NEWS/NUUS

WWW.LUSERN.ORG

ISSUE 2 MARCH 2024

THE OFFICIAL VOICE OF THE NATIONAL LUCERNE TRUST

Sponsored by: Limagrain Field Seeds

PUBLISHED BY

AGRI VOICE

LUCERNE HAY GRADING SYSTEM

The National Lucerne Trust (NLT) designed a lucerne hay grading system specifically for South African lucerne hay, which was implemented in 2008 and has since been effectively maintained and managed by the NLT. In recent years, significant time and resources have been invested in research, ongoing development, and promotion of the NLT scheme. Notable shifts have happened in the lucerne hay sector, ranging from climate fluctuations to an expanding export market. The NLT grading system is designed to be adaptable and continuously evolve in order to reflect the changing landscape of the lucerne hay industry. Its resilience enables seamless integration of these changes into the grading framework.

Over the past several years, adjustments have been made to the grading system to accommodate these shifts. Changes were implemented in the validation process to capture variations in lucerne hay quality throughout the production season. In response

to the growing export market, the standards of different grades were modified to better align with the needs of producers and consumers, while maintaining relevance in the international arena.

The NLT's primary responsibility is and will remain the upkeep and well-being of the lucerne hay industry. The lucerne hay quality and grading system must be fair to both the producer and buyer and must ultimately represent the product accurately.

The NLT is committed to ensuring dependable and trustworthy outcomes for all participants in the NLT lucerne hay grading scheme. This applies especially to users who rely on the integrity of results in both local and international markets. The NLT is constantly improving existing lucerne hay quality calibration by sending 100 samples for wet chemistry analysis to our reference laboratory, Cumberland Valley Analytical Services (CVAS), in the United States.

Table 1 shows the latest post-validation data provided on samples tested with near-infrared (NIR) instruments in different production areas, compared with results from the reference laboratory. Currently, over 40 NIR instruments are participating in the NLT lucerne hay grading scheme. The NLT suggests that users of the grading system follow the lucerne hay grading protocol to get repeatable results.

We would like to thank the lucerne hay industry for its continuous support and engagement in developing the dynamic lucerne hay grading system over time and providing structure to the industry in the local and international markets.

Table 1. Samples tested in different production areas showing variations among NIR instruments, with CVAS as reference

	NIR 1	NIR 2	NIR 3	NIR 4	CVAS	Deviation
Moisture DM	9,5	9,04	9,6	9	8,8	0,34
Protein DM	22,1	22,08	21,9	21,46	22,6	0,41
Ash DM	10,73	12,15	10,96	10,52	10,88	0,64
ADF* DM	29,7	29,75	30,3	29,78	30	0,25
NDF DM**	36,8	36,92	37,2	36,78	35,6	0,62
Lignin DM	6,6	6,04	6,41	6,11	5,83	0,31
NLQI***	103	103	102	103	103	0,43

	NIR 1	NIR 2	NIR 3	NIR 4	CVAS	Deviation
Moisture DM	8,5	7,4	8,5	7,8	7,9	0,48
Protein DM	21,6	22,16	22,3	21,79	21,9	0,28
Ash DM	9,66	11,3	10,52	9,6	9,61	0,76
ADF* DM	30,3	29,93	30,2	30,06	30,9	0,37
NDF DM**	37,1	36,68	36,5	36,58	36,8	0,23
Lignin DM	6,2	6,27	6,18	6,23	6,43	0,1
NLQI***	102	103	102	103	102	0,65

	NIR 1	NIR 2	NIR 3	NIR 4	CVAS	Deviation
Moisture DM	9,5	8,72	9,6	8,9	8,8	0,41
Protein DM	19,5	19,83	19,6	19,14	20,1	0,36
Ash DM	10,36	11,6	10,72	9,84	9,2	0,91
ADF* DM	32,8	32,25	33	32,54	32,5	0,29
NDF DM**	40,2	39,51	39,9	39,52	38,5	0,64
Lignin DM	6,94	6,88	6,94	6,83	7,33	0,2
NLQI***	99	100	99	100	100	0,5

	NIR 1	NIR 2	NIR 3	NIR 4	CVAS	Deviation
Moisture DM	10,8	10,47	11	10,2	9,9	0,44
Protein DM	22,2	22,24	22	21,8	23,4	0,62
Ash DM	11,66	12,2	11,41	11,05	11,01	0,49
ADF* DM	28,5	28,55	28,6	28,54	27,6	0,43
NDF DM**	36,1	36,13	36,9	35,88	33	1,5
Lignin DM	6,09	6,18	6,37	6,12	5,75	0,22
NLQI***	105	105	104	105	106	0,45

	NIR 1	NIR 2	NIR 3	NIR 4	CVAS	Deviation
Moisture DM	8,5	7,96	8,6	8	8,3	0,29
Protein DM	19,5	19,12	19,1	18,94	20,1	0,47
Ash DM	9,4	10,07	9,54	8,72	8,84	0,55
ADF* DM	32	32,7	32,9	32,1	33,4	0,58
NDF DM**	39,4	40,17	40,1	39,33	39,1	0,48
Lignin DM	7	7,24	7,18	7,02	6,63	0,24
NLQI***	100	99	99	100	98	0,69

	NIR 1	NIR 2	NIR 3	NIR 4	CVAS	Deviation
Moisture DM	9,2	9	9,5	8,9	8,1	0,52
Protein DM	20,2	20,49	20,3	19,32	21,2	0,67
Ash DM	11,38	12,4	10,88	10,09	11,04	0,84
ADF* DM	26,7	26,77	27,3	27,4	26,3	0,45
NDF DM**	34,3	34,18	34,5	34,66	33,3	0,53
Lignin DM	6,14	6,22	6,11	6,2	5,86	0,14
NLQI***	107	107	106	106	107	0,63

	NIR 1	NIR 2	NIR 3	NIR 4	CVAS	Deviation
Moisture DM	10,5	10	10,3	9,8	8,7	0,7
Protein DM	24,8	25,02	24,8	24,49	25,5	0,37
Ash DM	10,9	12,44	11,25	11,02	14,28	1,42
ADF* DM	25,8	26,12	26,5	25,94	26,7	0,38
NDF DM**	32,7	32,81	33,1	32,4	31,1	0,78
Lignin DM	5,32	5,36	5,45	5,16	4,98	0,19
NLQI***	108	108	107	108	107	0,59

*** Acid detergent fibre**
**** Neutral detergent fibre**
***** New lucerne hay quality index**

WAAR KWALITEIT SAAD WINSGEWENDE OPBRENGSTE BEHAAL!

NLT DEFINITIONS EXPLAINED BELOW

Protein: The protein value is a poor indication of the quality and digestibility of lucerne. With a high neutral detergent fibre (NDF) value, one may see a high or low protein value and vice versa because the protein value is not one of the parameters used to determine the NDF value. However, a protein value is important for balancing the energy/protein ratio in the ration. Lucerne contains no soluble protein.

Ash: Content varies between 7% and 30%. A lower ash content is associated with a higher NDF value. When the ash content is more than 14%, it usually indicates a high degree of soil contamination. This can be controlled by paying attention to the raking process.

Lignin: Content varies between 4% and 16%. Higher lignin content of plants results in reduced availability of energy and protein. A lower lignin value will result in a higher NDF value – this can be achieved by cutting earlier and minimising leaf loss. This is achieved by limiting the handling of the hay before baling as it leads to leaf loss, for example, improper and frequent raking. Lignin is one of the parameters used to determine the NDF value.

Moisture: A moisture value of 16% and higher is generally concerning in lucerne hay bales (small square, round, and not high-density press [HDP] bales). In HDP bales, a moisture value of 12% and higher is concerning and can cause problems leading to mycotoxins, spontaneous combustion, and binding to lignin.

Neutral detergent fibre (NDF): NDF = cellulose, hemicellulose, and lignin. Affects intake. High NDF is also associated with lower NDF intake. The greater the NDF value, the lower the passage rate and the lower the intake. General rule of thumb for "good lucerne": ADF below 30% and NDF below 40%.

Acid detergent fibre (ADF): ADF = lignin and cellulose. ADF increases as the plant ages, and a high ADF value is associated with a lower NDF value. Results vary between 21% and 47%. For better digestibility, lower the ADF. A low ADF value can be achieved by cutting earlier and minimising leaf loss, as in the case of lignin and NDF. General rule of thumb for "good lucerne": ADF below 30%, NDF below 40%.

Relative feed value (RFV): RFV is a numerical index used in the evaluation of forage quality, mainly hay, based on its digestibility and energy content. RFV provides a comparative measure of the potential feed value of a forage compared to other forages. Factors such as fibre content, protein content, and digestibility are taken into account. It is generally believed that the higher the RFV value, the more nutritious and digestible the forage. This indicates its potential to support livestock growth and productivity. RFV is often used by livestock producers and nutritionists to make informed decisions about forage selection and ration formulation.

New lucerne hay quality index (NLQI): The NLQI model was found to be the most practical, simplistic, economical, and accurate quality evaluation model for commercial application. Although the NLQI was developed on milk production potential, ranking of the index is based on digestible energy content or production potential.

GRADE	NLQI*	FOREIGN MATERIAL
Supreme	108 and higher	Absent
Prime	104 - 107	Absent
Grade 1	100 - 103	Absent
Grade 2	95 - 99	Present
Grade 3	94 and less	Present

terradam
Farm. Aggregate. Supply.

Our variety caters to all your needs, ensuring your livestock thrive and your business prospers.

Terradam (Pty) Ltd -
Where Quality Meets Variety

AFMA
SAFE FEED FOR SAFE FOOD

NLT

OUR PRODUCTS:

- **High Quality Lucerne Bales:** Nutrient-rich and perfect for your herd's health.
- **Lucerne Milled Feed:** Finely processed for easy consumption and digestion.
- **Wheat straw Bales:** Ideal for bedding and feed, our wheat straw is clean and durable.
- **Oats Bales:** High in fibre and energy.
- **Groundnuts Hay Bales:** A protein-packed option that's both delicious and nutritious.
- **Teff Bales:** Rich in minerals, teff is excellent for equine and small livestock.

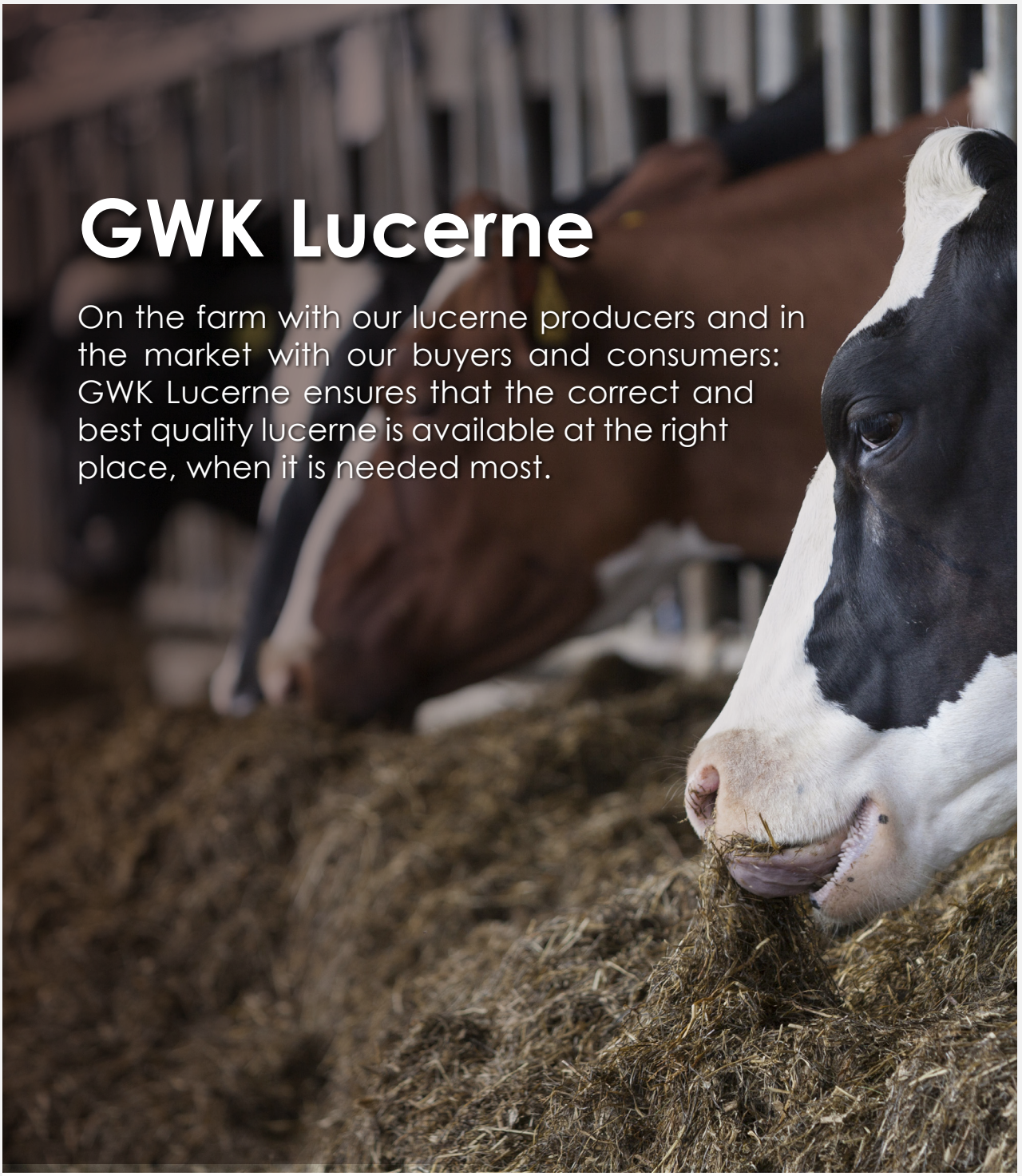


VISIT OUR WEBSITE OR CONTACT US AT:

www.terradam.com

Franco Conradie: 072 226 4721 | Charl Van Der Merwe: 071 435 2498

Email: wikus@terradam.com



For more information about GWK Lucerne, our products and services, speak to our national management and marketing team:

Head of Feed and Fibre | Fanus Linde | 082 888 0016
Manager: Lucern and animal feed | Beyers Mallo | 082 600 8476
Marketing: Daniel Breytenbach | 082 941 4817

GWK
innovate agriculture

Does your business currently offer professional services within Agriculture?

Agrimall GROUP

BuiltAfrica Holdings introduces AGRIMALL, a digital platform that hosts services key to optimising agri-operations and ensuring sustainability throughout the agricultural value chain.

These services include:

Financial, advisory and administrative services
(e.g. co. registration, business plan, bookkeeping, taxation, etc.)

Funding application support services
(e.g. renewable energy funding application)

Logistics services

Import and export services

Information consultancy and services

Farm security services
(incl. security for property, equipment and produce/livestock)

How registering on the Agrimall platform can help your business:

- Client acquisition
- Expansion of client base
- Building your business profile and portfolio
- List your services and ensuring accessibility
- Access diverse markets
- Extend your reach to different geographic locations

If you have been in business for 3 years or more and have provided services within the Agriculture and Agro-processing sector then scan this QR code to register.

CONTACT DETAILS:

Phone

+27 (0)44 272 8991

Email

info@lusern.org

Address

152 St John Street
Oudtshoorn
Western Cape
6625
South Africa