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Guide for the grading of lucerne hay, Part 2

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To create an accurate and uniform grading system, it is imperative that the following be meticulously applied:

- · All prescribed procedures regarding certification
- · Interpretation of analyses
- · Handling lucerne hay grading disputes
- The Lucerne TechConsult (LTC) hay probe

(For Part 1 of this Guide, refer to the June 2024 NLT newsletter covering all prescribed procedures regarding sampling, the handling of samples, identification of outliers, and quality standards.)

1. CERTIFICATION ON PERTEN INSTRUMENTS

Printing of a National Lucerne Trust (NLT)
Certificate using the Perten DA7200 or DA7250:

- After the sample has been prepared correctly and analysed by the Perten DA7200 or Perten DA7250, the results page is automatically displayed. At the bottom right corner of the page, you will see a button "Export Grading xml" (Figure 1.1).
- When you click on this button, another pop-up will appear, which you need to complete.

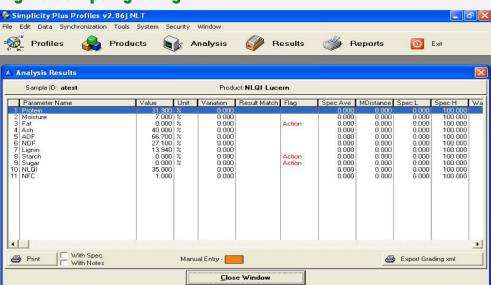
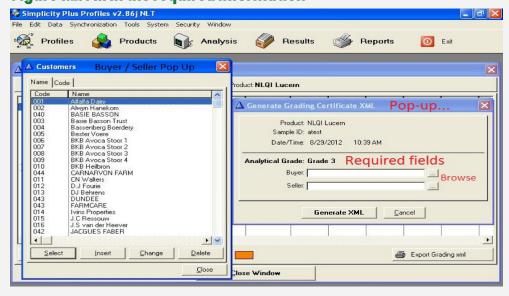


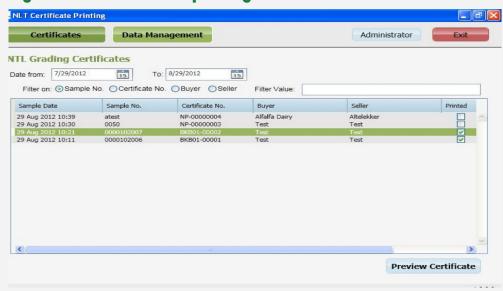
Figure 1.1: Export grading xml

Figure 1.2: Fill in the required information



- "Generate Grading Certificate XML" will pop up. You will need to enter the buyer and seller. When you click on the browse button (next to the "Buyer" or "Seller" fields), another pop-up will appear where you can "Select", "Insert", "Change" or "Delete" the buyer or seller.
- When you have completed the "Buyer" and "Seller" fields, click on the "Generate XML" button. You will be returned to the "Results" screen. Next, you will need to go to the NLT certificate printing software.

Figure 1.3: NLT certificate printing software



- The NLT software will automatically record the results into the NLT program. On the right, there is a column labelled "Printed". New certificates that have been recorded but not completed and printed, will not have a tick mark next to them.
- Click on the appropriate certificate and click on "Preview Certificate", which will take you to the details of the certificate. In this screen, all options except "Batch/Truck No" are required fields. Click on: "Save and Print" to update the certificate details and preview the certificate.
- · You will then be taken to the actual certificate where you can print it out.

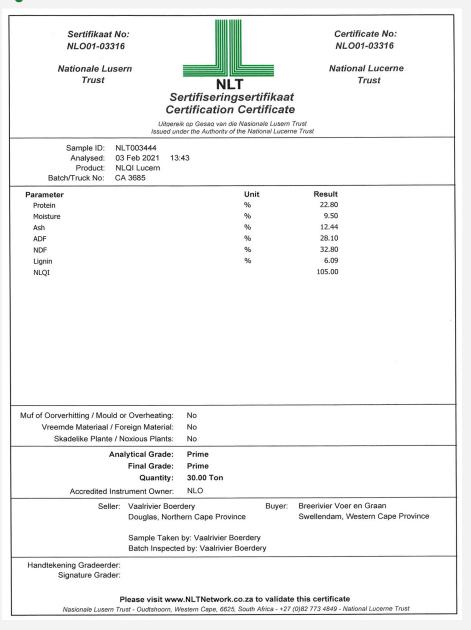
NLT Certificate Printing Data Management Administrator Certificates **NTL Grading Certificates** 15 15 Filter on: Sample No. Certificate No. Buyer Seller Filter Value: Sample Date Sample No. Certificate No. 29 Aug 2012 10:39 29 Aug 2012 10:30 NP-00000004 NP-00000003 Alfalfa Dairy atest 0050 Test Test 29 Aug 2012 10:11 0000102006 BKB01-00001

Preview Certificate

Figure 1.4: Fill in the correct details and "Save and Print"

- An official NLT certificate representing a maximum of 30 tonnes contains the following information:
 - o Correct batch or truck license number
 - o Correct tonnage
 - o Correct and complete name (person or business) and address (at least town and province) of the buyer and seller
 - o Original signature of grader
 - o No handwritten changes to the above

Figure 1.5: NLT certificate





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2. INTERPRETATION OF ANALYSES

The new lucerne hay quality index (NLQI) is calculated from the following analyses:

2.1 Acid detergent fibre (ADF)

The ADF results can vary between 21% and 47%. A lower ADF is concomitant with a higher NLQI. In practice this could be attained by earlier cutting and limiting of leaf loss during the haymaking process.

2.2 Ash

The ash analyses may vary between 7% and 30%. Lower ash content will lead to a higher NLQI value. A value higher than 14% indicates high soil contamination, which should be limited during the haymaking process. Furthermore, a high calcium (Ca) fertiliser with high potassium (K) – and therefore, ash content – is concomitant. Very low ash values should be treated and interpreted with the utmost care. This can reveal an outlier which can normally occur in any

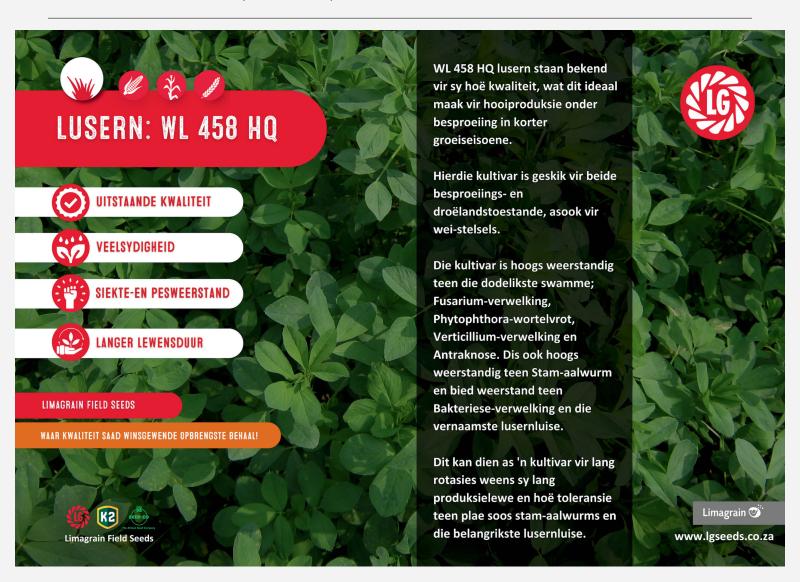
season. A value of this kind should be reported to the NLT as soon as possible for investigation and possible rectification.

2.3 Lignin

The lignin content may vary between 4% and 16%. Low lignin is conducive for a higher NLQI value. Once again, this may be achieved with an earlier cutting stage and limitation of leaf loss.

The interrelationship among different parameters may vary from season to season, therefore influencing the lucerne hay matrix. Such a differentiation can subsequently affect the lucerne hay calibration. Participation in the annual validation process and identification of outliers are of the utmost importance to ascertain consistent predictions by near-infrared (NIR) instruments.

Values outside the above-mentioned confines are to be considered outliers and should be



saved for continuing analyses and calibration development purposes. Furthermore, the NLQI value of this lucerne hay sample does not indicate lucerne quality correctly. In such cases, the NLT should be contacted for recommendations.

3. HANDLING LUCERNE HAY GRADING DISPUTES

The NLT urges all members to follow the standard procedure set out in the Guide to enable the NLT to resolve all dispute cases quickly, cost effectively, and successfully.

3.1 General requirements for the resolutions of a dispute

- Disputes regarding the rating of lucerne hay are only handled by the NLT if both parties:
 - o agree to this;
 - o are registered NLT members; and
 - o comply with the minimum requirements set out in the National Quality and Grading Scheme (NLT Scheme).
- Both parties must agree in advance that the NLT's decision will be final and binding.
- The costs of the lucerne hay grading dispute, including administration, transport, and sample analysis, will be the responsibility of the institution or person requesting the arbitration.
 If the arbitrator finds in favour of the institution or person requesting the arbitration, the costs of the dispute will be borne by the NIR instrument owner. Further legal implications are handled between the buyer and seller.
- The NLT only plays a coordinating role regarding dispute investigations and takes no responsibility for any costs relating to a dispute and its resolution.
- All registered NIR instruments are the property of the accredited NIR instrument owner, whereas the NLT NIR calibration is the property of the NLT. Each owner is therefore responsible for maintaining their own instrument and ensuring that lucerne hay samples are taken and analysed correctly.
- Lucerne hay buyers must insist on a full rating and also an official NLT certificate representing a maximum of 30 tonnes with all the correct information as specified previously. No copy of an NLT certificate can be accepted.

3.2 Standard procedure

- In the event of a dispute, the first step to take is for the parties to approach one another to find some solution.
- If no solution can be found, the load must be withdrawn, and the dispute must be referred to the NLT within a 48-hour period by written notice. This must be accompanied by a request that the dispute be resolved by arbitration.
- An NLT expert will be appointed to handle the dispute.
- The NLT expert will take a reference sample of the load in question in the presence of both parties. The sample will then be sent to the NLT mother instrument for further analysis.
- If both parties are not happy with the results obtained from the NLT mother instrument, a wet chemical analysis can be requested.
- The NLT's decision on the dispute will be sent in writing to both parties and will be considered final and binding.

Many disputes regarding hay can be attributed to inconsistent/incorrect sampling methods and therefore there is a repeatable, standardised sampling protocol.

4. LUCERNE TECHCONSULT (LTC) HAY PROBE

The patented design of the LTC-Probe™ allows for quick and representative sampling of large stacks of hay.





Figure 4.2: Hay probe fitted



Specifications of the LTC-probe™ – Model LTC2015

This unique patented design is scientifically tested and developed for quick, representative, accurate, and easy sampling of baled hay and forage. It has a push-type design and is applicable for all types of hay bales and sizes. The high-quality replaceable steel shaft with a tip that can be resharpened is available in various lengths (500 to 800 mm), with a shaft inside diameter of 16 mm. The screw-on collection bottle has a capacity for 20 core samples. The cleaning rod with a plastic protecting sleeve protects the operator against personal injuries when using the cleaning rod, and protects the cutting edge of the probe during storage.

The hay probe has replacement components as described below:

- LTC 101: cleaning rod (wood) and protecting sleeve (plastic).
- LTC 102: replacement shaft (500 mm, 600 mm, and 800 mm).
- LTC 103: shaft nut.
- LTC 104: collection bottle.
- LTC 105: rubber handles.

Figure 4.3: Hay probe dismantled



Instructions

The following sampling procedures are prescribed to get a representative core sample from baled hay:

- Remove the cleaning rod. Push the probe into either end of the bale near the centre at a 90° angle, or at the side of the bale at a 45° angle. Make sure that the entire shaft is pushed into the bale.
- By using the cleaning rod, drive each core into the collection bottle after each sampling attempt. Repeat this procedure to take a minimum of 20 samples per truckload.
- Wet hay will wedge in the probe if more than one sample is taken as described in the above procedure.
- The cutting edge can be sharpened with a small round file from time to time. Do not change the angle of the cutting edge. For protection of the cutting edge, always place the cleaning rod and protection sleeve back onto the probe.
- This probe should be used according to the standardised NLT sampling protocol as described in the NLT lucerne hay grading guide.

For any information regarding the LTC hay probe or sampling protocol, please contact our office at 061 310 4100 or email **gsbinfo@icloud.com**.



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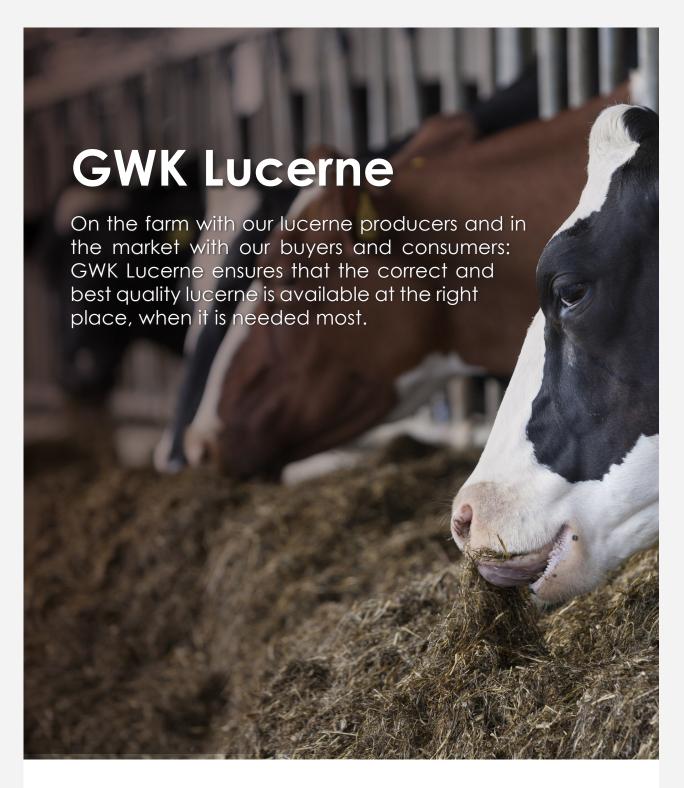












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