DNA profile
- Research on reproductive performance and technologies that improve breeding efficiency.
- Applied research translated into practical recommendations for farmers and industry.
- Postgraduate training, scientific outputs, collaboration and knowledge dissemination.

Pillar 1 | Research

Agri About No 156 April 2026 15

Dairy Production and Agroprocessing:
Unlocking Rural Wealth

Dr. Yandi Sanarana, Ms Tondani Neluvhalani & Dr. Walter Shiba:
Agricultural Research Council

Joint FAO/IAEA Centre
Nuclear Techniques in Food and Agriculture
International Symposium on
Sustainable Animal Production and Health
Current status and way forward
28 June to 2 July 2021
Vienna, Austria

An analysis of genetic diversity and population structure of South African smallholder dairy cattle herds using SNP markers

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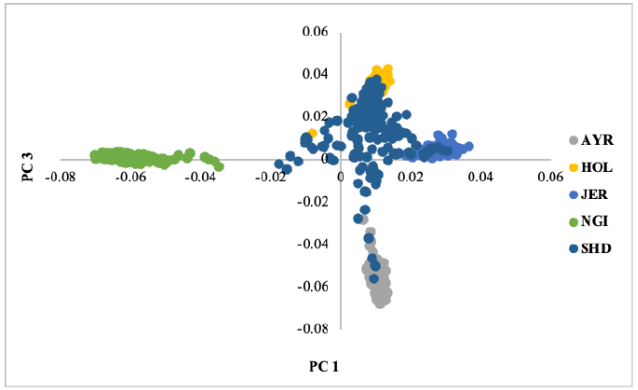


DairyRise Farmers Day in Zastron Empowers Free State Dairy Farmers for Sustainable Growth

Farmers Mag
Last updated: 2026/07/20 at 10:12 AM

in News

DairyRise Project drives inclusive agricultural growth

As Disability Pride Month concludes, the ARC-AP DairyRise Project celebrates a North-West dairy farmer turning physical challenges into agricultural success. The project is empowering smallholder dairy farmers of all abilities across South Africa

by L Chavula, E Muntswu, R Malatji and Y Sanarana — 31st July 2026

in Food for Thought

Four simple records every smallholder livestock farmer should keep

Knowing your animals by sight is great, but keeping written records is what drives real farm profitability. The ARC shares four basic records every livestock producer should start keeping today

by Asanda Gumenke Dr Walter Shiba and Dr Yandi Sanarana — 28th July 2026

"ARC drives livestock success with Cattle Betterment Programme" published on the 28 May 2026 in FoodForMzantsi: "Adding value through Dairy Agro-processing". Ms T Neluvhalani
https://www.foodformzansi.co.za/arc-drives-livestock-success-with-cattle-betterment-programme/

"ARC drives livestock success with Cattle Betterment Programme" published on the 28 May 2026 in FoodForMzantsi: "Technology in the fight against stock theft".
https://www.foodformzansi.co.za/arc-drives-livestock-success-with-cattle-betterment-programme/

Pillar 1 | Research



Pillar 1 | Research







Pillar 1 | Research





Pillar 2 | Reproduction Biotechnology

Accelerating genetic improvement through reproductive efficiency

Breeding efficiency

Support improved reproductive management and strategic breeding decisions.

Biotechnology

Use appropriate reproductive technologies to increase access to superior genetics.

Genetic gain

Link reproductive interventions with performance and genetic information.

Capacity building

Strengthen technical capability among researchers, technicians and producers.

1231
Jersey bulls





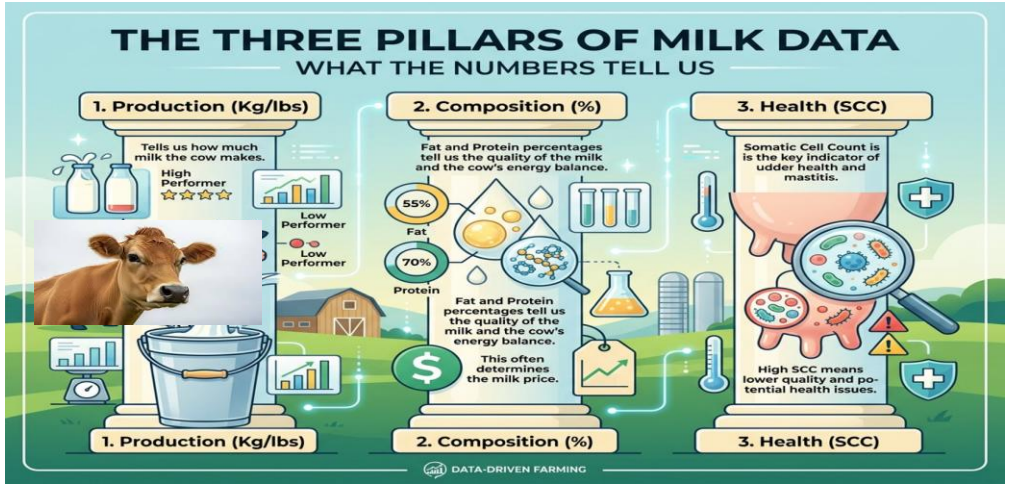


Impact pathway

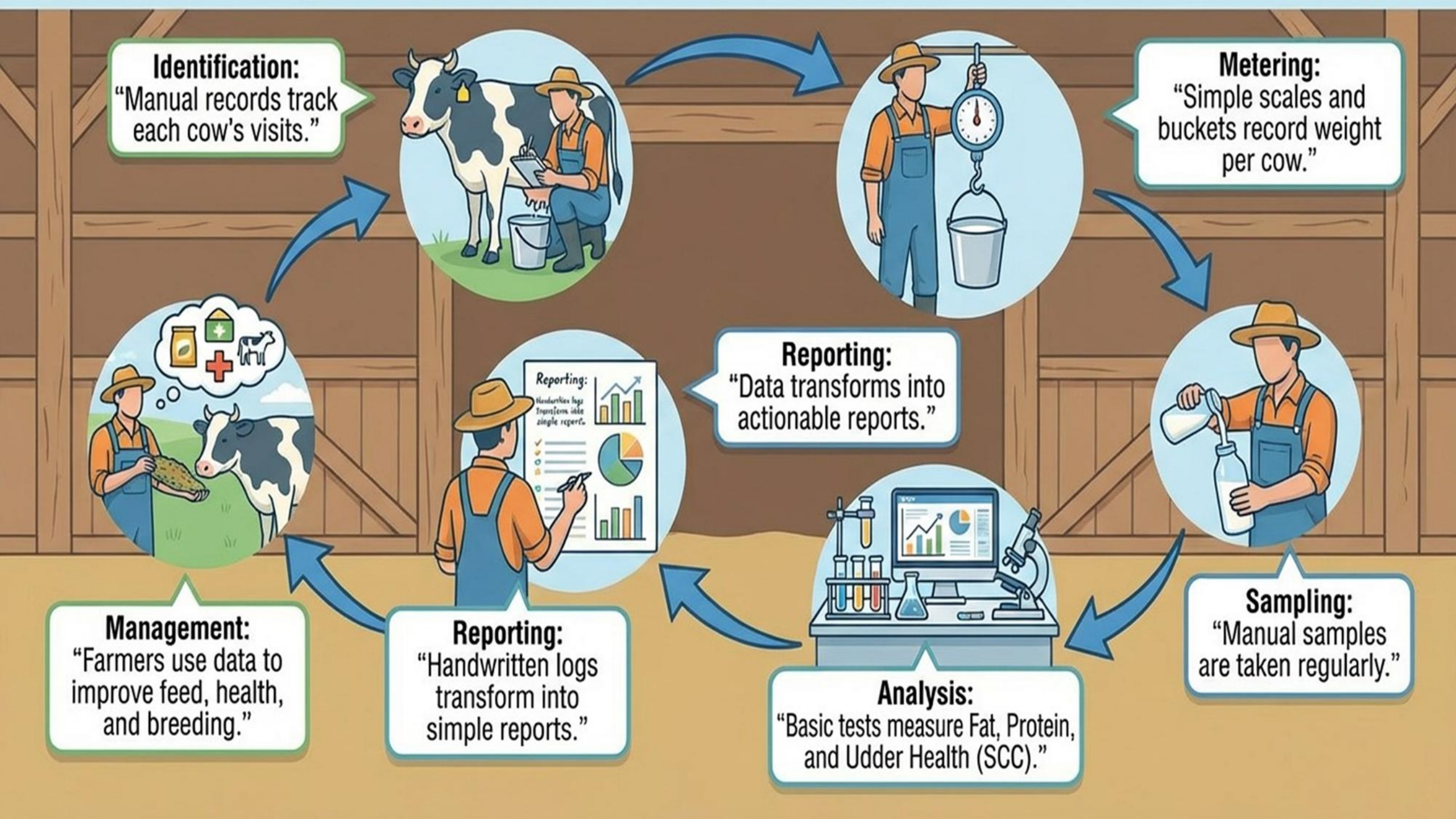
Move from laboratory and research outputs to farm-level application.

Pillar 3 | Milk Recording

Turning routine performance information into management intelligence

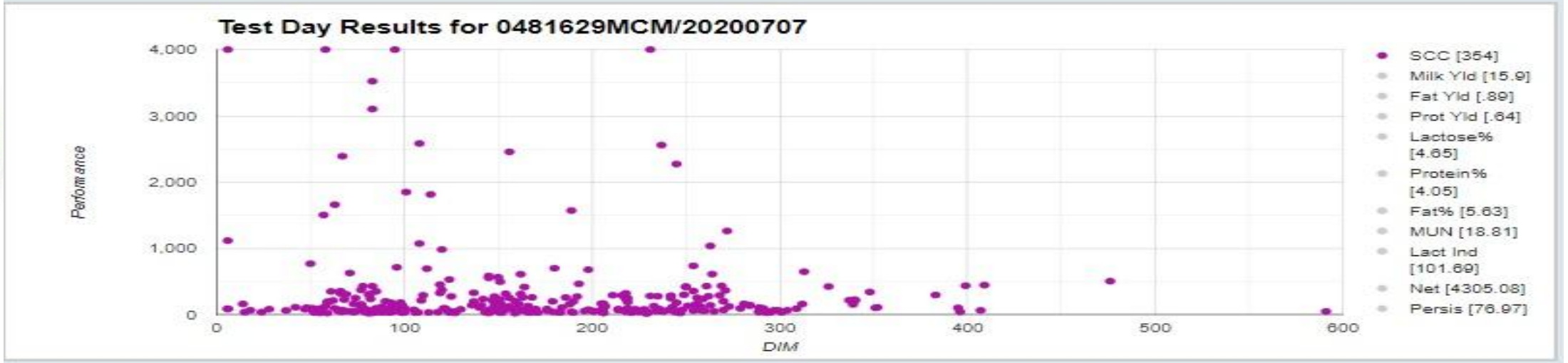


Capture	Capture consistent milk production and composition records at animal and herd level.
Provide	Provide objective information for herd management, selection and breeding decisions.
Build	Build datasets that strengthen genetic evaluation and research.
Support	Support farmers with evidence for identifying high-performing and under-performing animals.
Create	Create a feedback loop between farm performance, research and genetic improvement.


Identification:
“Manual records track each cow’s visits.”
Metering:
“Simple scales and buckets record weight per cow.”
Sampling:
“Manual samples are taken regularly.”
Analysis:
“Basic tests measure Fat, Protein, and Udder Health (SCC).”
Reporting:
“Handwritten logs transform into simple reports.”
Reporting:
“Data transforms into actionable reports.”
Management:
“Farmers use data to improve feed, health, and breeding.”

All herd view dashboard





	Group	No of Animals	Milk Yield	Fat%	Prot%	SCC Current	Lactose%	MUN	DIM	Gross Value	Persistency
1	1st Lactation	85	14.36	5.48	3.92	213	4.73	18.3	157	4,528	93
2	2nd Lactation	82	14.94	5.64	4.05	135	4.67	18.95	176	4,180	74
3	3rd Lactation+	150	17.34	5.61	4.03	522	4.63	19.02	169	4,247	70
4	0 - 30 DIM	9	15.19	5.31	3.86	476	4.68	16.09	14	4,126	62
5	0 - 75 DIM	47	18.75	5.32	3.66	530	4.75	16.91	52	4,146	73
6	31 - 75 DIM	38	19.59	5.32	3.62	540	4.76	17.1	61	4,150	76
7	76 - 240 DIM	194	16.23	5.54	3.98	343	4.67	18.76	146	4,263	79
8	241 - 305 DIM	57	13.69	5.94	4.34	231	4.6	20.08	267	4,553	70
9	305+ DIM	19	12.44	6.08	4.6	247	4.4	20.26	375	4,390	82
10	Herd Test AVGs	317	15.92	5.59	4.01	354	4.66	18.81	168	4,305	77

Herd report

Groups	Animals	Milk Yld	Fat%	Prot%	SCC	Lact%	MUN	DIM	Net Value	Persistency
1st Lact	20	18.32	4.77	3.82	152	5.10	10.77	362	4768	102
2nd Lact	12	17.83	4.93	3.89	128	4.94	10.23	499	4878	88
3rd Lact+	10	19.66	4.75	3.73	181	4.90	10.49	339	4385	86
0-30 DIM	1	18.40	4.27	3.46	64	4.68	12.13	21	3925	81
0-75 DIM	1	18.40	4.27	3.46	64	4.68	12.13	21	3925	81
31-75 DIM	0	0.00				0.00	0.00			
76-240 DIM	20	21.03	4.56	3.65	121	5.09	10.46	178	4573	96
241-305 DIM	1	15.00	5.07	3.63	160	5.13	10.91	258	4783	84
305+ DIM	20	16.15	5.25	4.10	186	4.87	10.55	640	4880	94
Test AVGs	42	18.50	4.90	3.86	152	4.98	10.55	396	4708	94

Pillar 4 | Agro-processing

Moving beyond production to value addition and market opportunity

Value addition

Convert milk into higher-value products and reduce dependence on raw-milk sales.

Enterprise development

Build practical skills in processing, quality, packaging and product development.

Market orientation

Connect product development with consumer needs, quality standards and viable markets.

Income potential

Support improved farm and rural enterprise opportunities.

Rural development

Contribute to inclusive agricultural development and stronger local value chains.







Farmer Engagement & Technology Transfer

Research impact is measured by adoption, usefulness and sustained application



Translate technical findings into practical tools, recommendations and training.

Engage farmers and stakeholders throughout the research and innovation cycle.

Provide technical support and feedback mechanisms that respond to farmer needs.

Demonstrate technologies and management practices in relevant production environments.

Use stakeholder feedback to refine research priorities and accelerate adoption.



Farmer Engagement & Technology Transfer

- Identify poisonous plants
- Silage making
- Animal nutrition
- Breed identification
- Pedigree recording
- Bull and heifer identification

Acknowledgements





Joint FAO/IAEA Centre
Nuclear Techniques in Food and Agriculture



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REPUBLIC OF SOUTH AFRICA





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