

WORLD GRAIN NETWORK

**Supplementary material to the worldwide inter-laboratory study
conducted in February-April 2023**

Contents

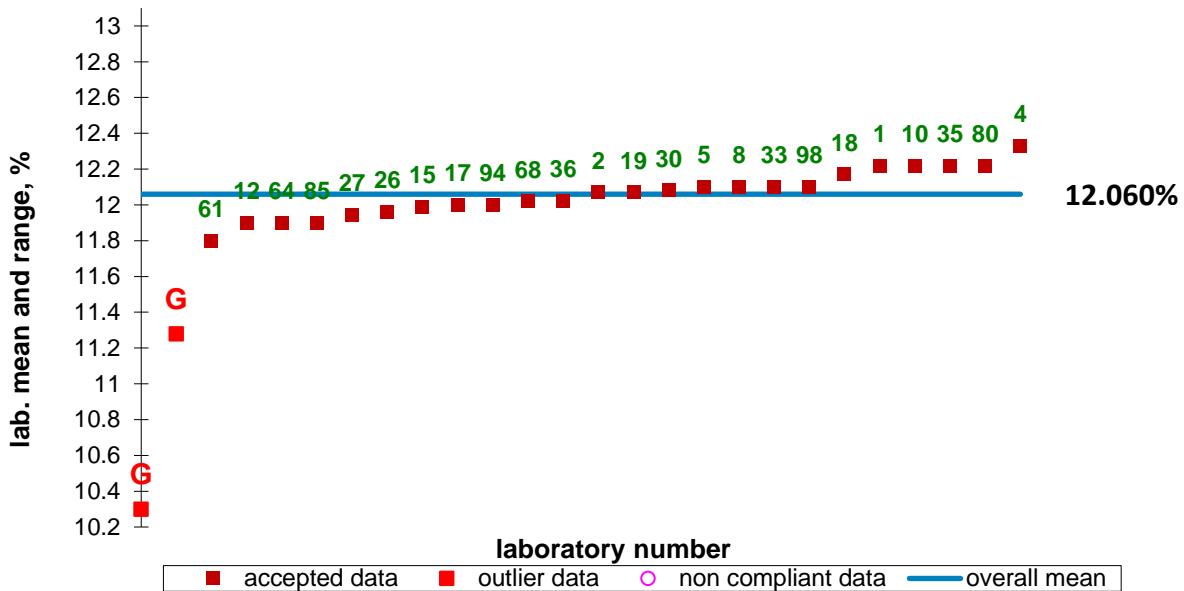
1	Introductory remarks	2
2	Protein in Wheat & Barley by reference methods	3
3	Moisture in Wheat & Barley by reference methods	13
4	Protein in Wheat & Barley by local NIR prediction models.....	23
5	Moisture in Wheat & Barley by local NIR prediction models	24
6	Protein in Wheat & Barley by ANN model WB003034.....	25
7	Moisture in Wheat & Barley by ANN model WB003034	26
8	Oil in Rapeseed by reference methods	27
9	Moisture in Rapeseed by reference methods	32
10	Oil in Rapeseed by local NIR prediction models.....	37
11	Moisture in Rapeseed by local NIR prediction models	38
12	Oil in Rapeseed by ANN model RAOI0035	39
13	Moisture in Rapeseed by ANN model RAMO0026.....	40

1 Introductory remarks

The World Grain Network Ring test has grown to the extent where it is necessary to collect a substantial part of the results in a supplementary material document. The statistical evaluation of each individual sample for the main parameters with graphs are therefore presented in the subsequent chapters. This material comprises protein and moisture in Wheat and Barley as well as oil and moisture in Rapeseed. All samples for reference results are shown whereas selected examples of predicted results from local and ANN models are presented.

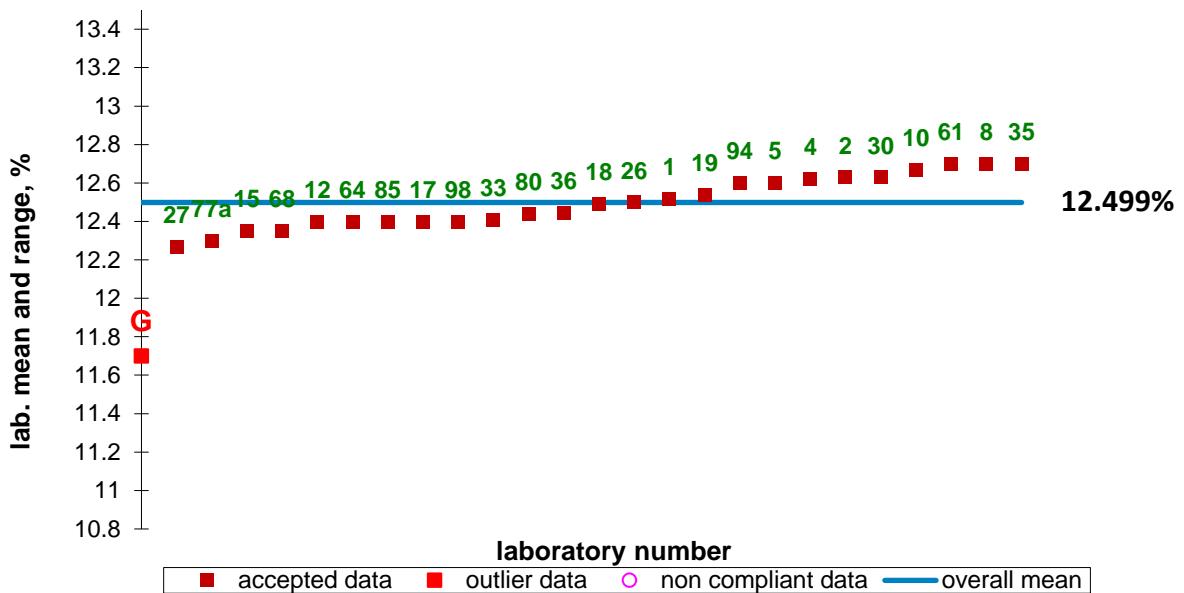
2 Protein in Wheat & Barley by reference methods

WGN 2023, protein, sample W1, reference

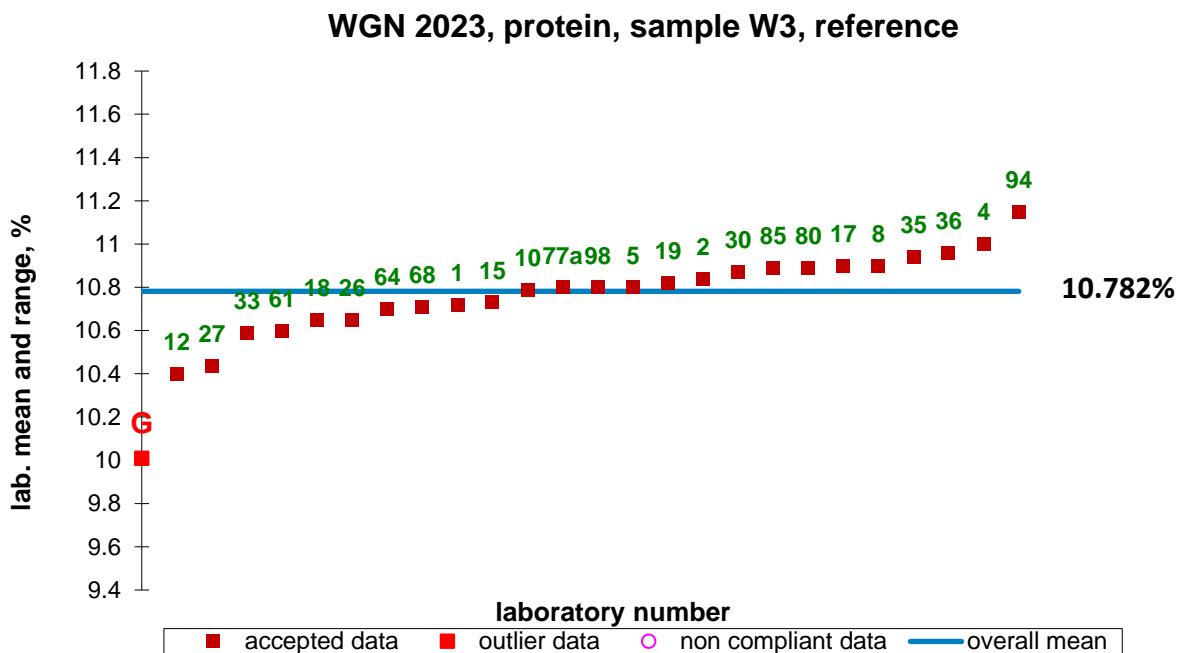


Outliers 73 and 77a.

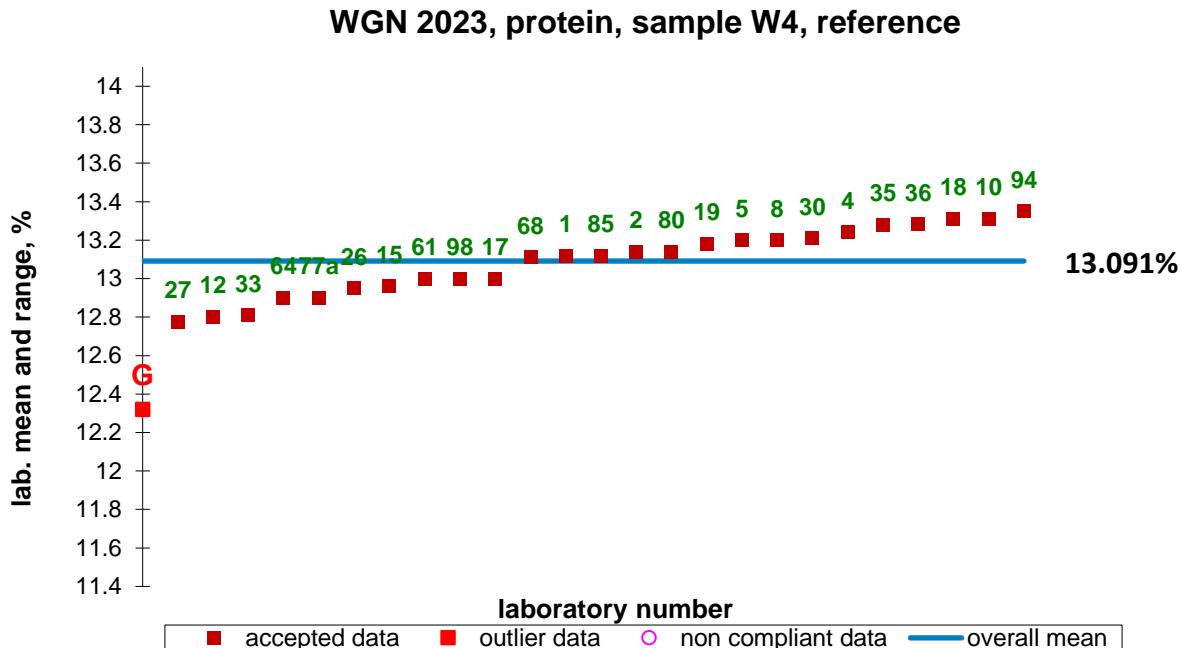
WGN 2023, protein, sample W2, reference



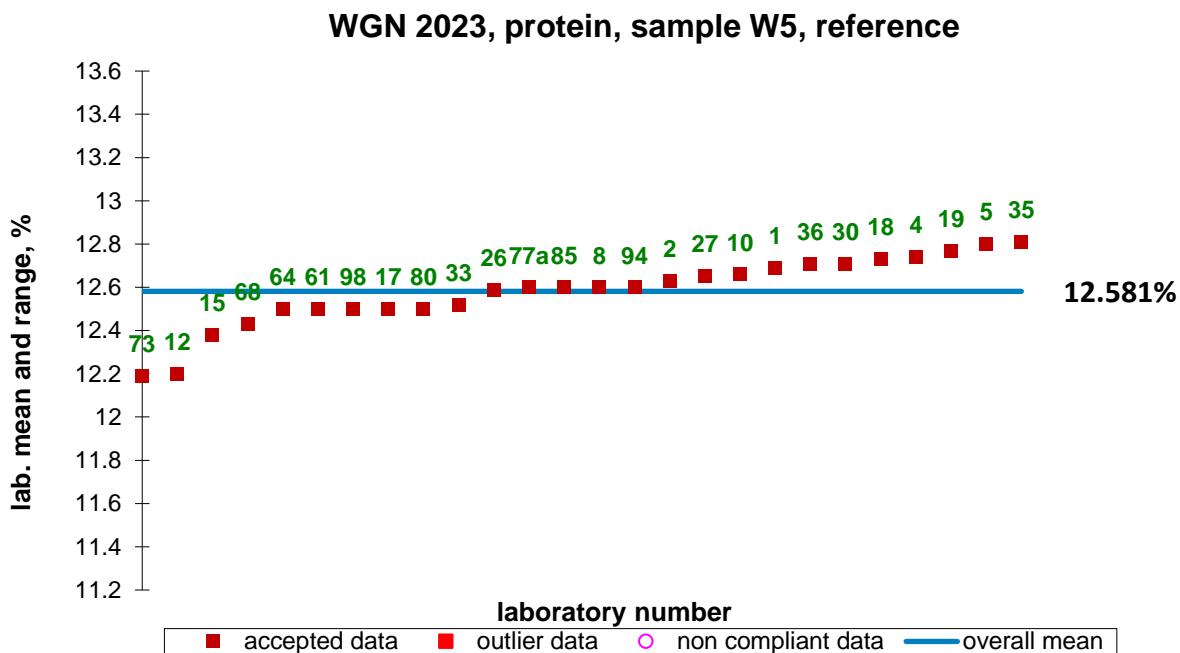
Outlier 73.



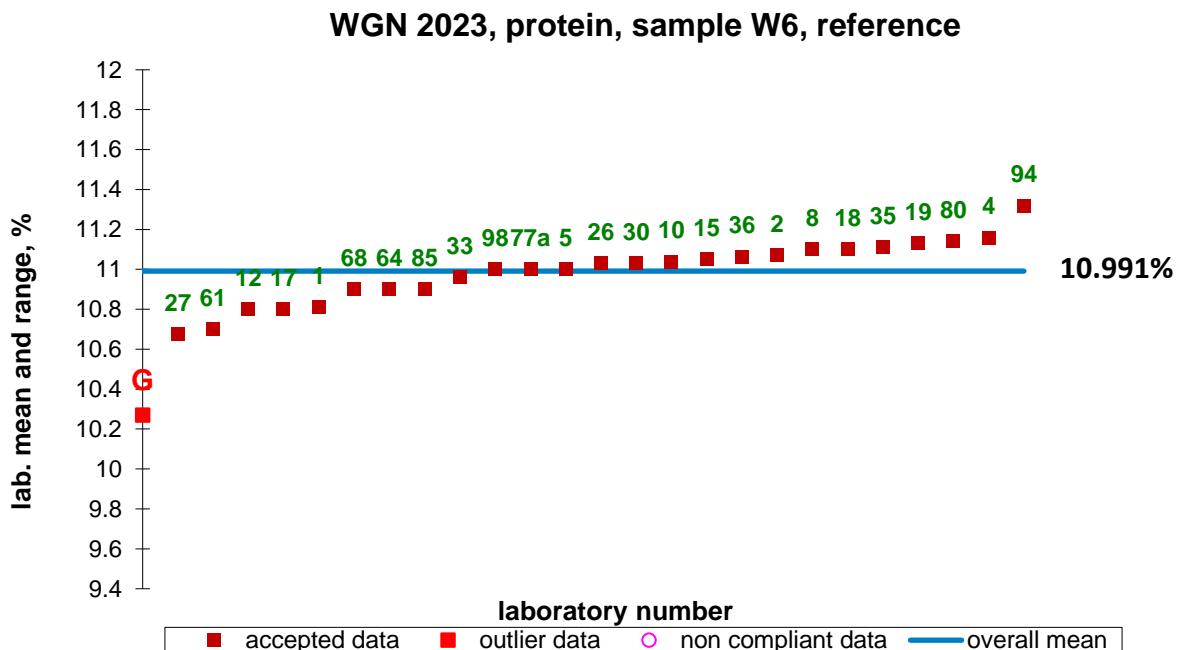
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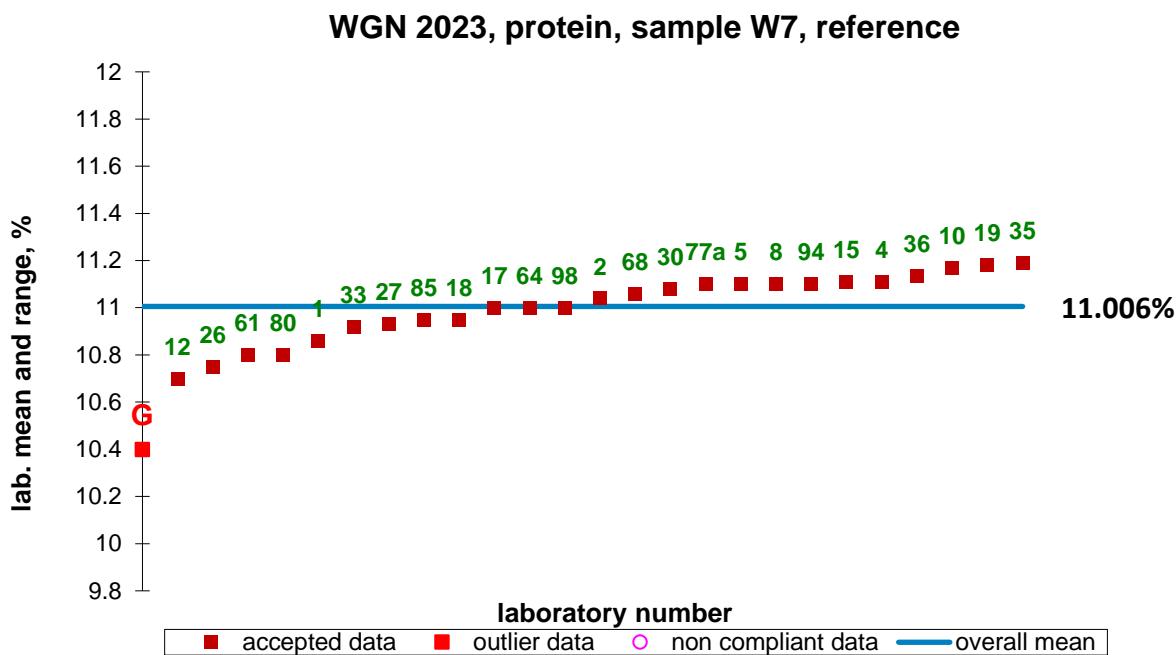
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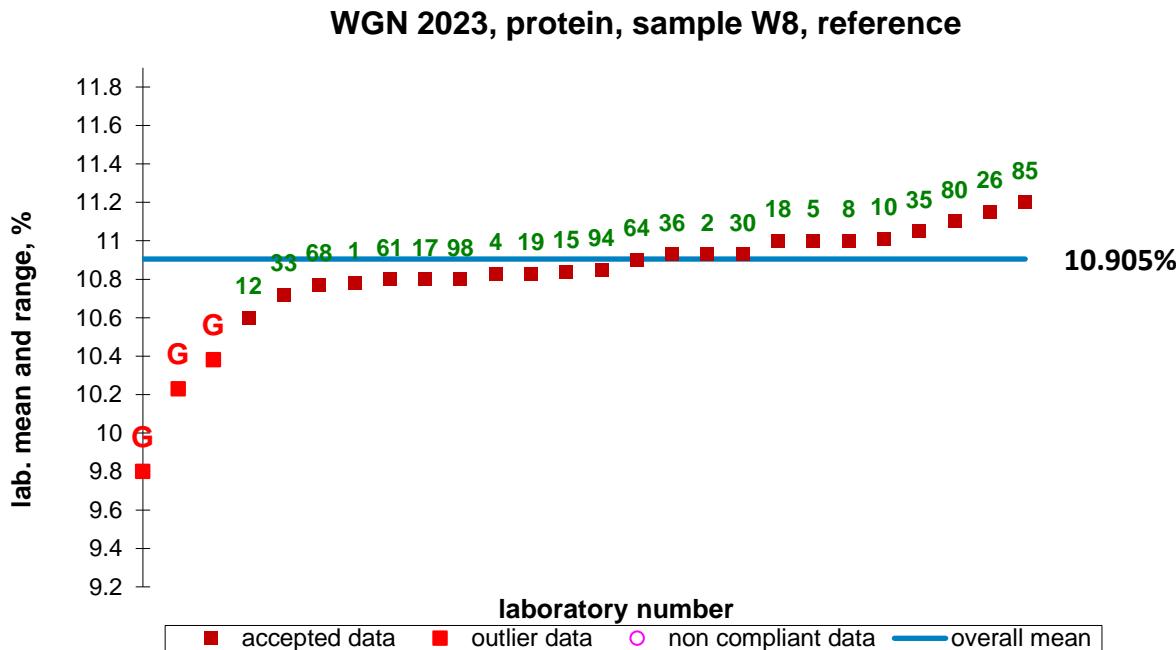
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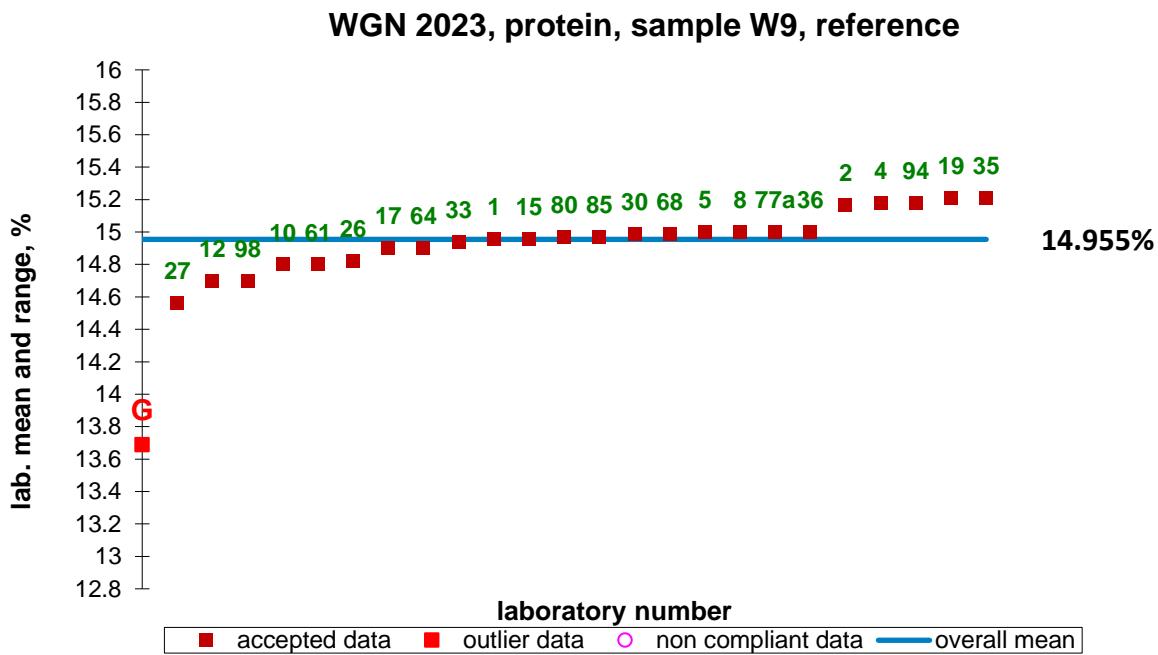
Outlier 73.



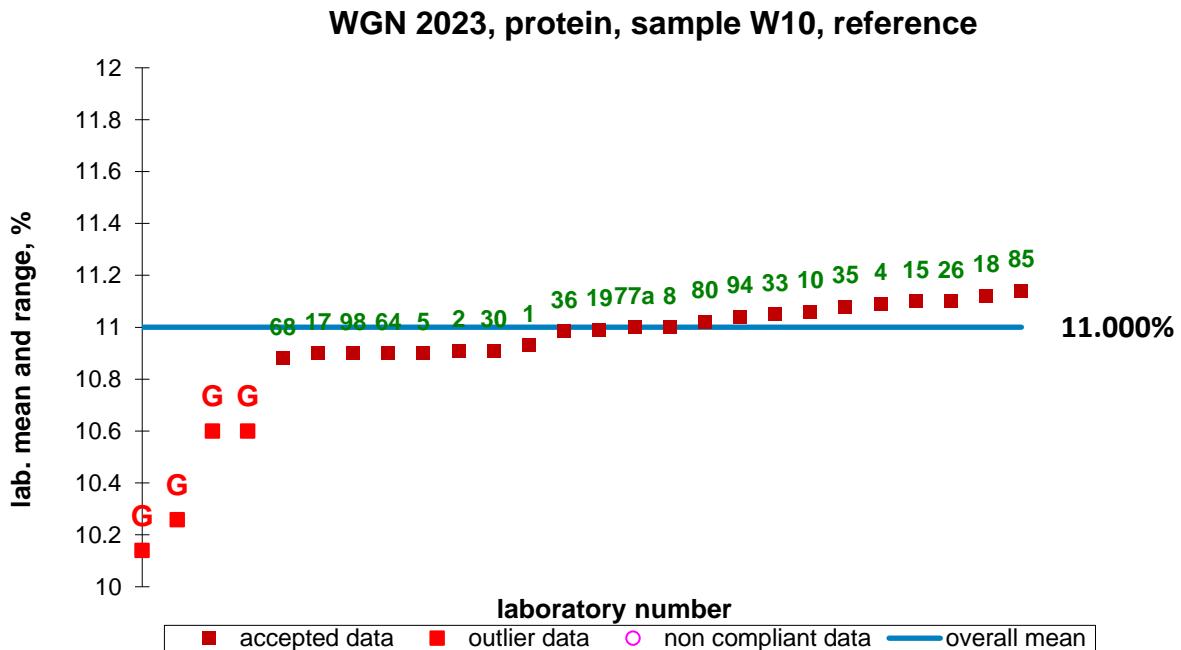
Outlier 73.



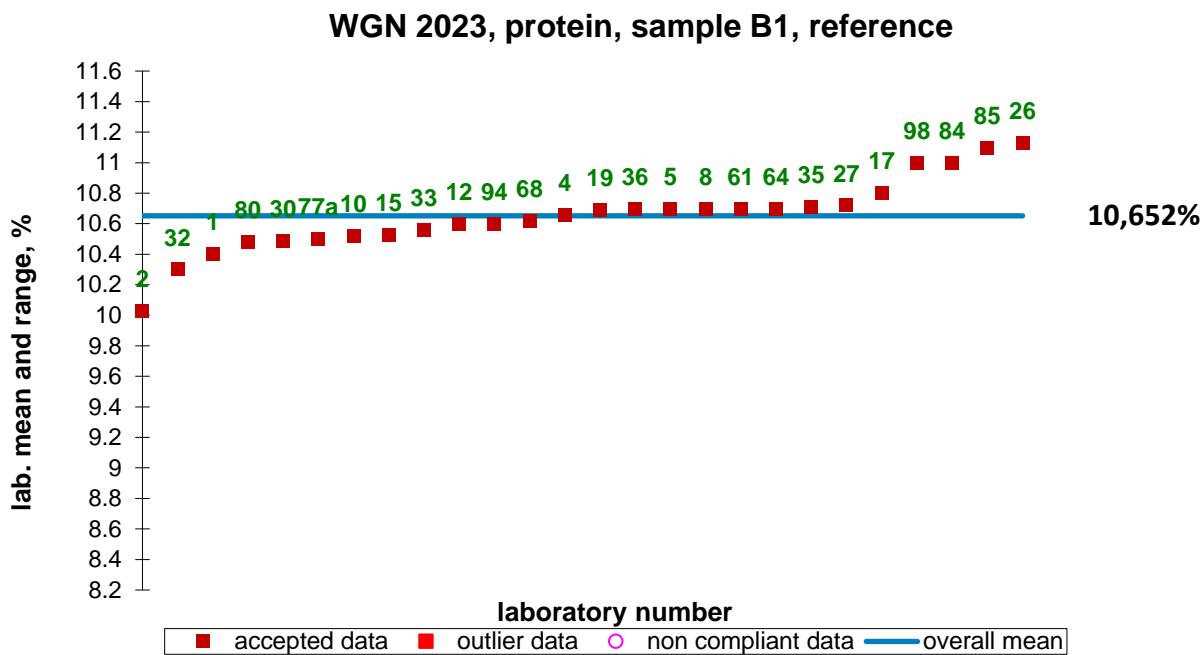
Outliers 27, 73 and 77a.



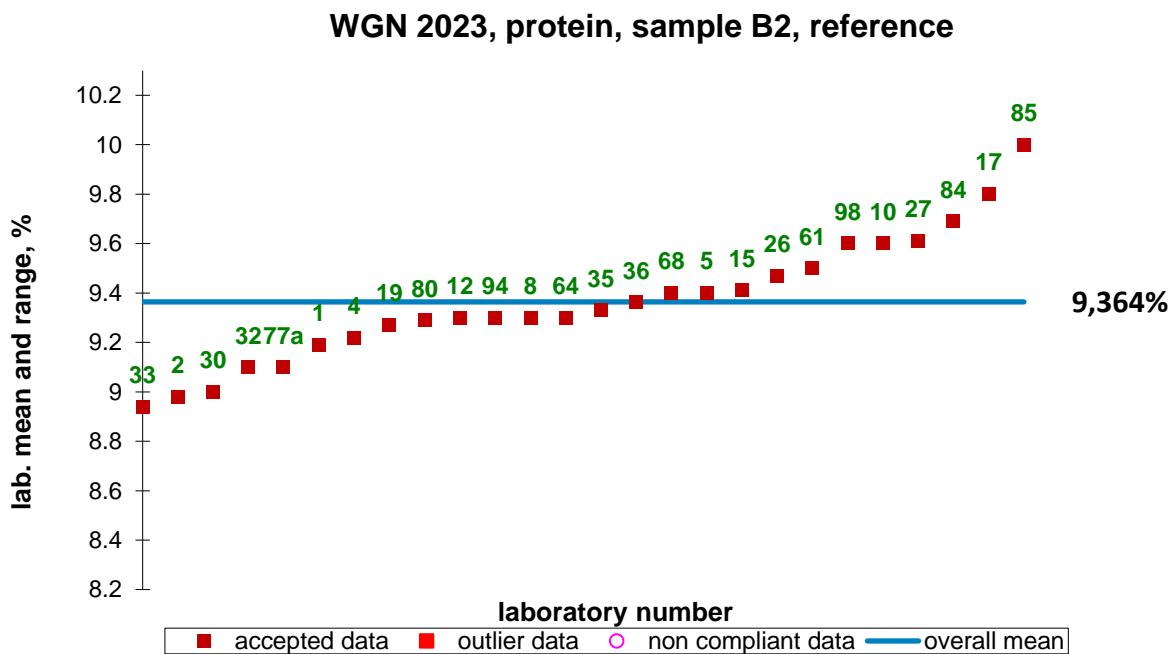
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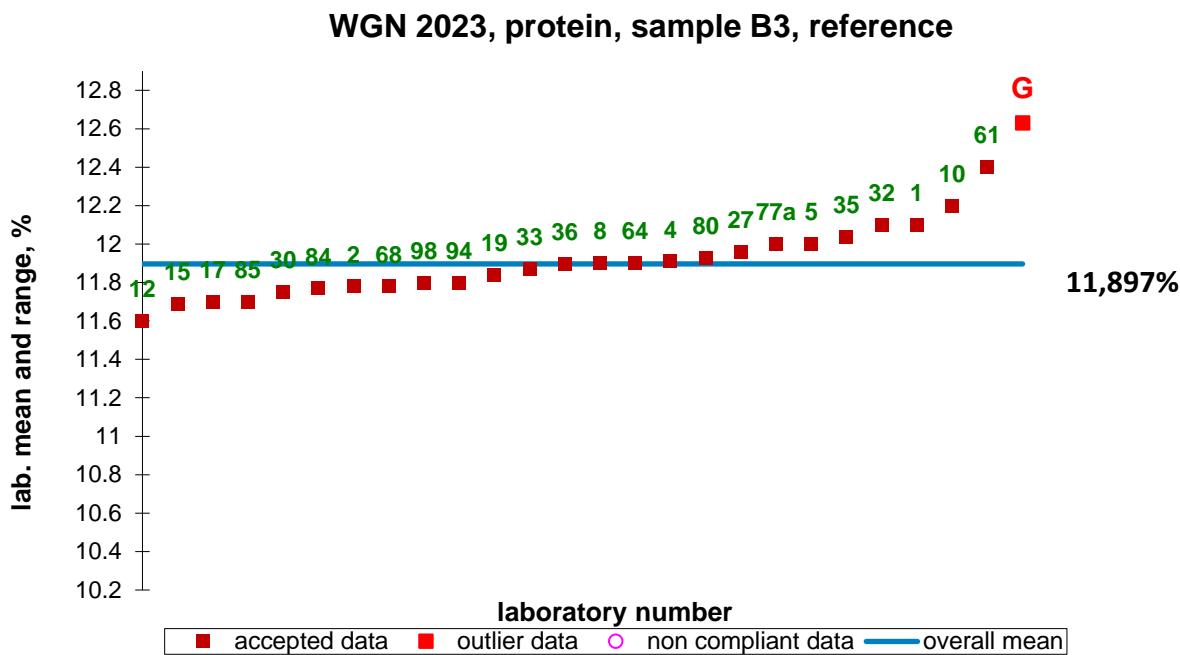
Outliers 12, 27, 61 and 73.



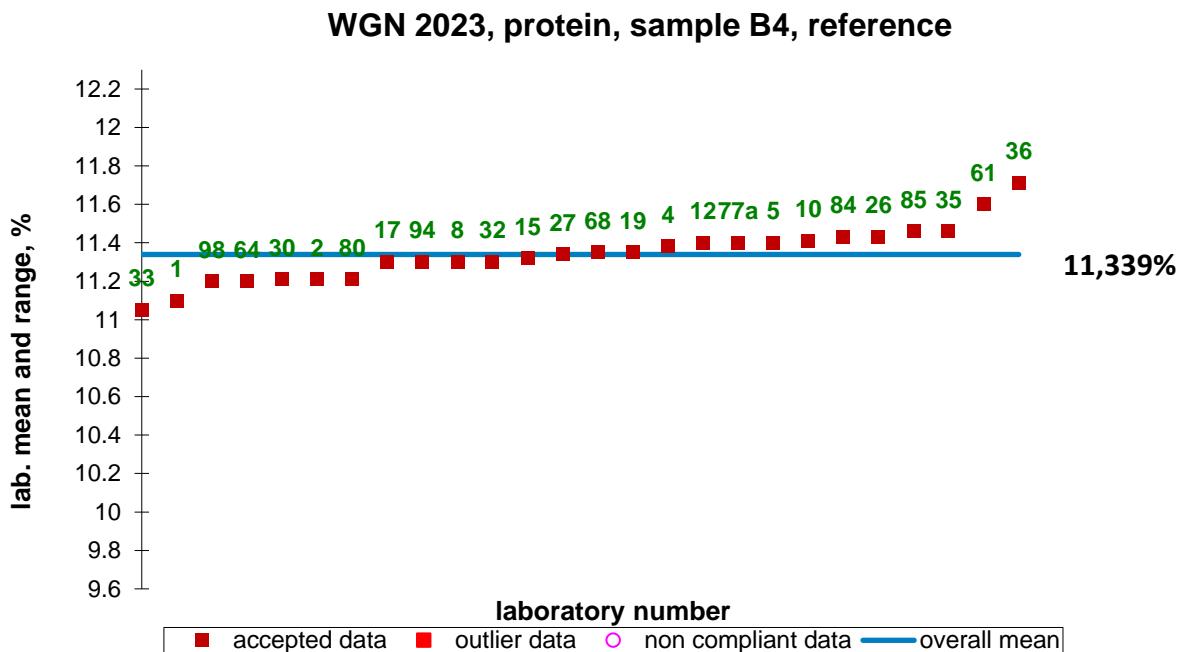
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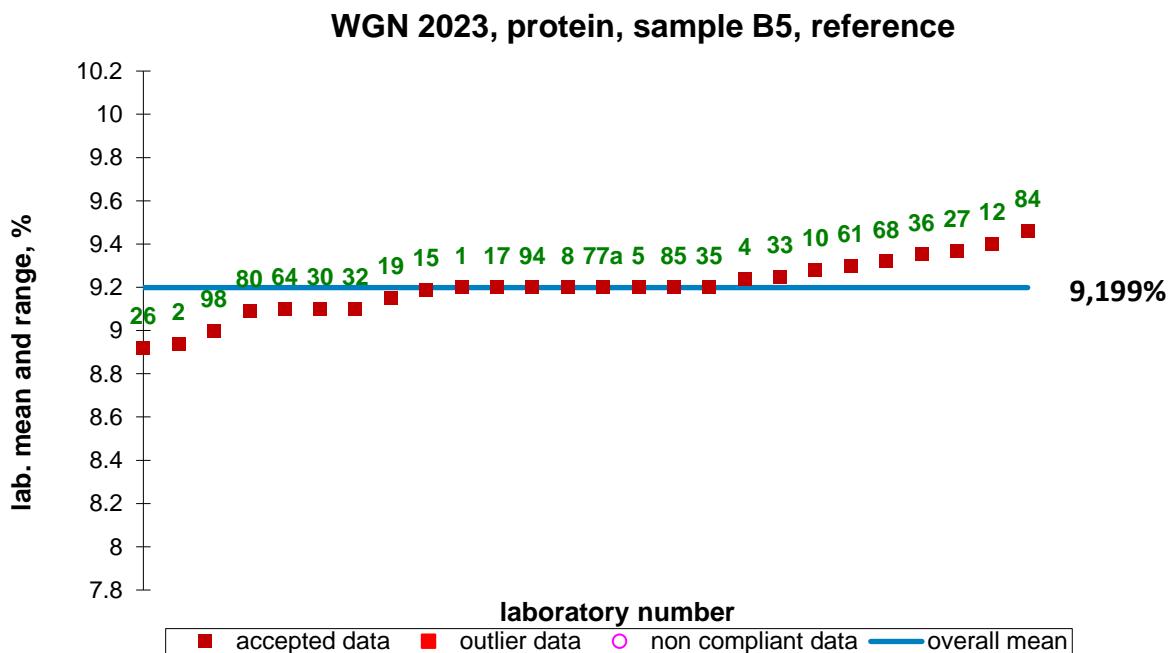
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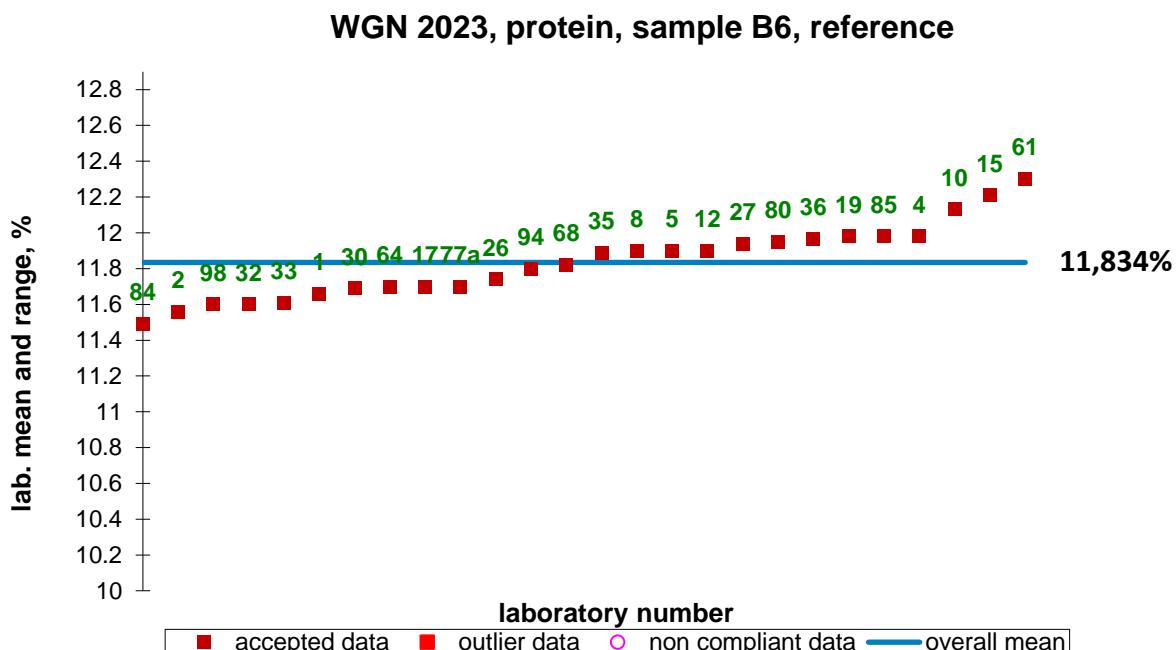
Outlier 26.



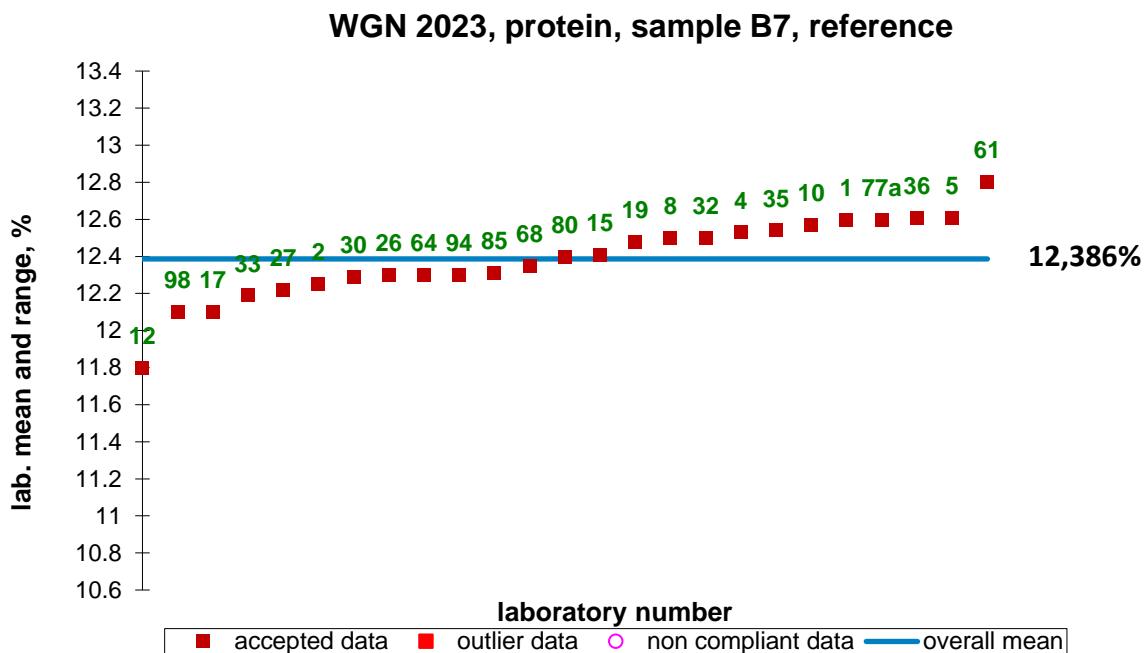
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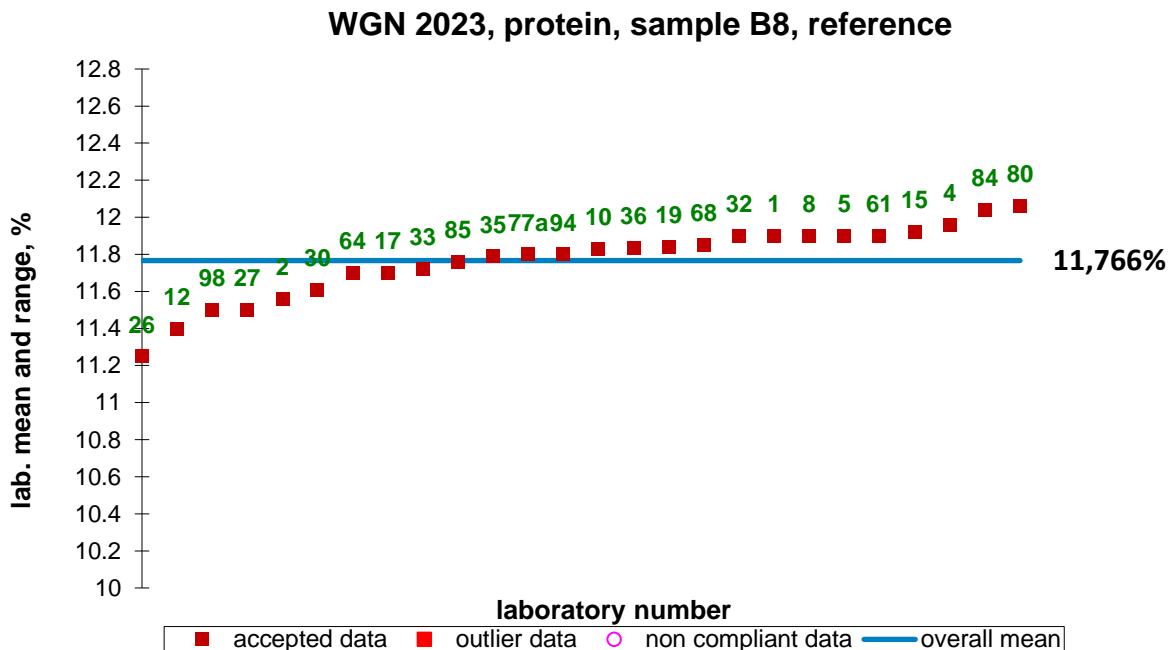
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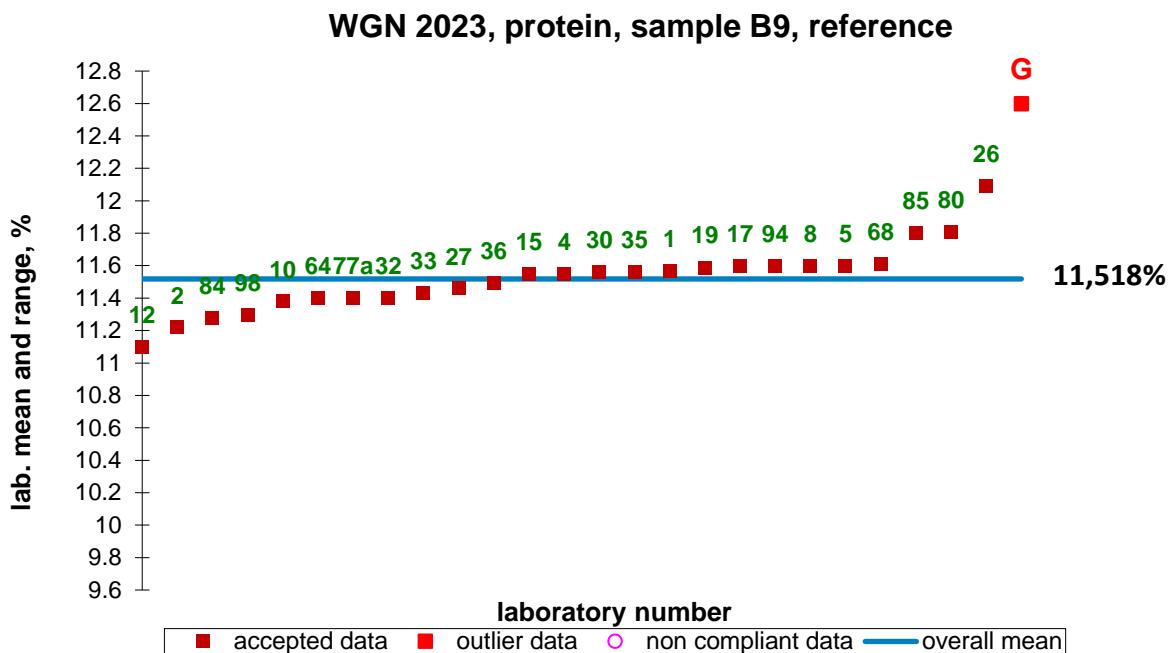
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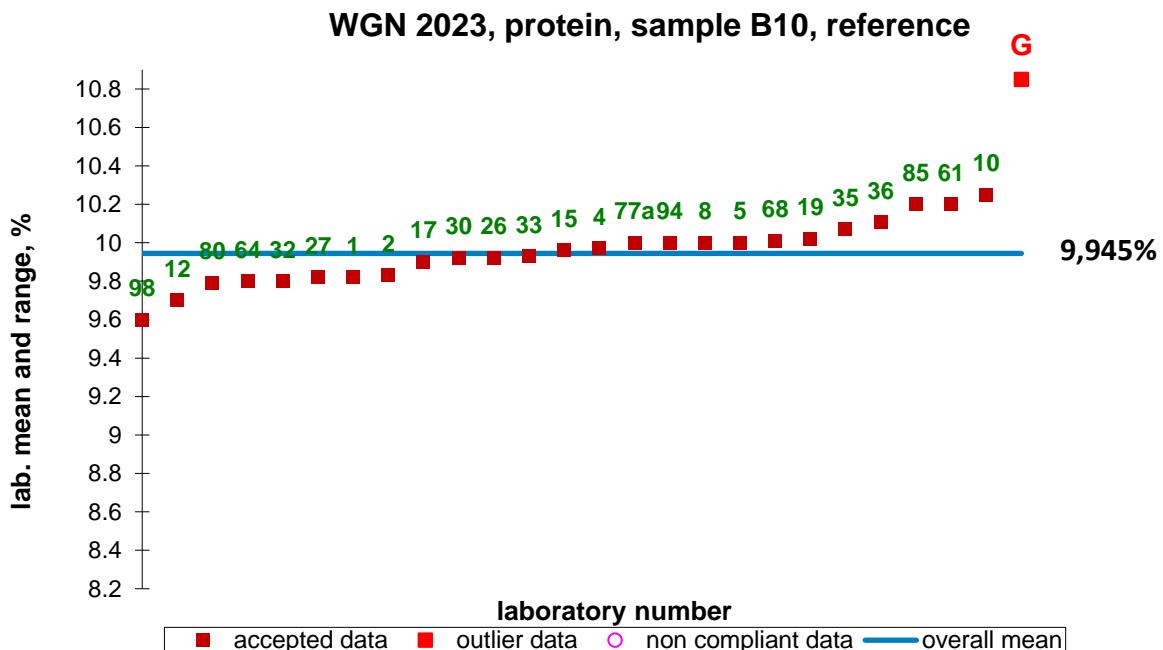
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No outliers.

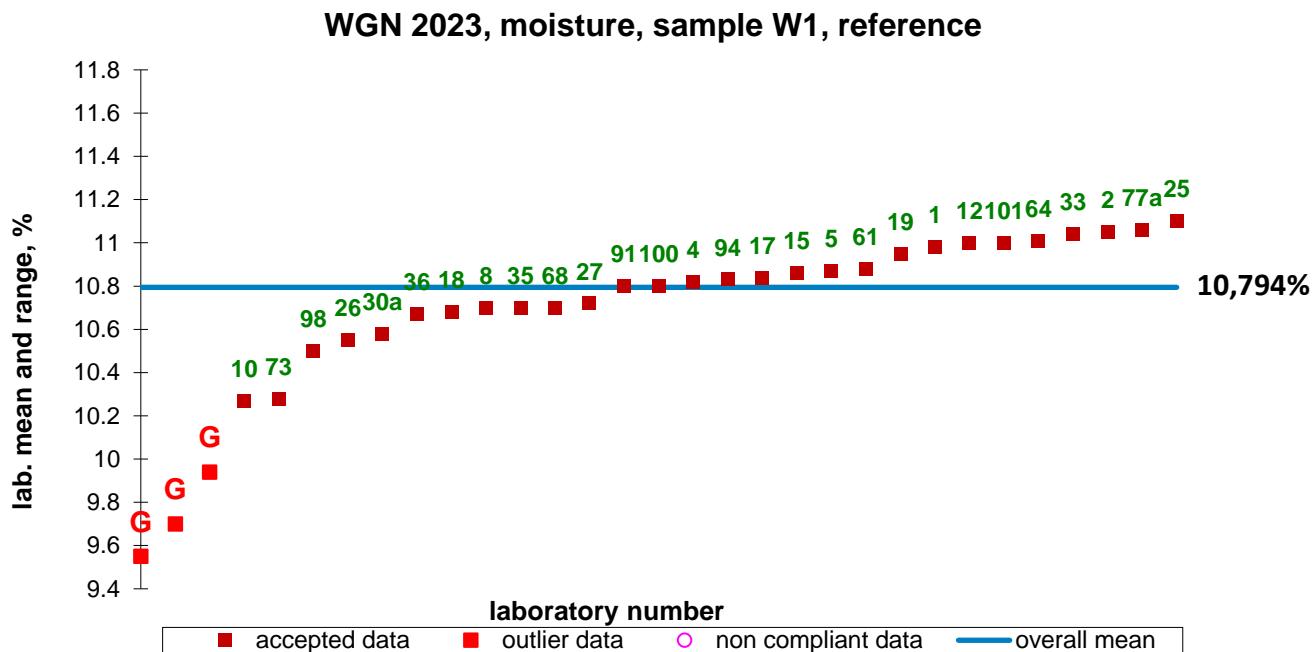


Outlier 61.

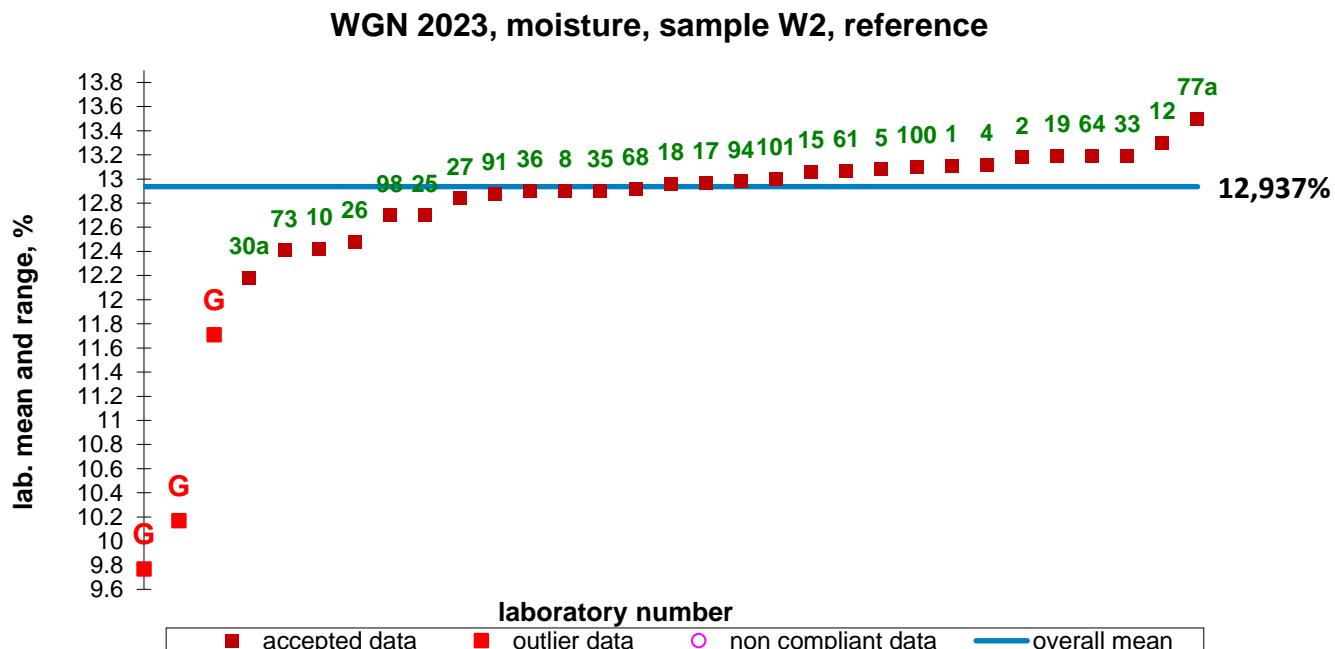


Outlier 84.

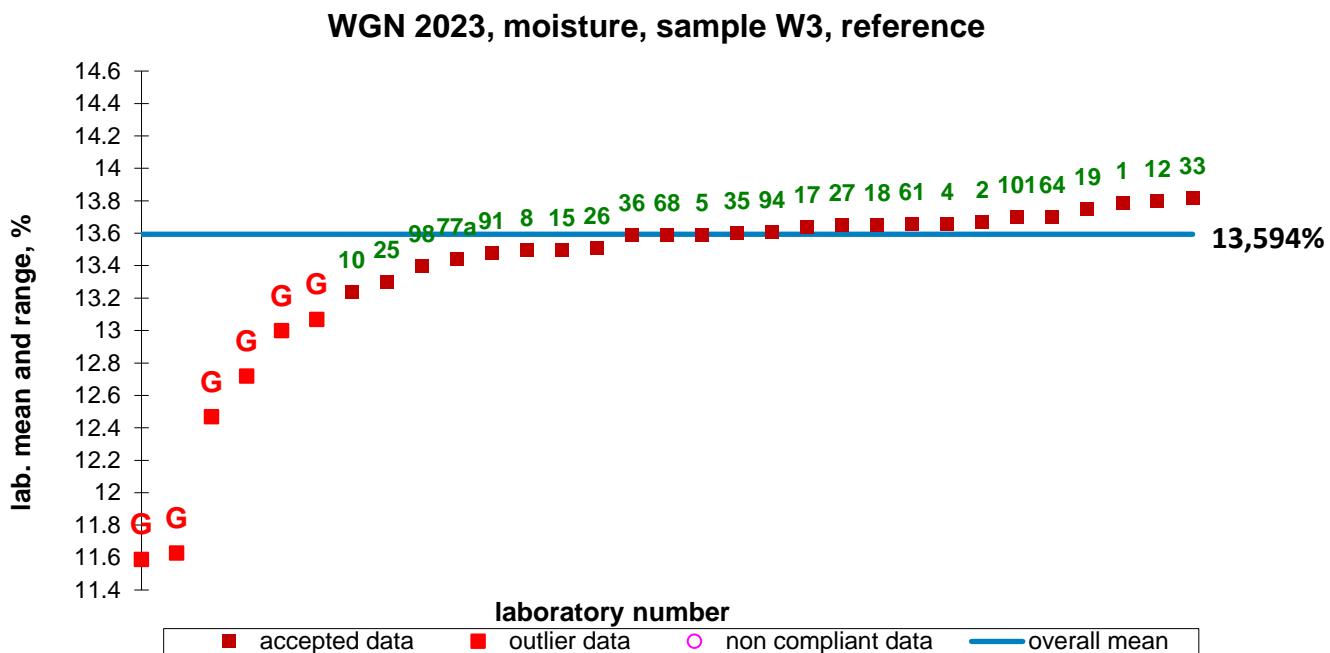
3 Moisture in Wheat & Barley by reference methods



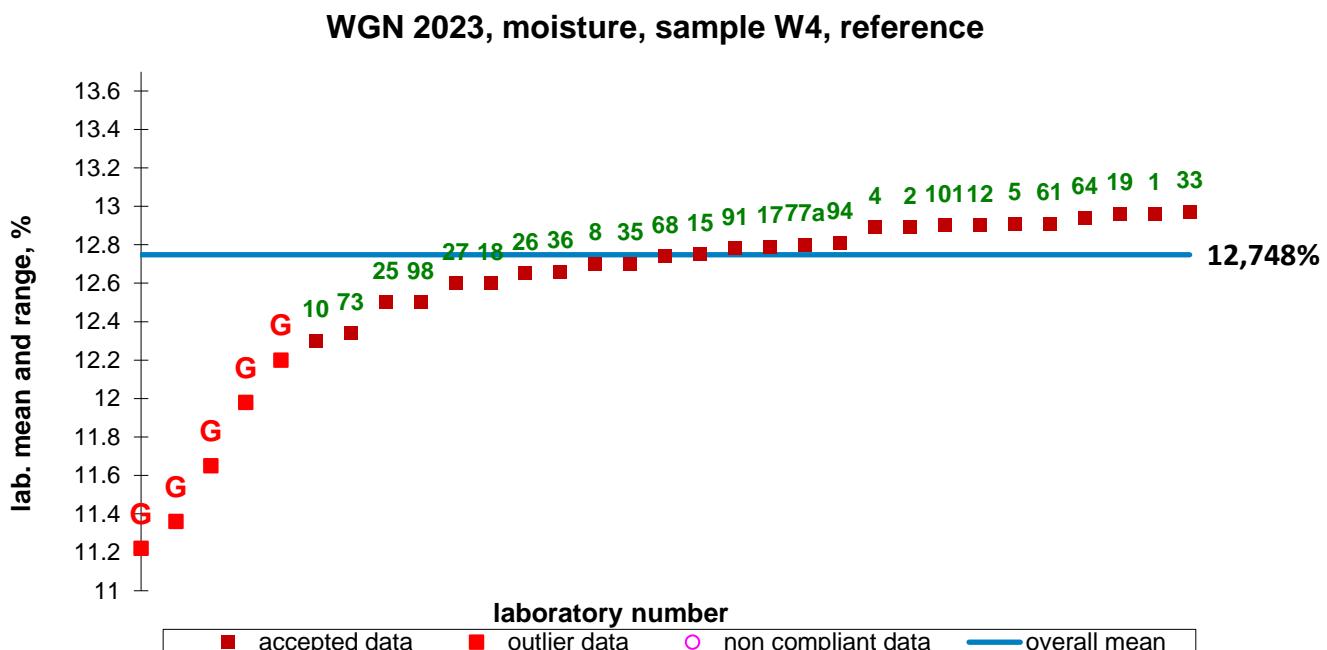
Outliers 80, 82 and 99.



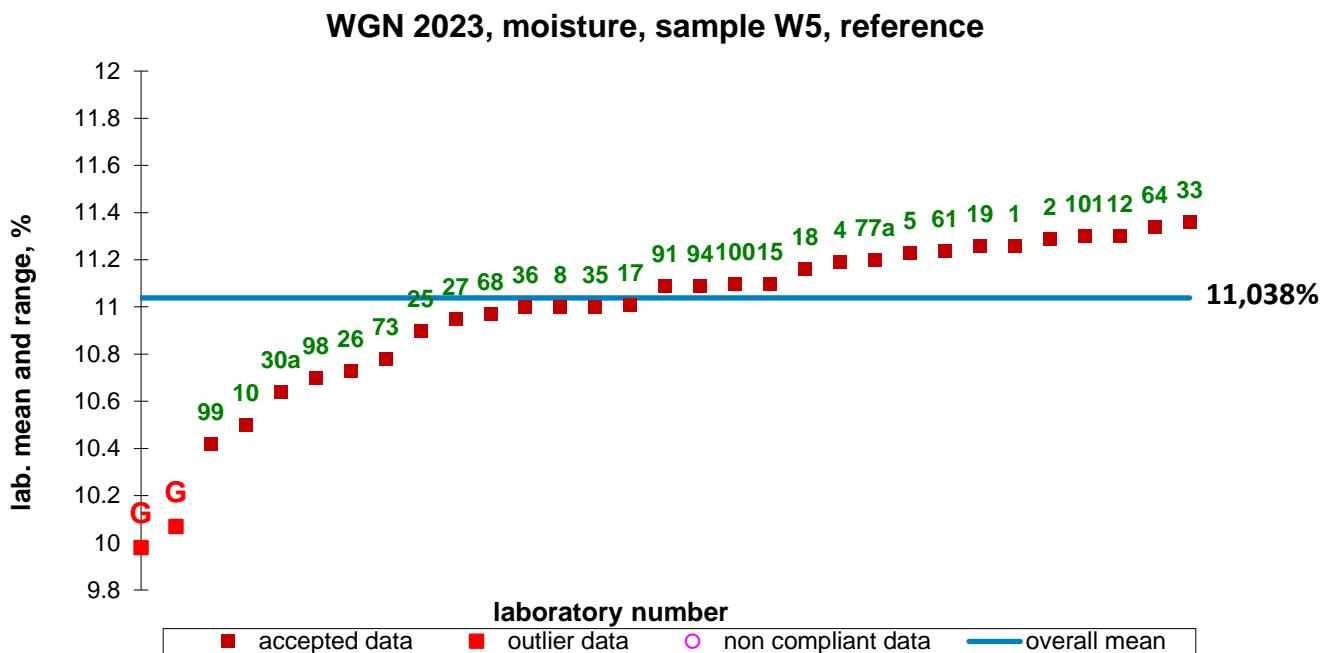
Outliers 80, 82 and 99.



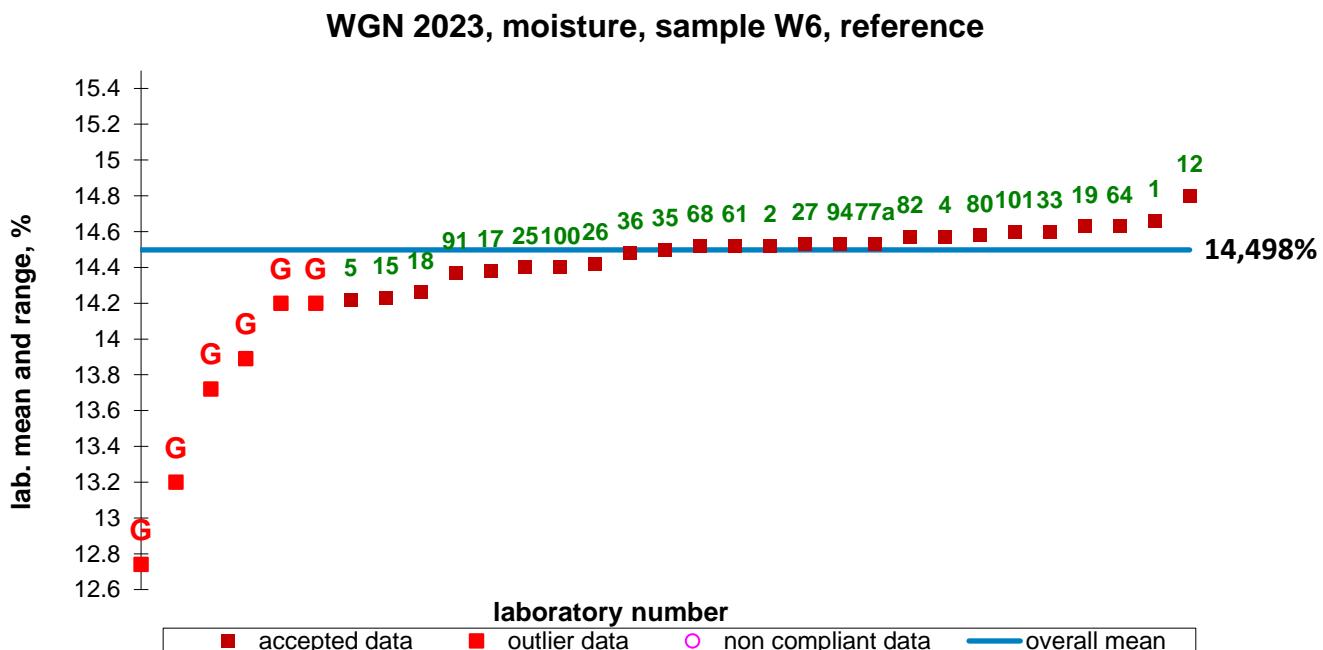
Outliers 30a, 73, 80, 82, 99 and 100.



Outliers 30a, 80, 82, 99 and 100.

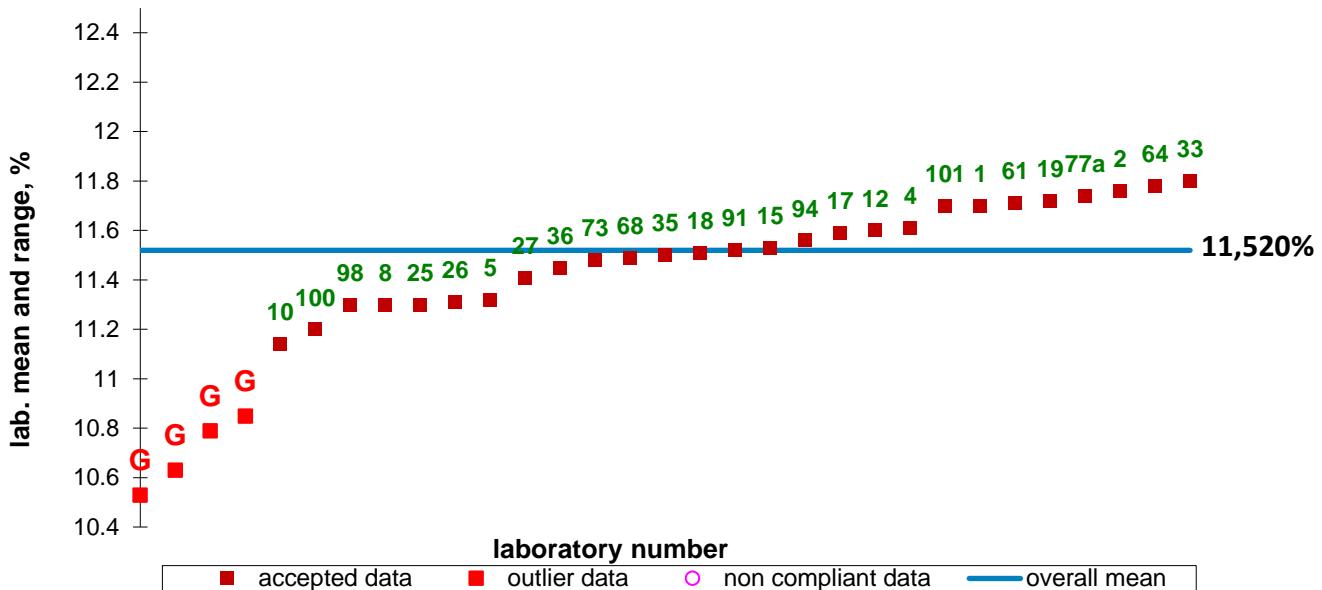


Outliers 80 and 82.



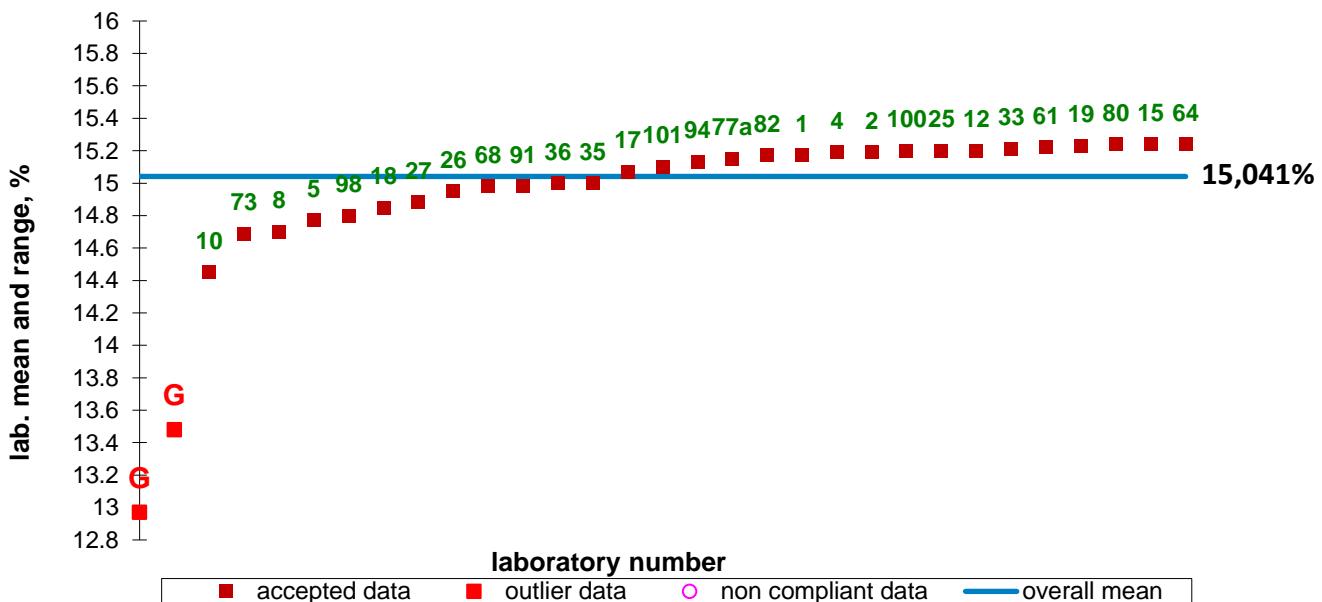
Outliers 8, 10, 30a, 73, 98 and 99.

WGN 2023, moisture, sample W7, reference

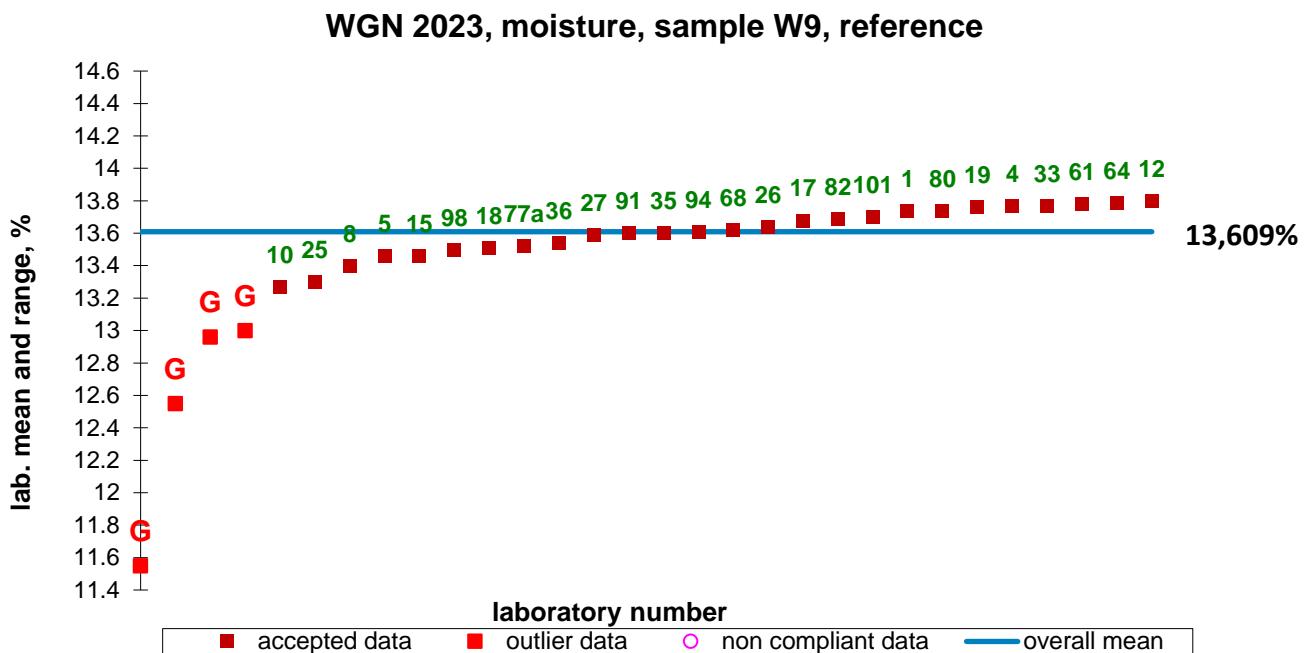


Outliers 30a, 80, 82 and 99.

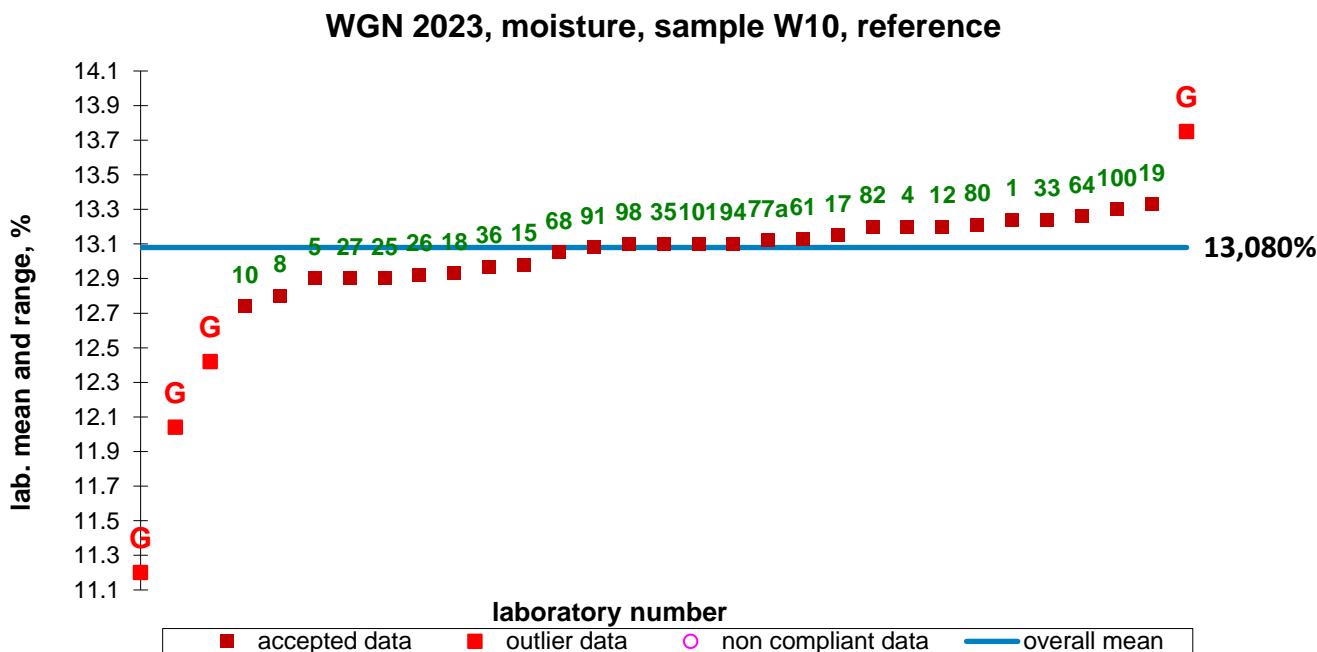
WGN 2023, moisture, sample W8, reference



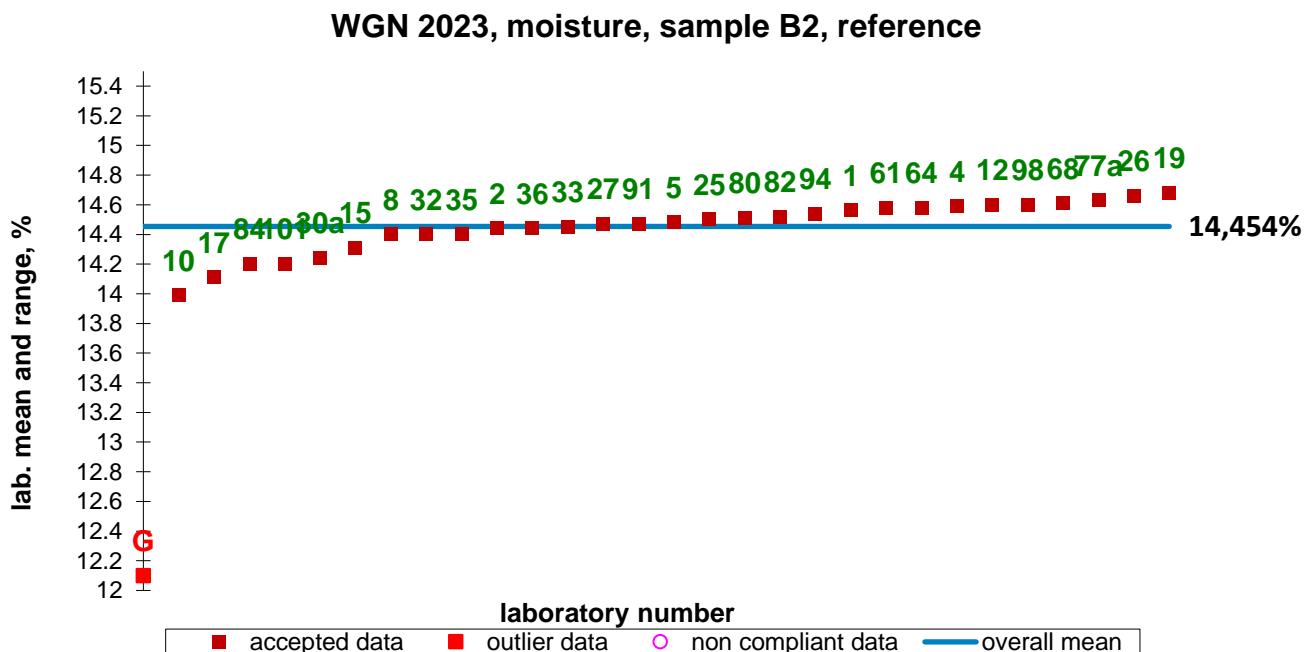
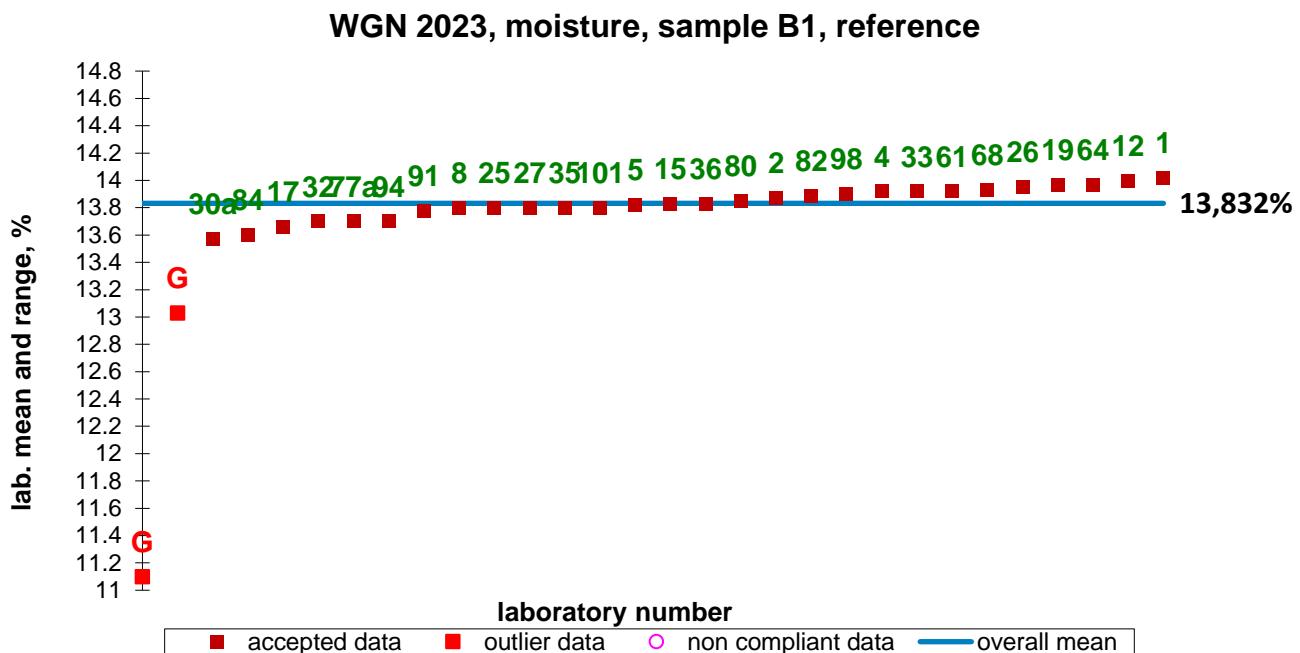
Outliers 30a and 99.

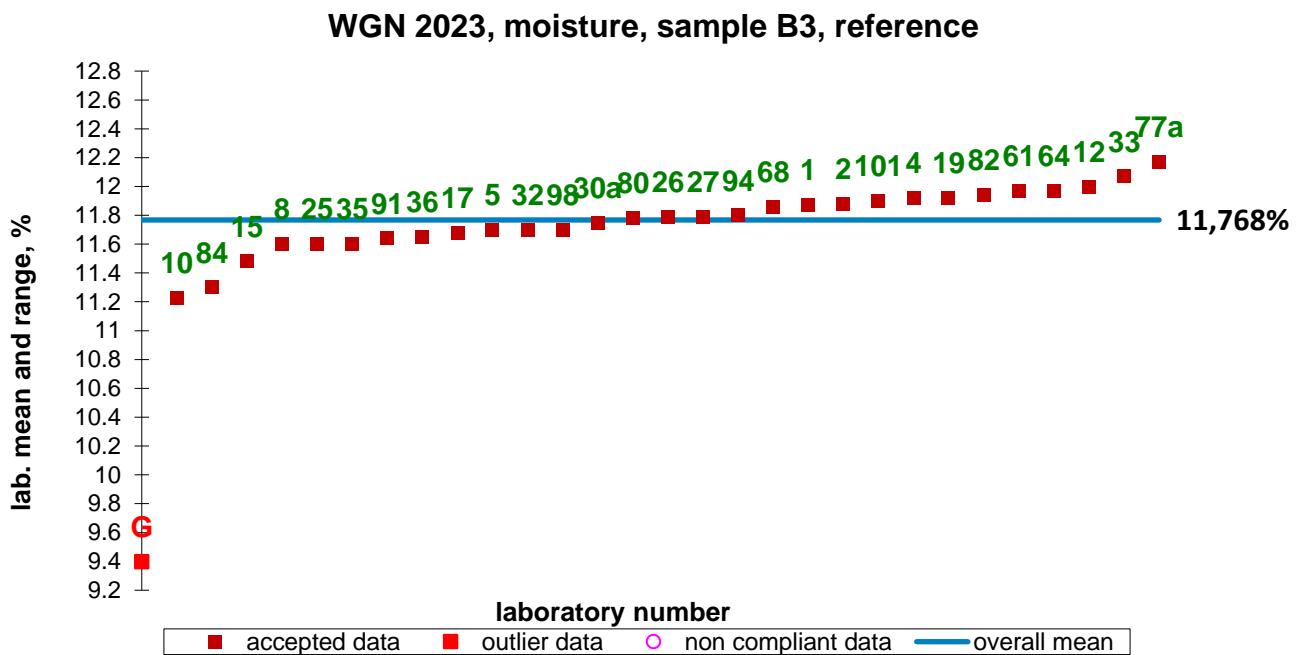


Outliers 30a, 73, 99 and 100.

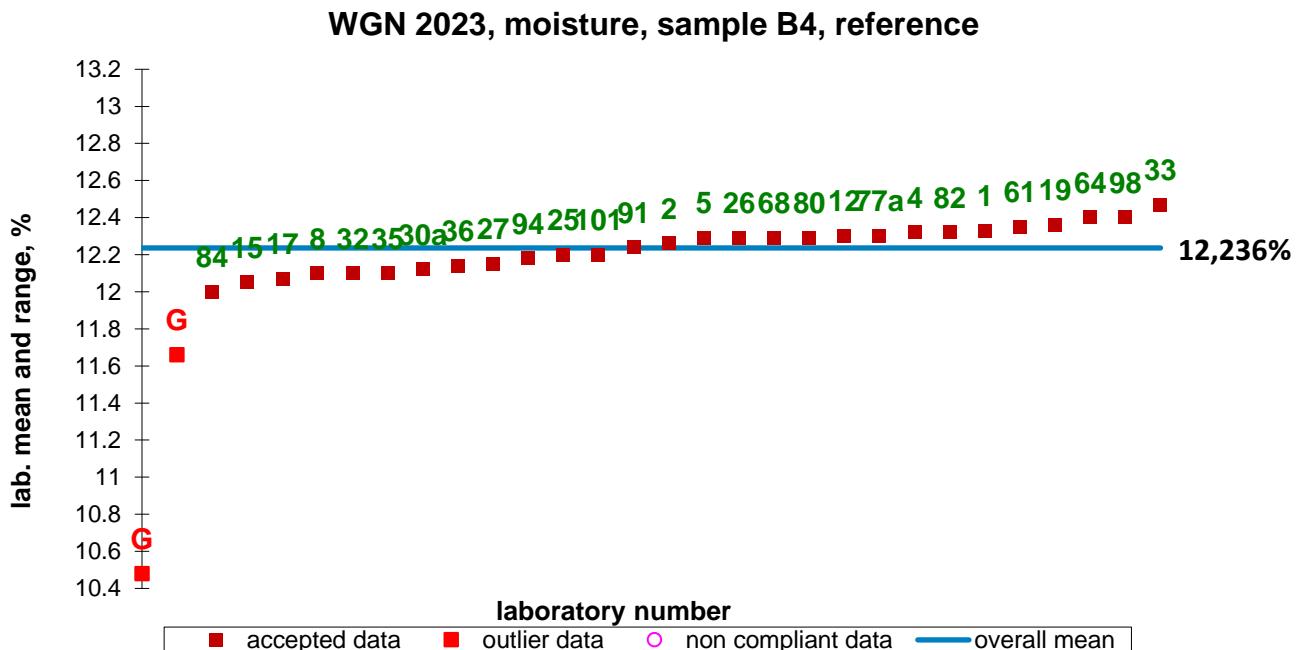


Outliers 2, 30a, 73 and 99.



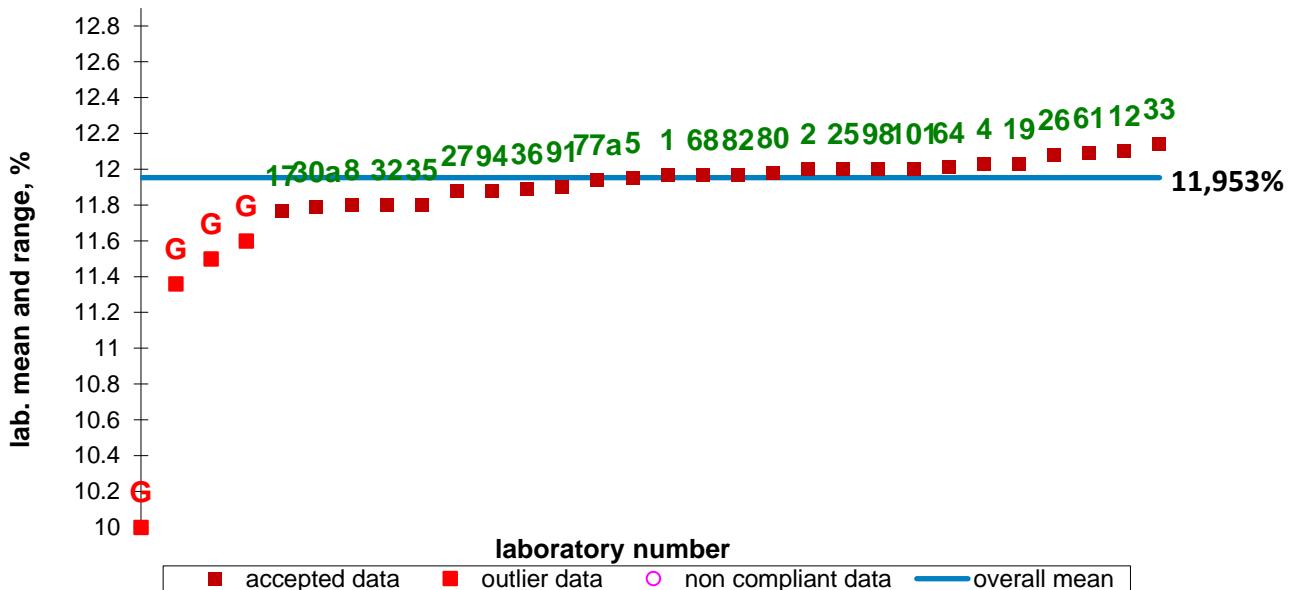


Outlier 99.



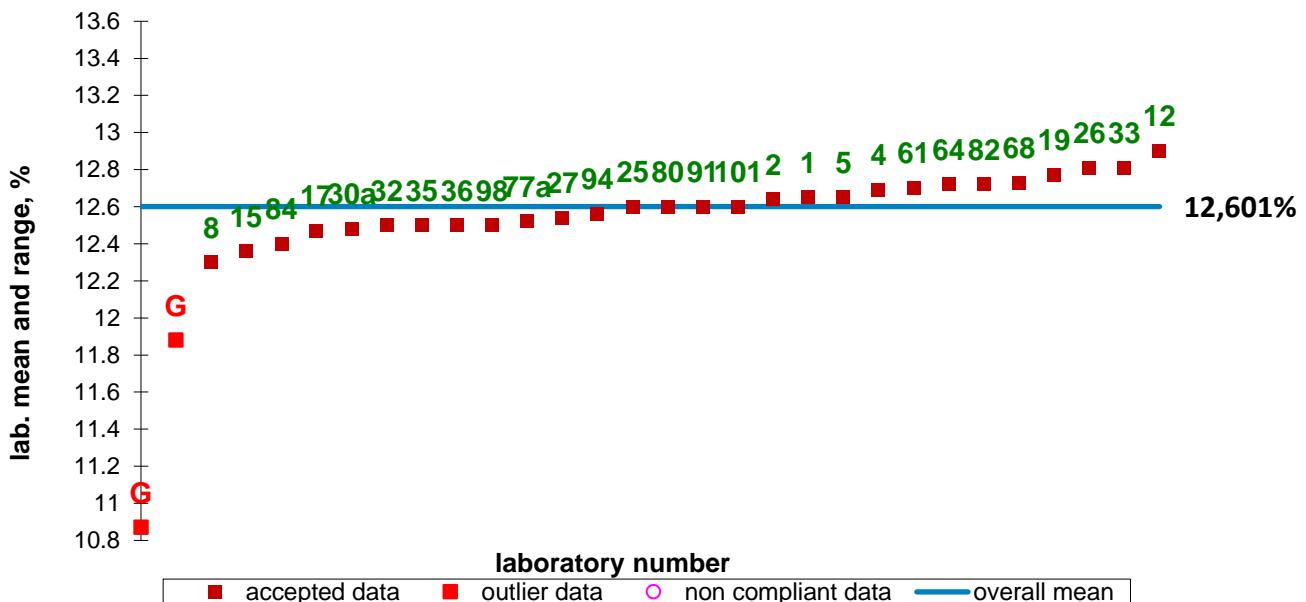
Outliers 10 and 99.

WGN 2023, moisture, sample B5, reference

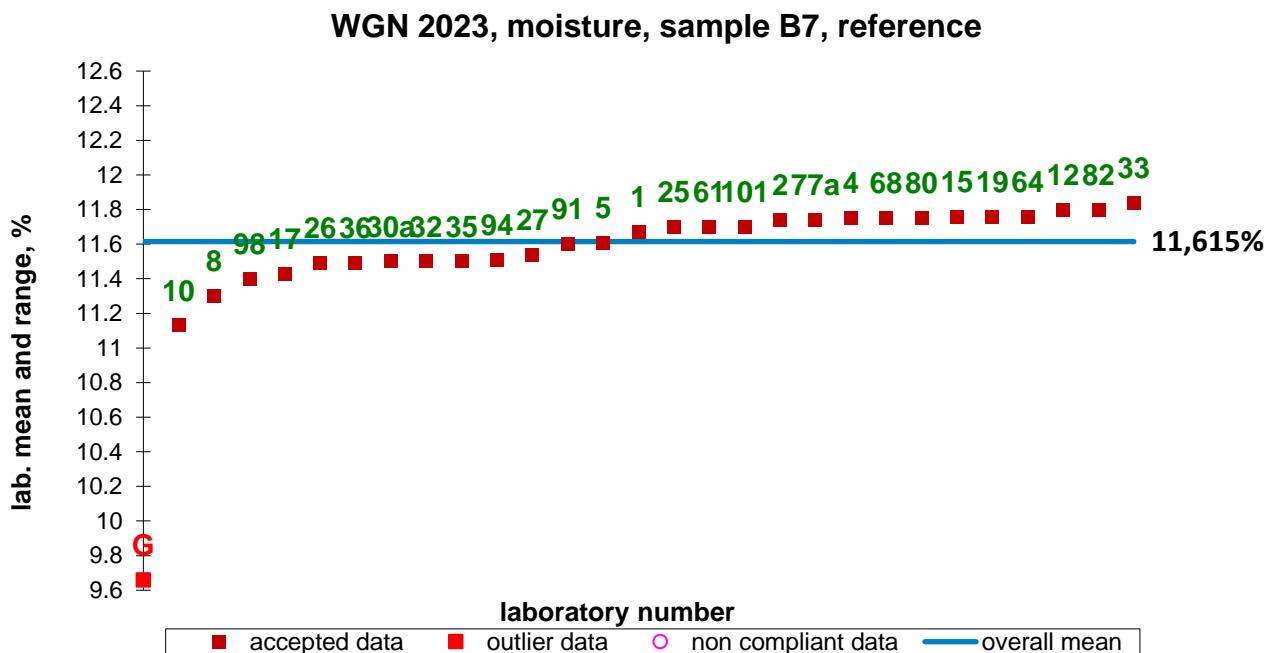


Outliers 10, 15, 84 and 99.

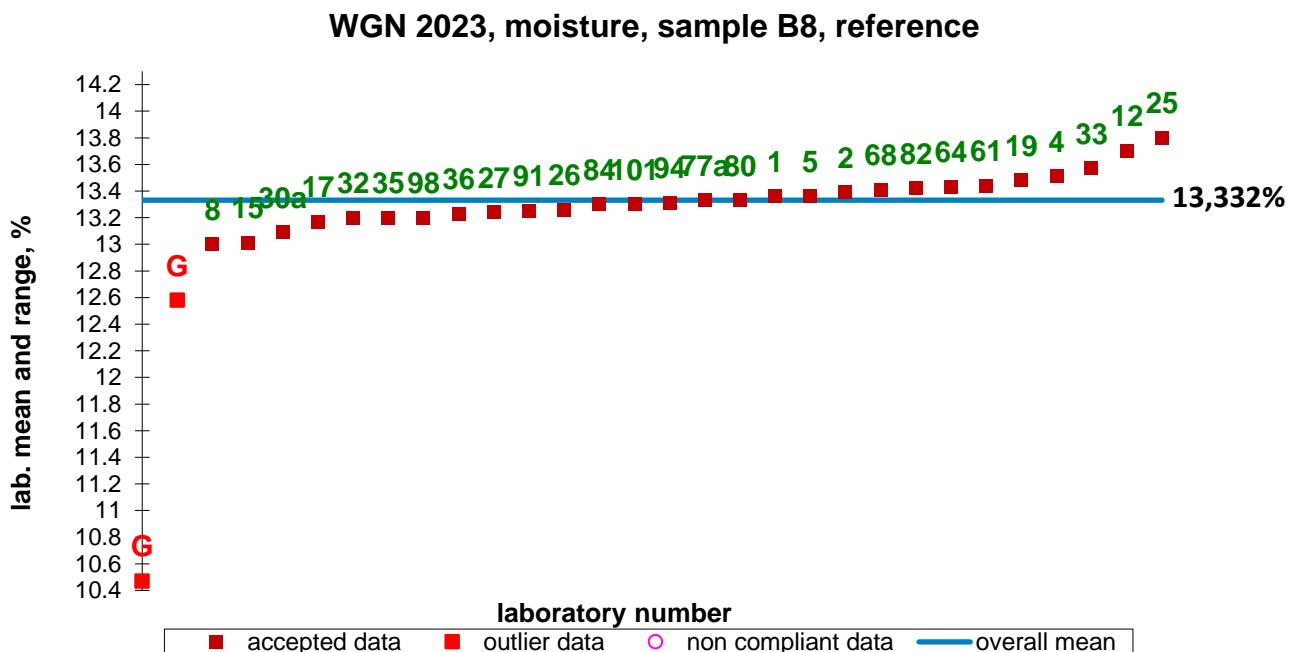
WGN 2023, moisture, sample B6, reference



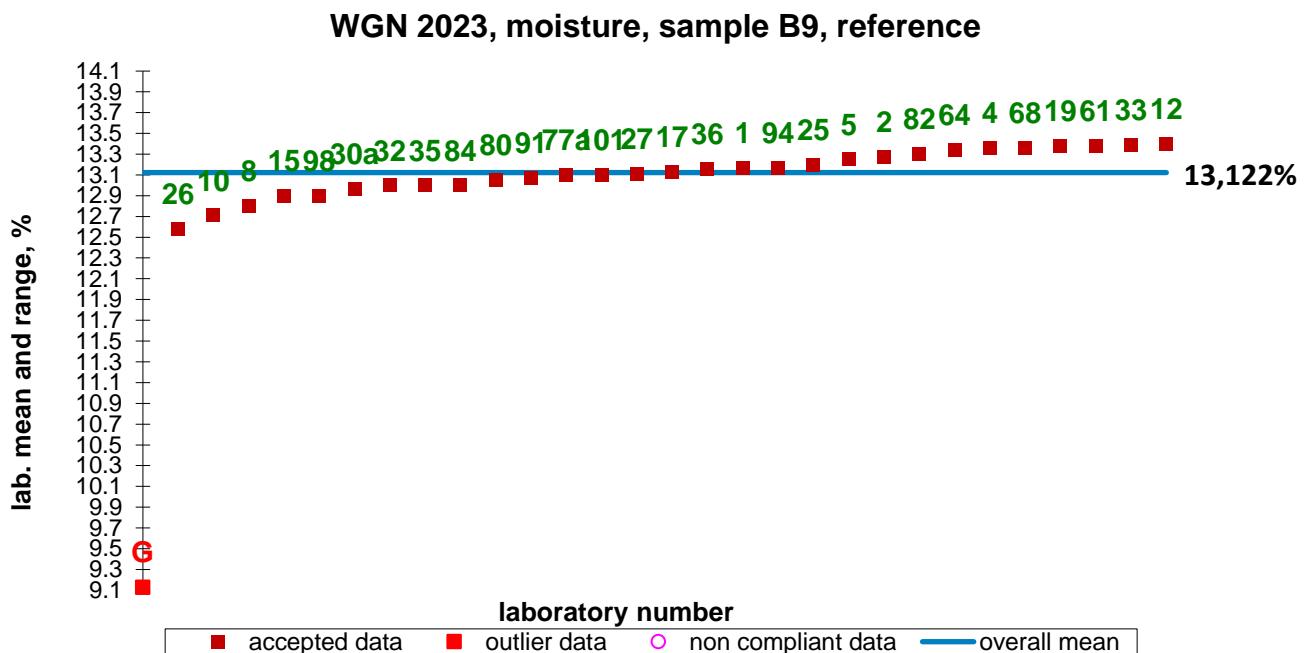
Outliers 10 and 99.



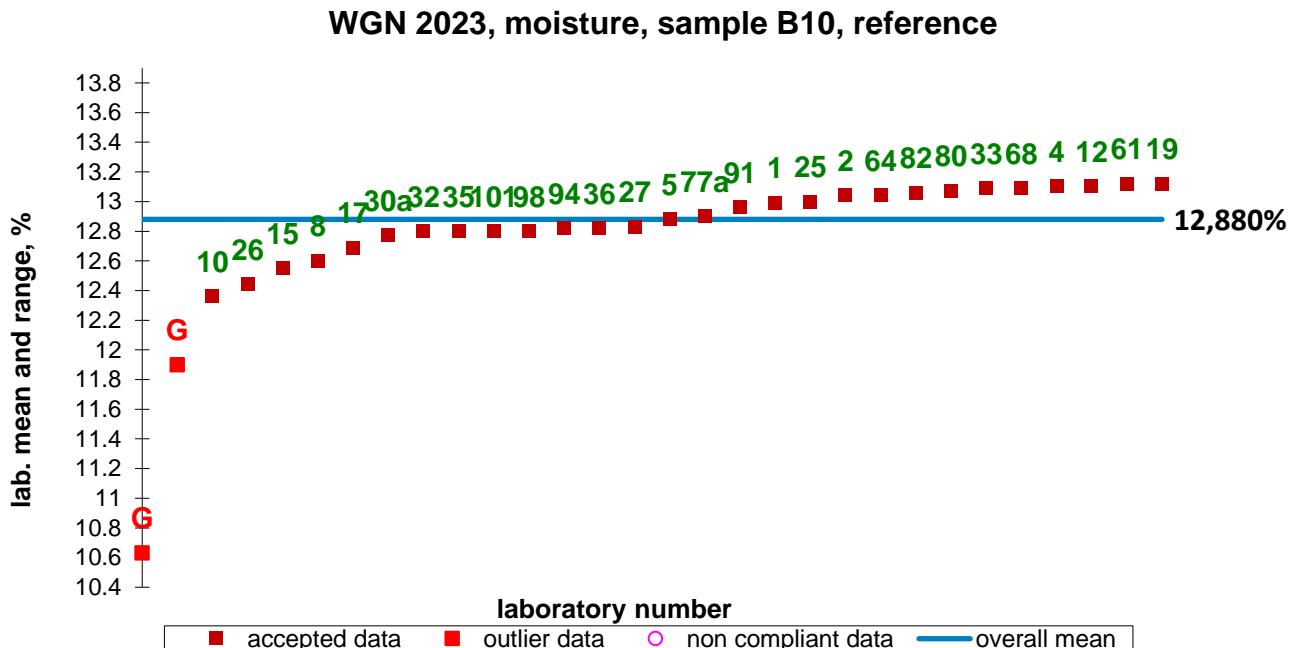
Outlier 99.



Outliers 10 and 99.



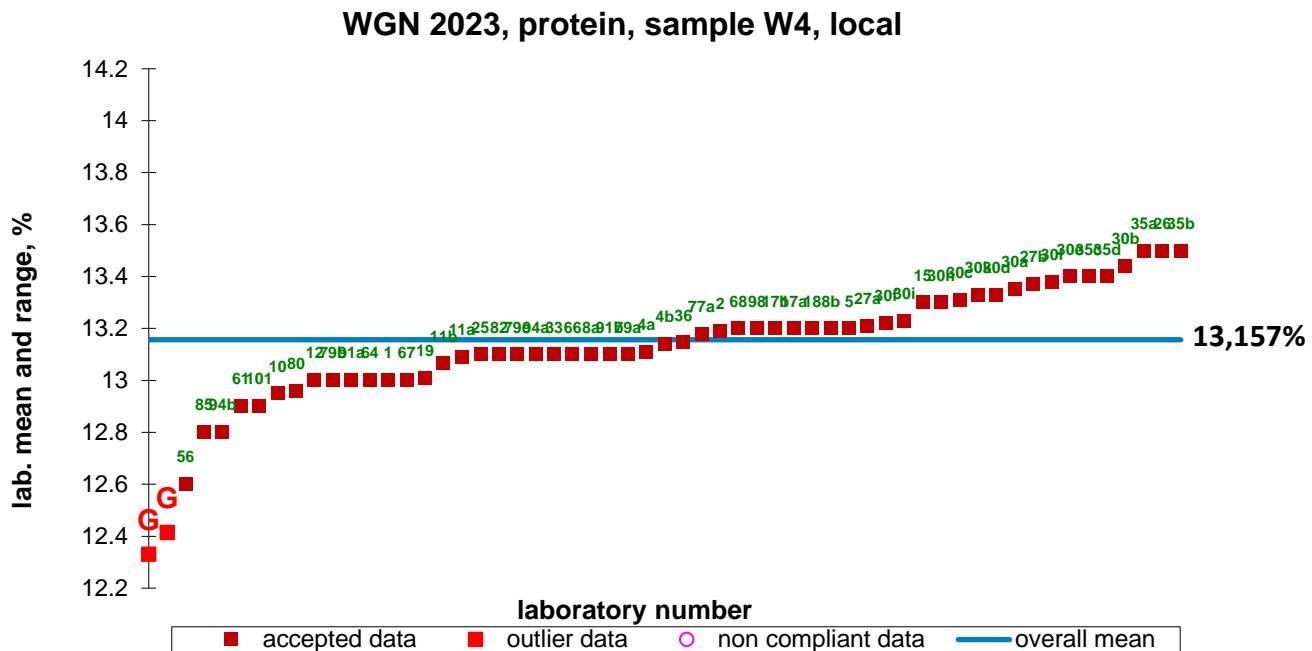
Outlier 99.



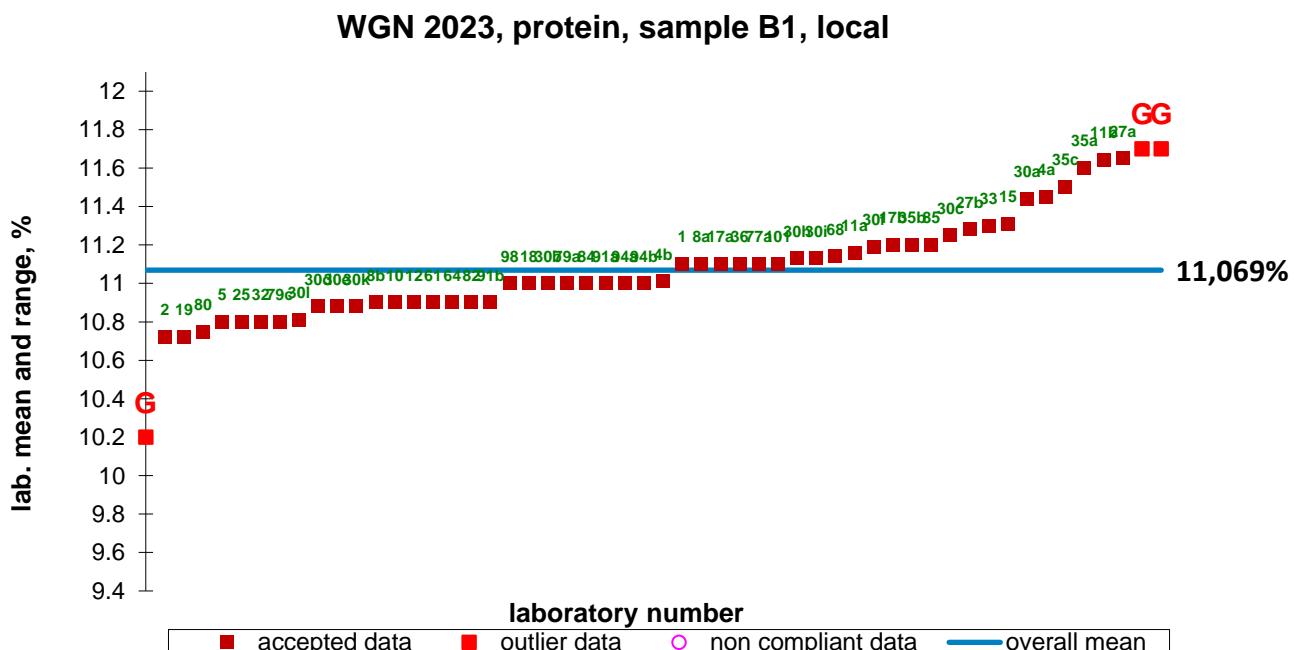
Outliers 84 and 99.

4 Protein in Wheat & Barley by local NIR prediction models

Only two examples are given



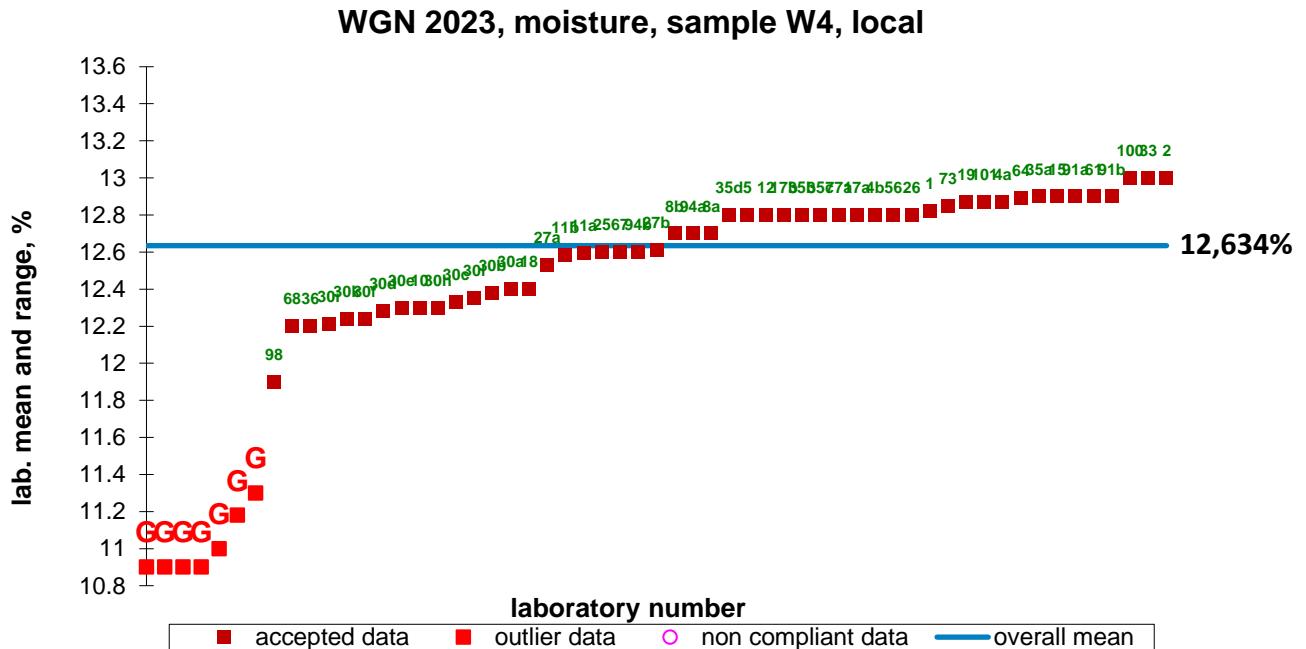
Outliers 73 and 100.



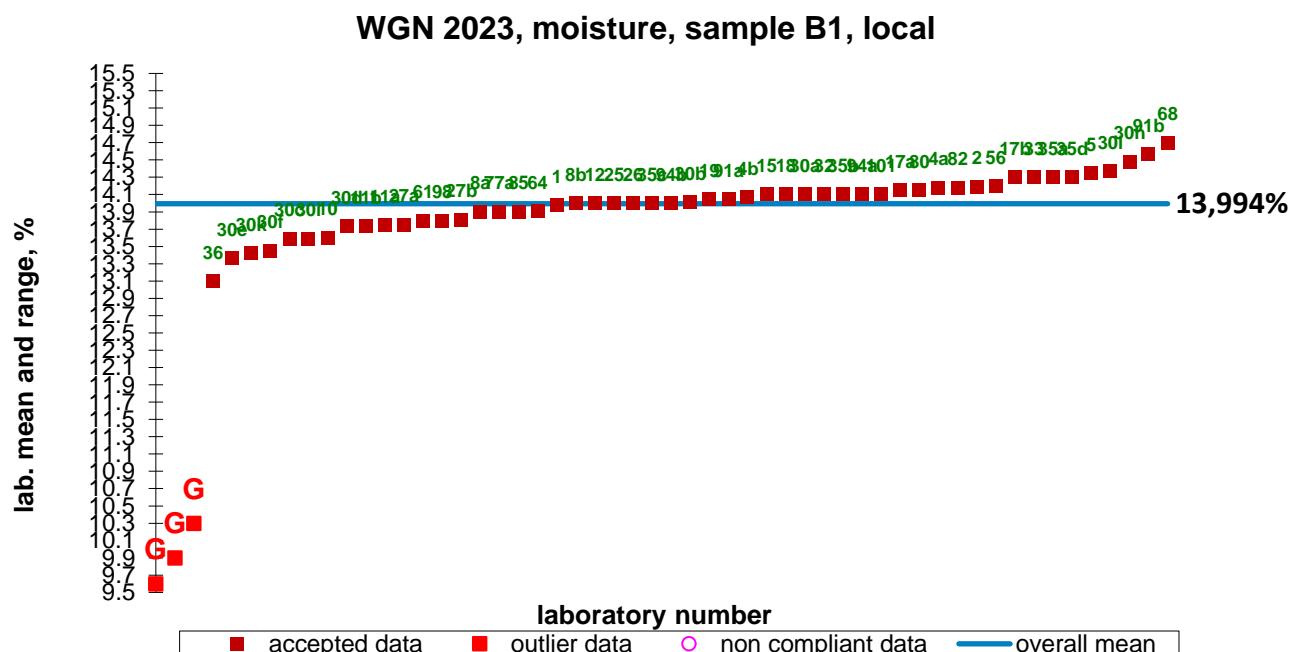
Outliers 26, 35d and 56.

5 Moisture in Wheat & Barley by local NIR prediction models

Only two examples are given



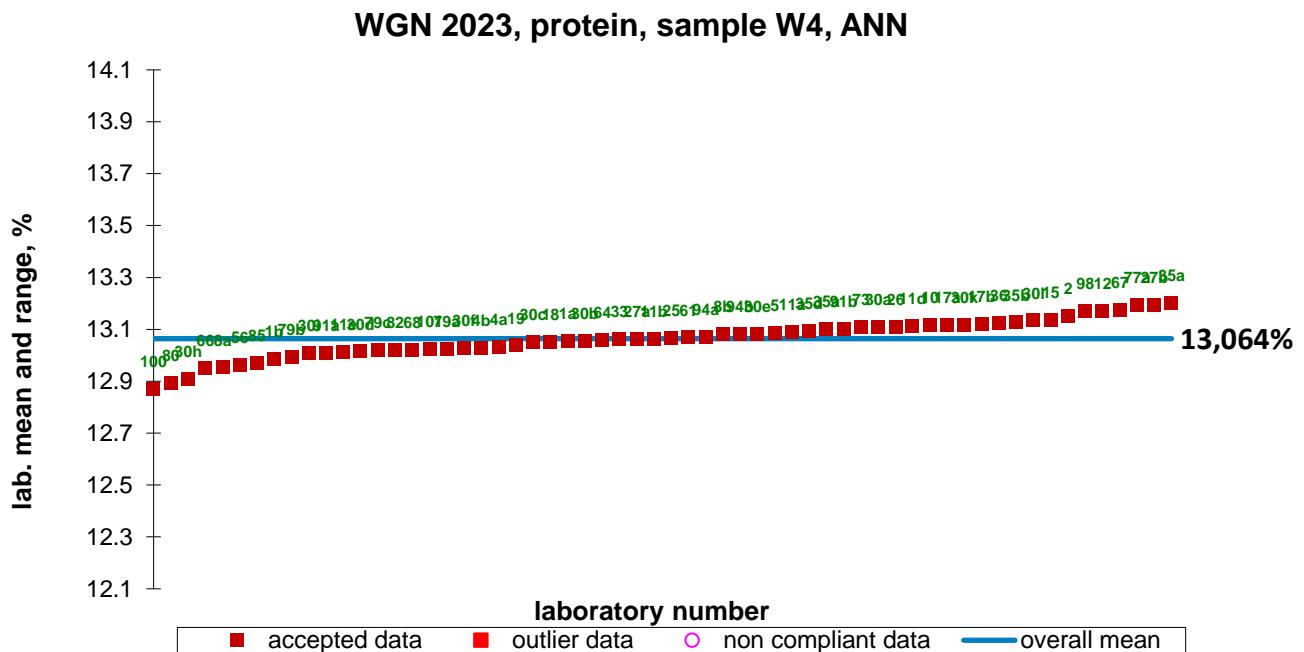
Outliers 66, 79a-79c, 80, 82 and 85.



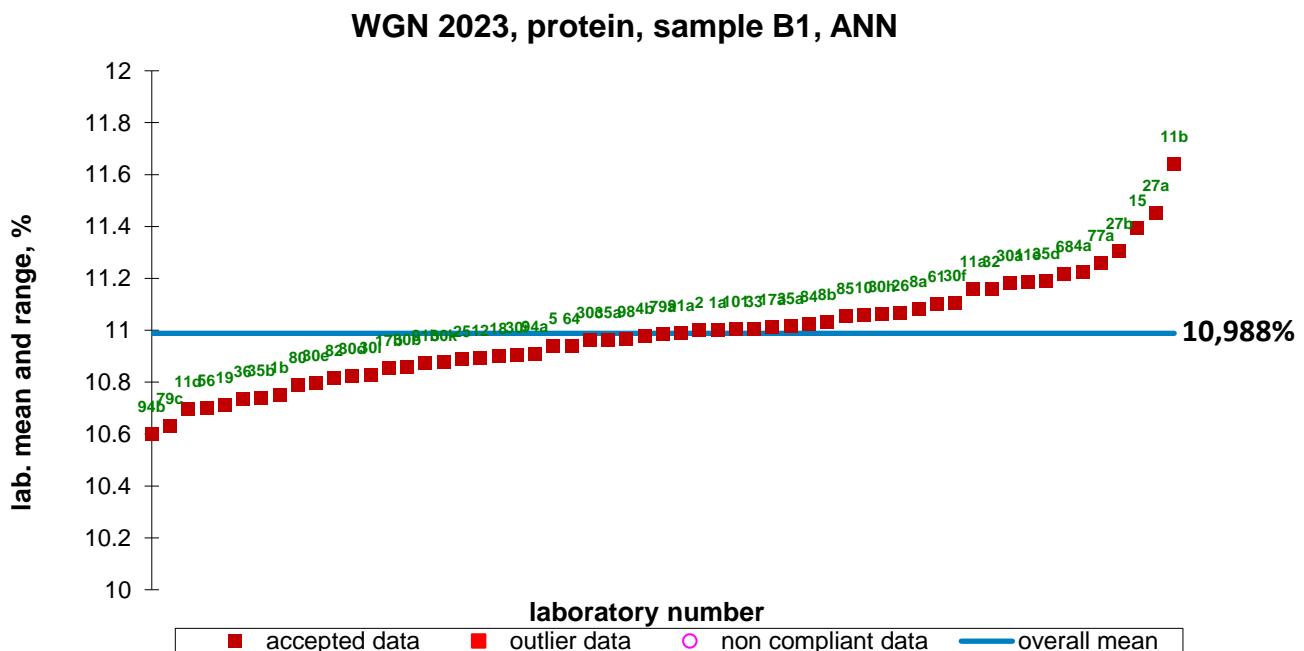
Outlier 79a, 79c and 84.

6 Protein in Wheat & Barley by ANN model WB003034

Only two typical examples are given here:



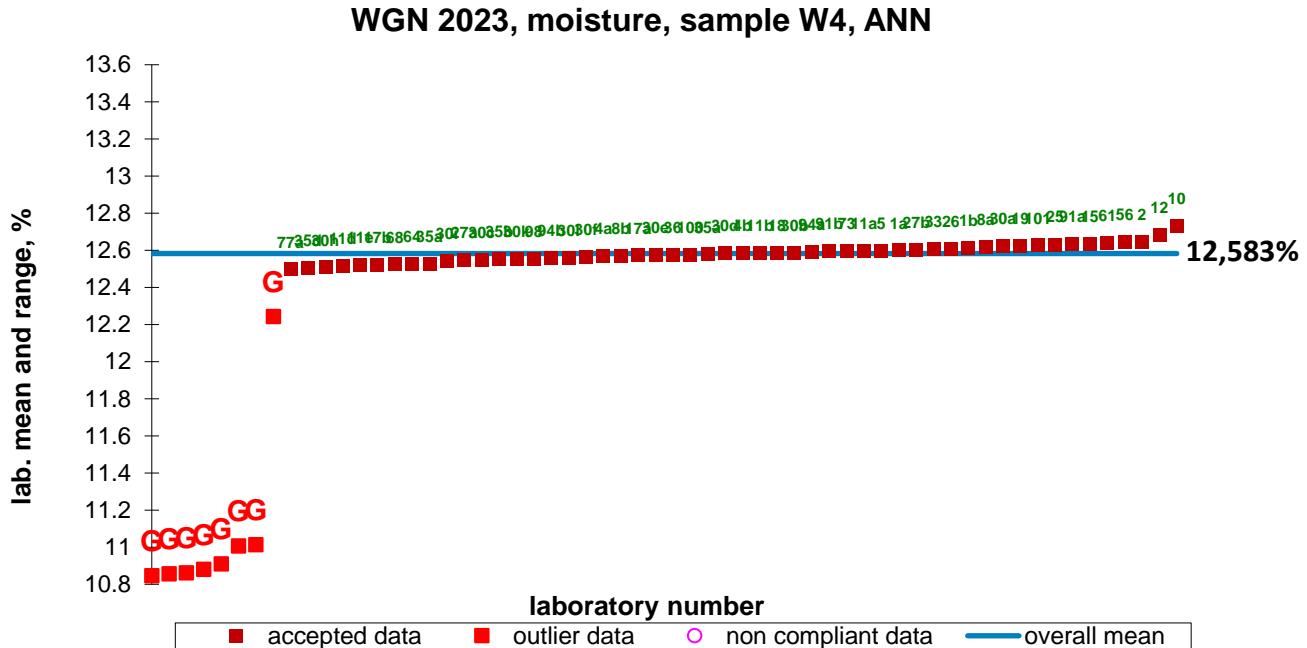
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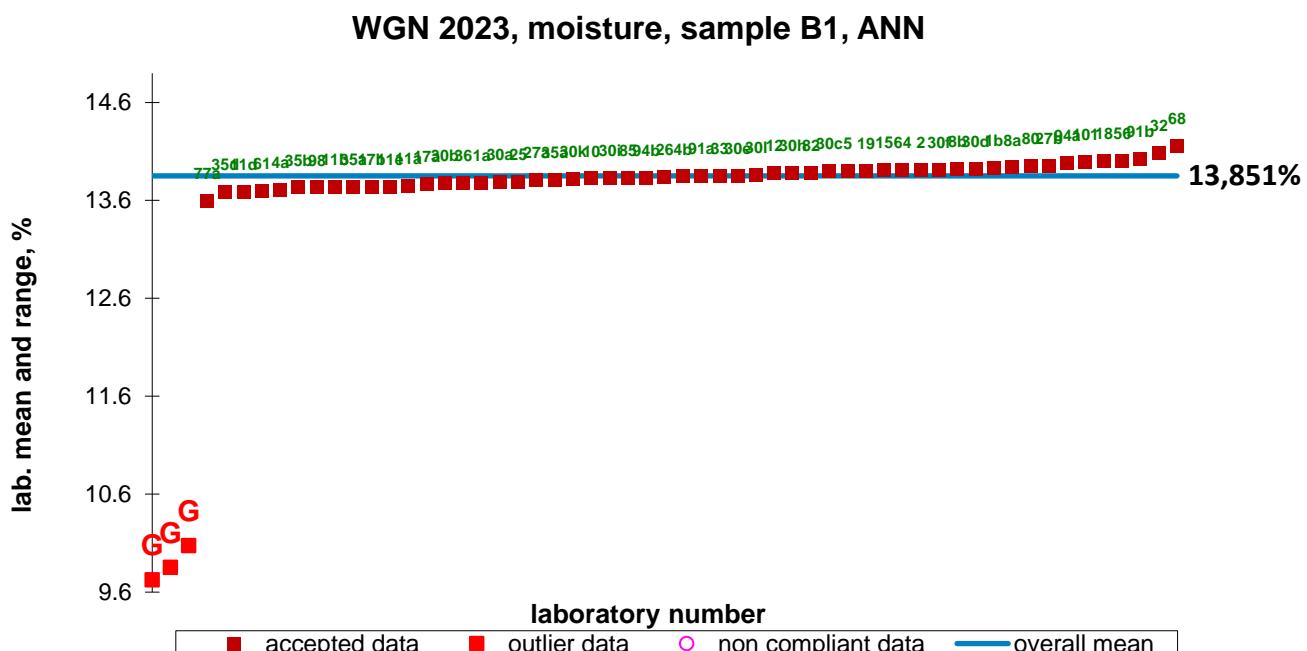
No outliers.

7 Moisture in Wheat & Barley by ANN model WB003034

Only two typical examples are given here:

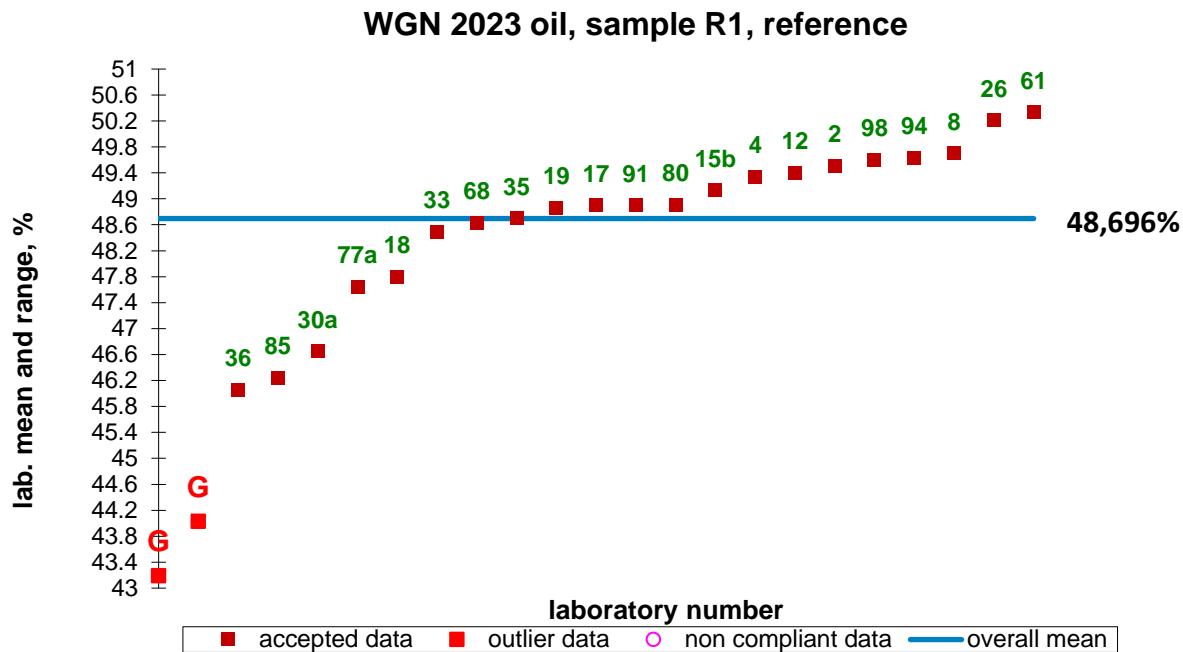


Outliers 66, 67, 79a-79c, 80, 82 and 85.

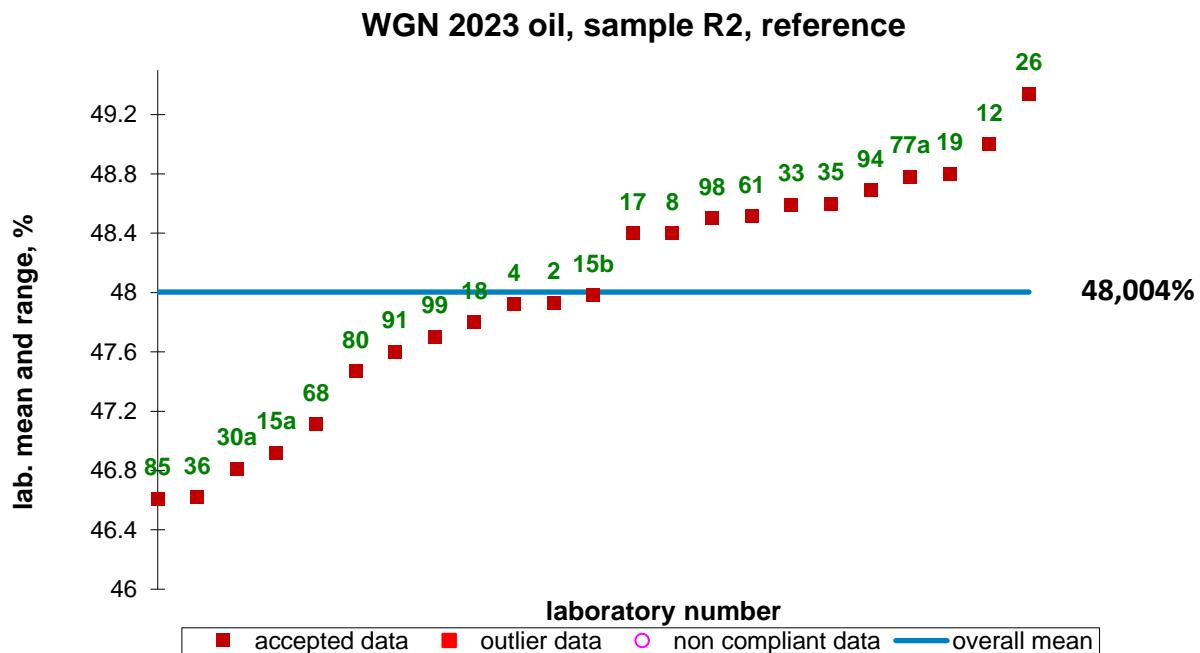


Outliers 79a, 79c and 84.

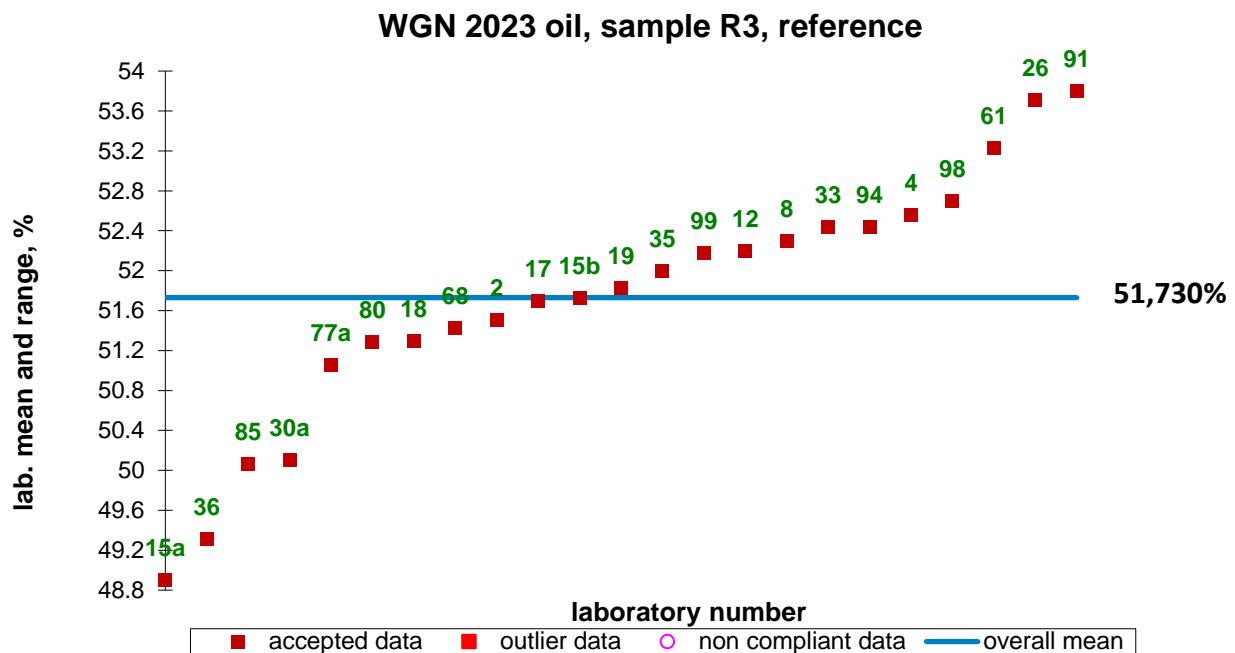
8 Oil in Rapeseed by reference methods



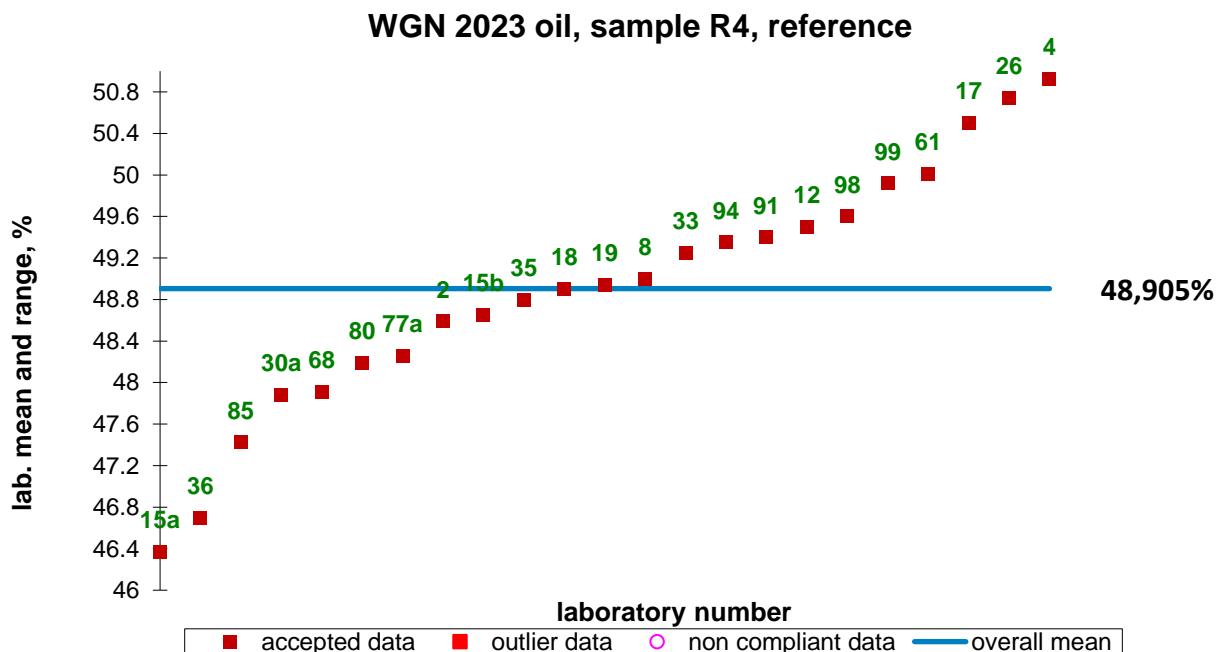
Outliers 15a and 99.



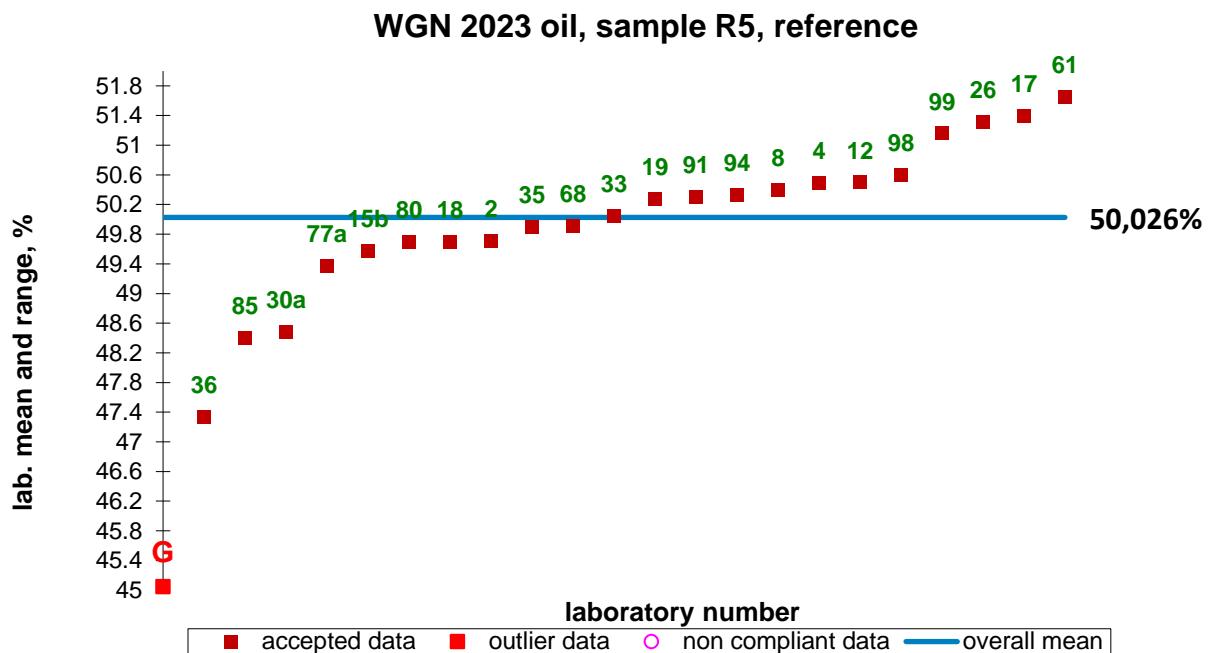
No outliers.



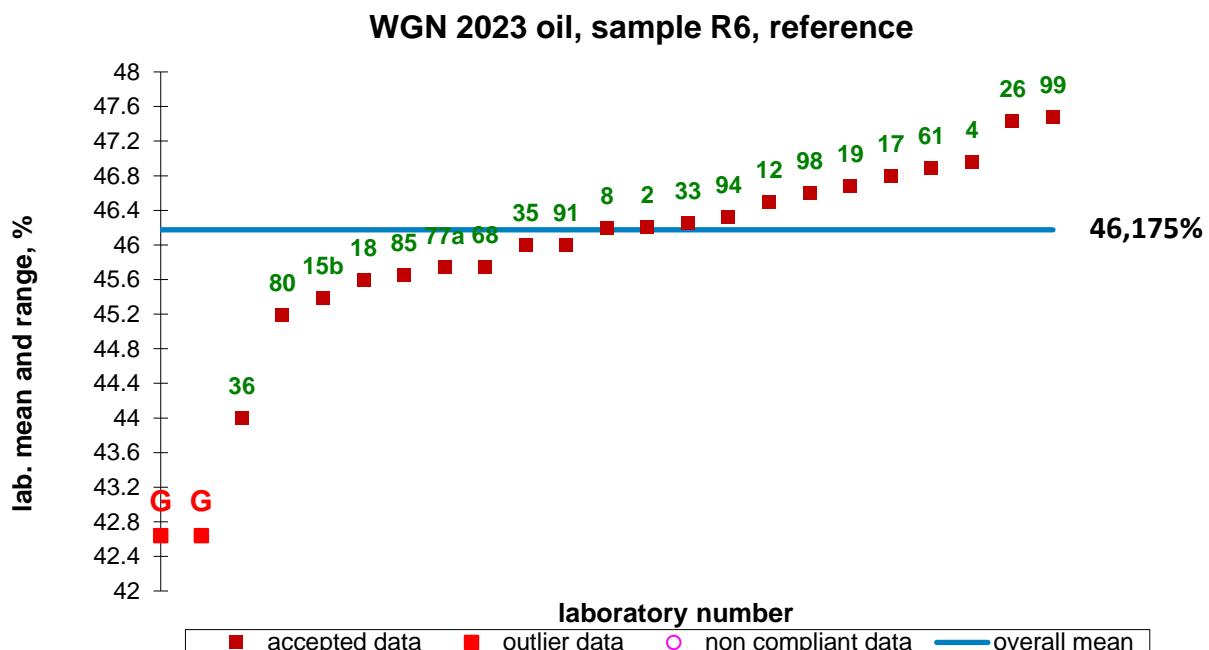
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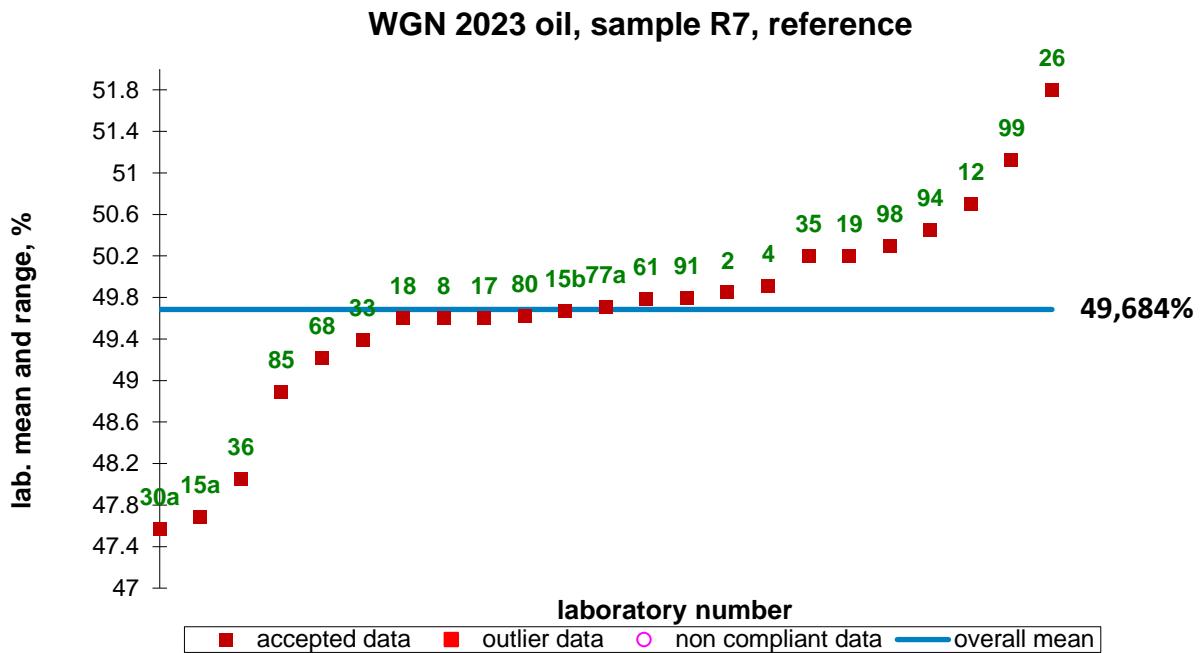
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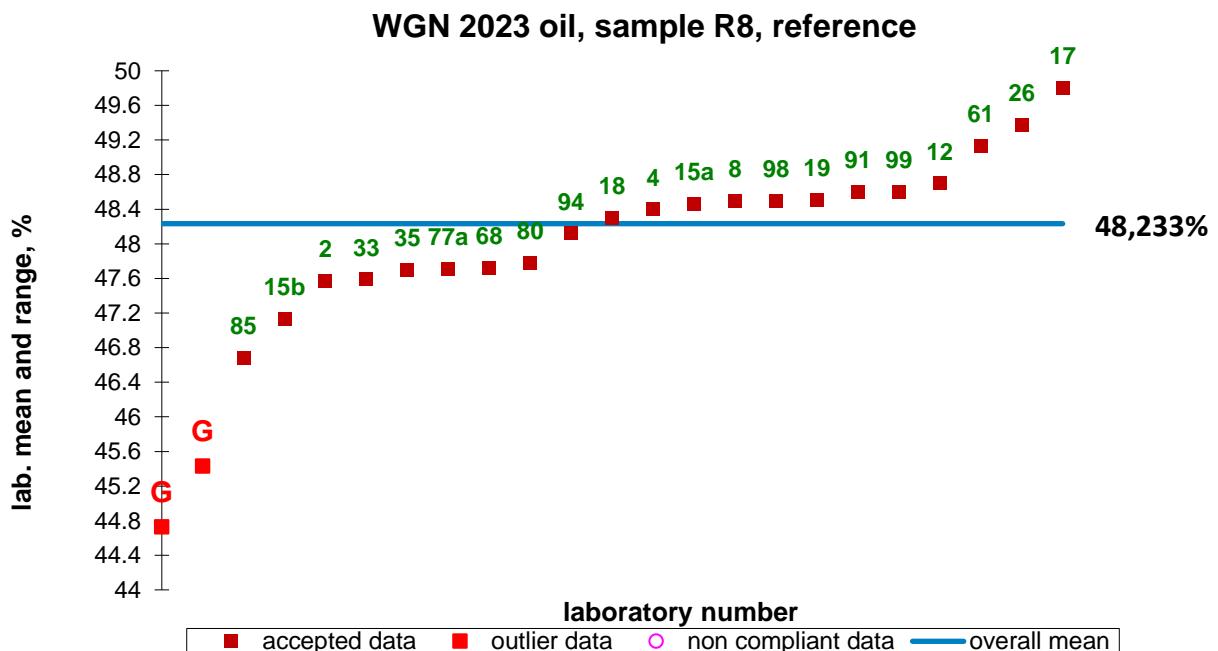
Outlier 15a.



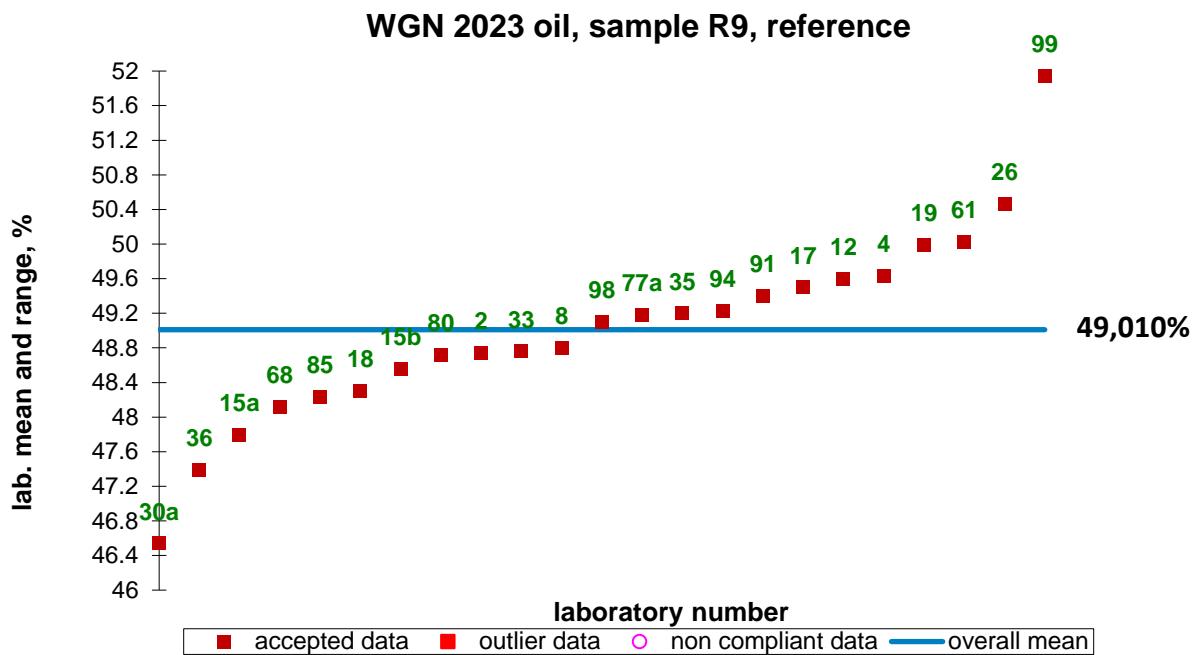
Outliers 15a and 30a.



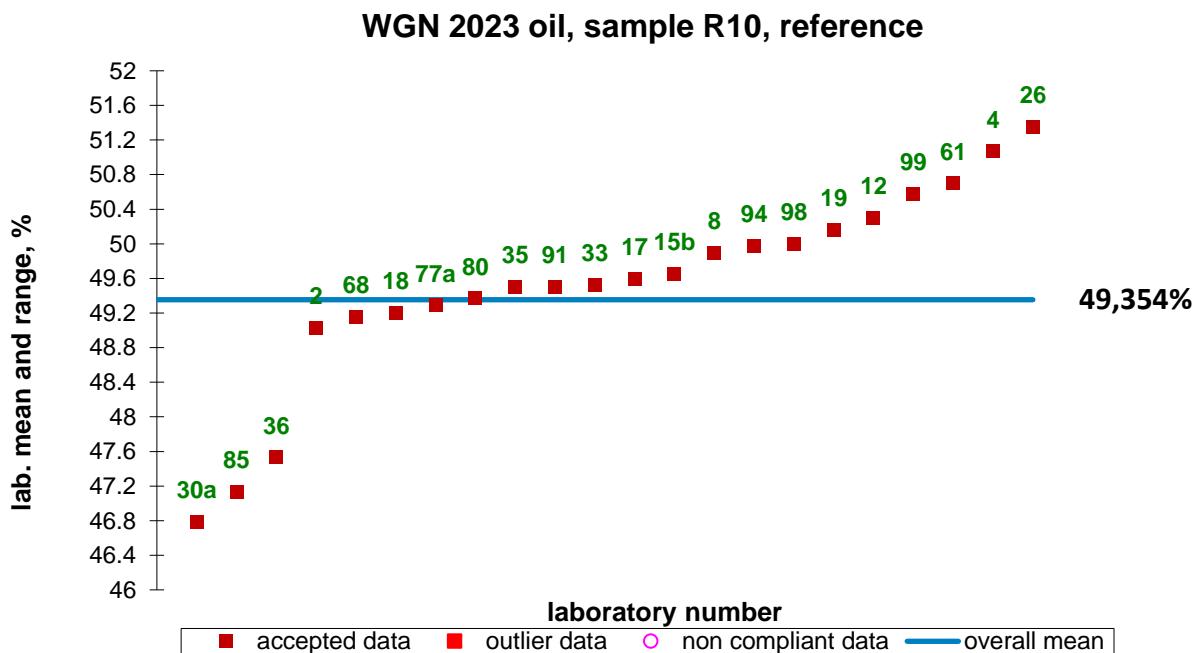
No outliers.



Outliers 30a and 36.

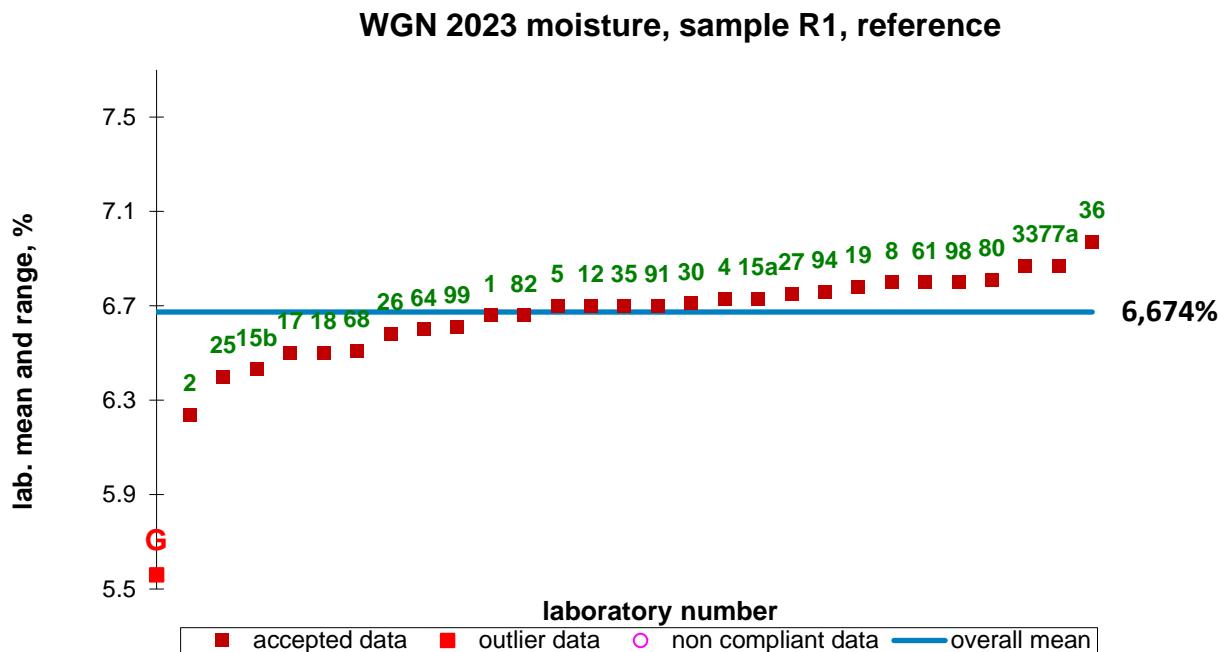


No outliers.

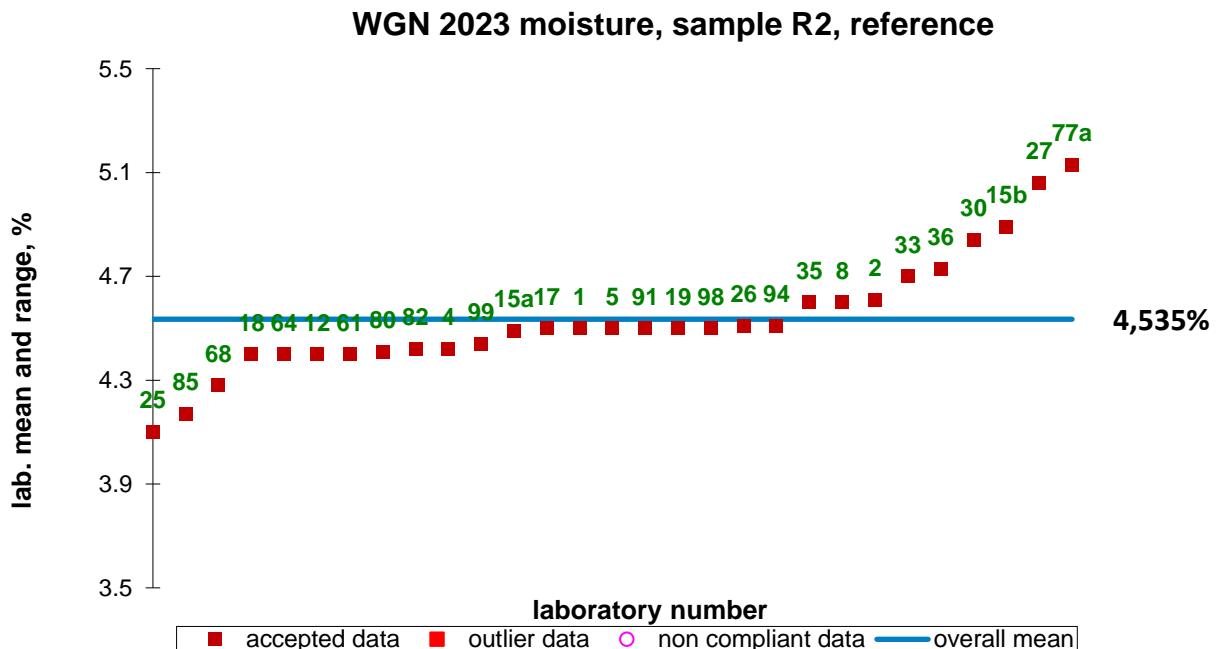


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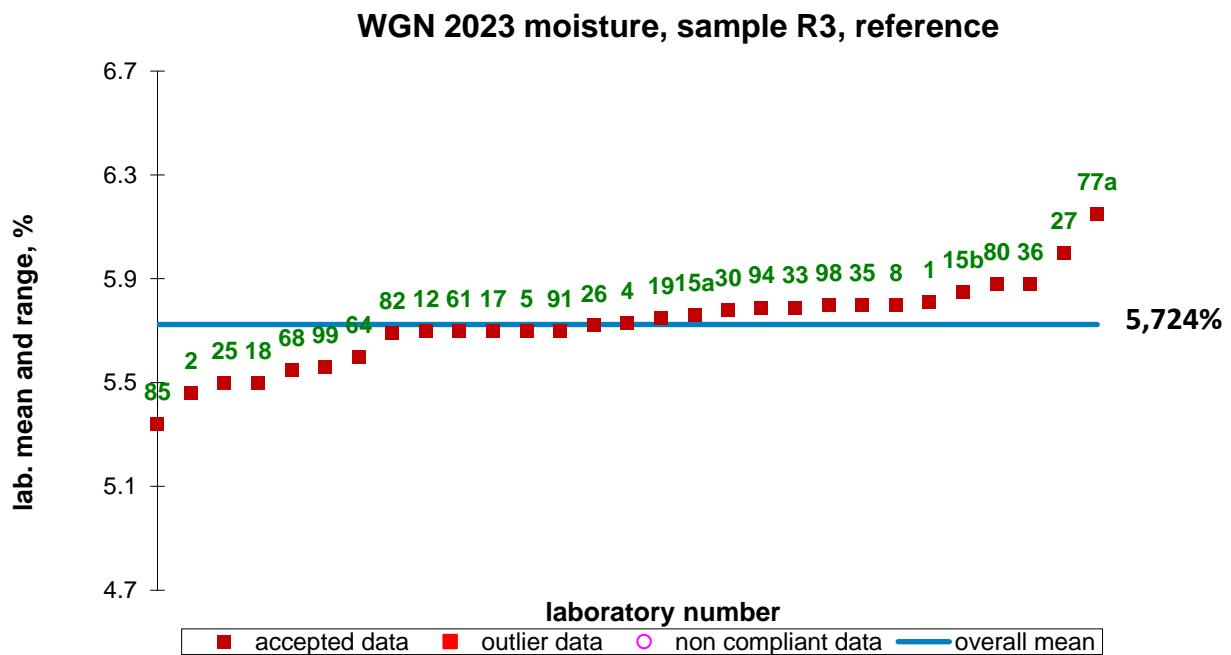
9 Moisture in Rapeseed by reference methods



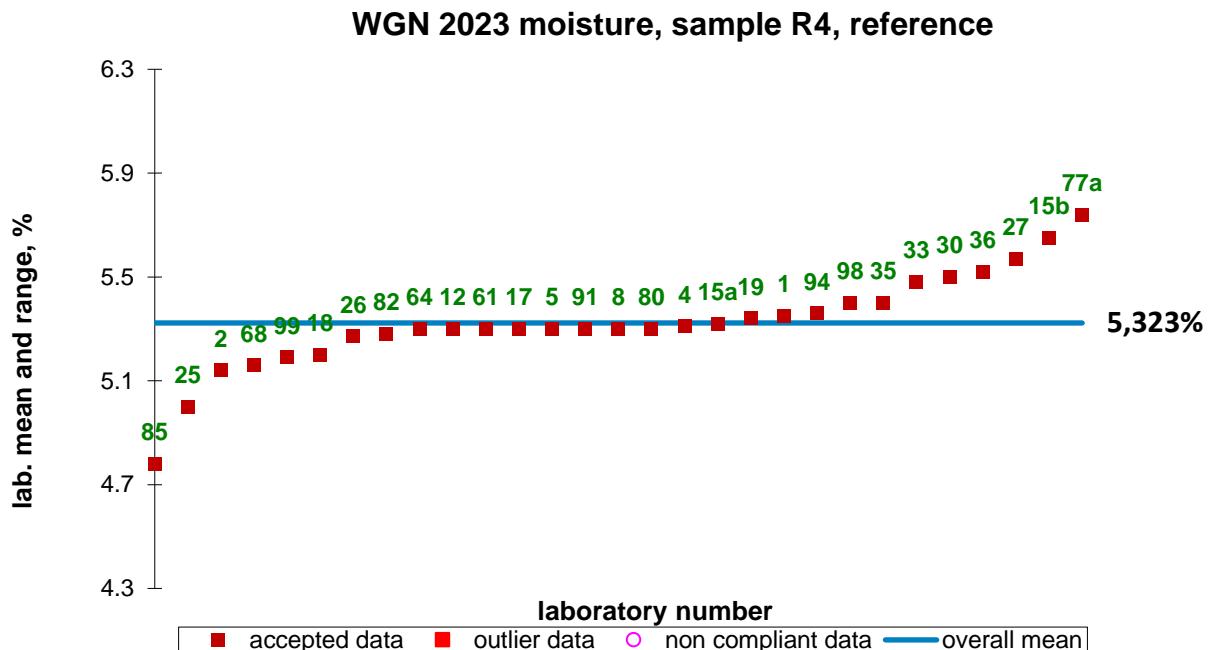
Outlier 85.



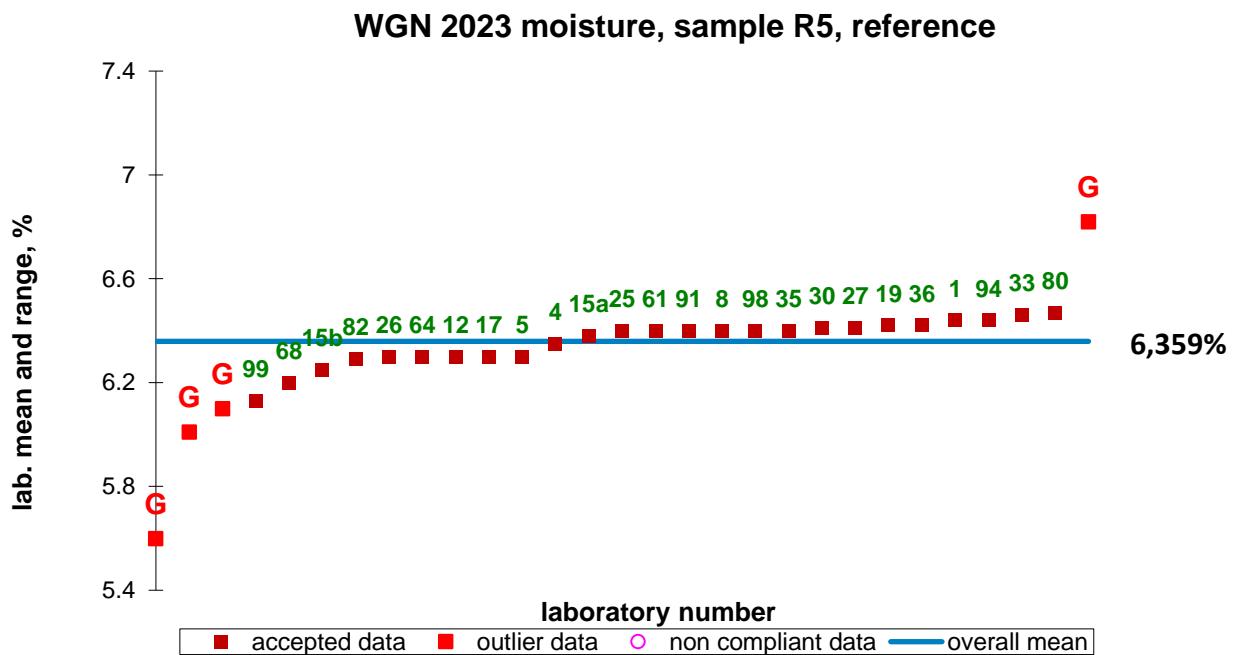
No outliers.



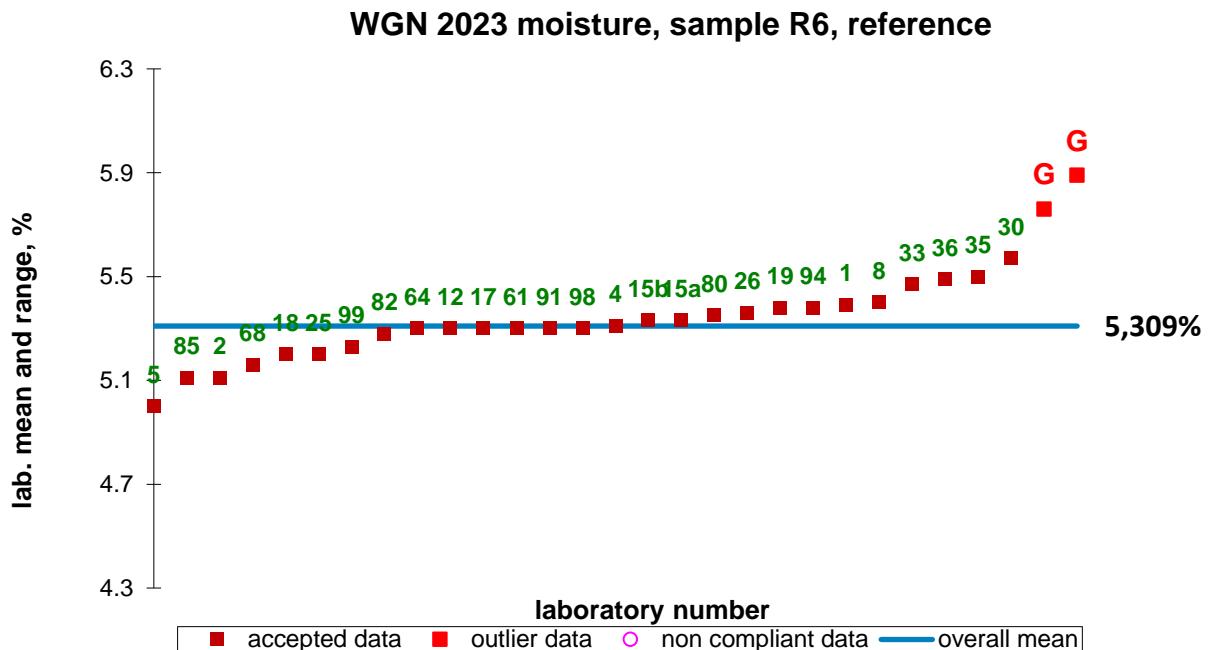
No outliers.



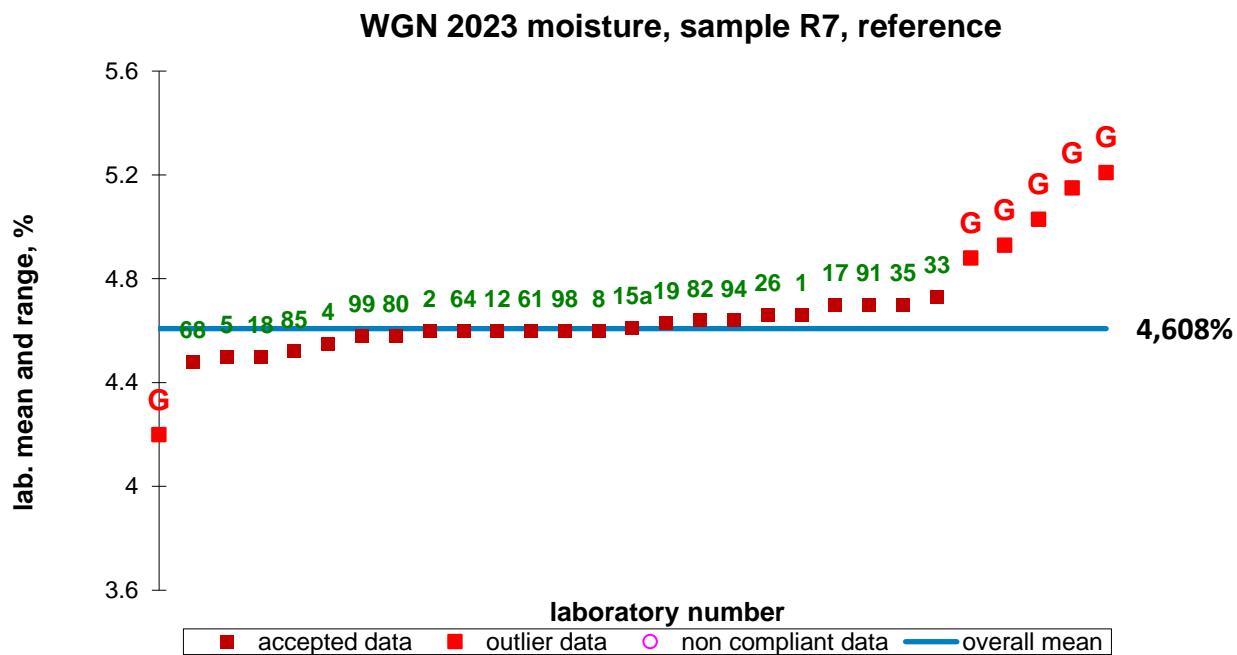
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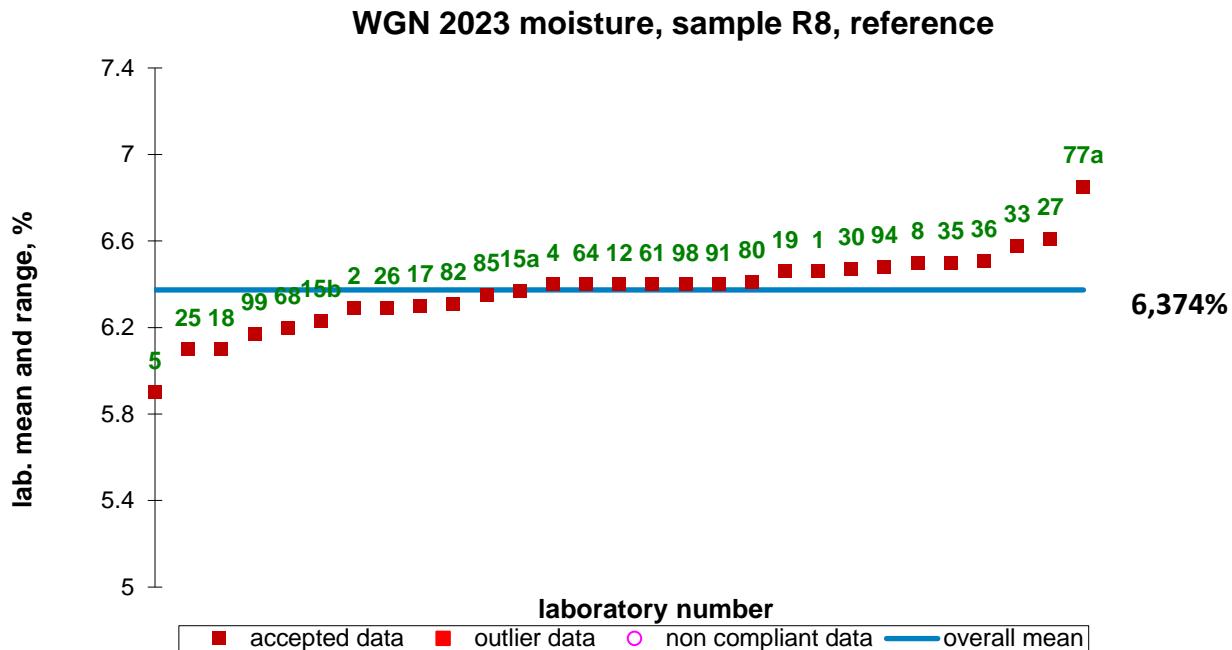
Outliers 2, 18, 77a and 85.



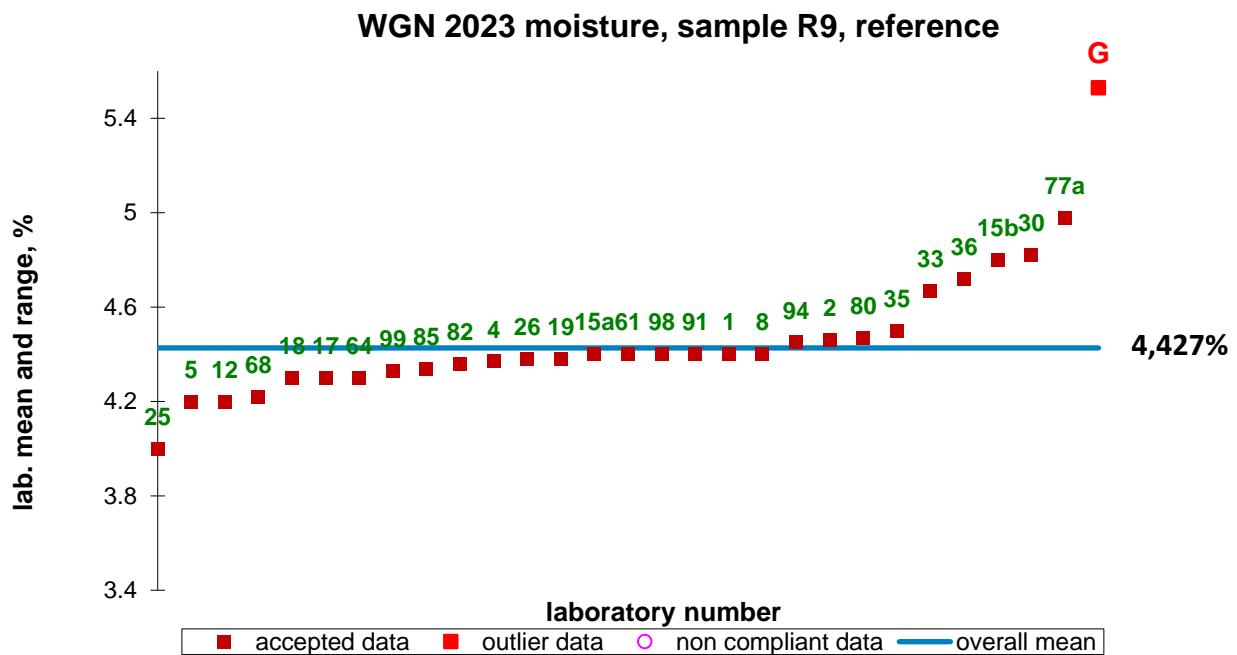
Outliers 27 and 77a.



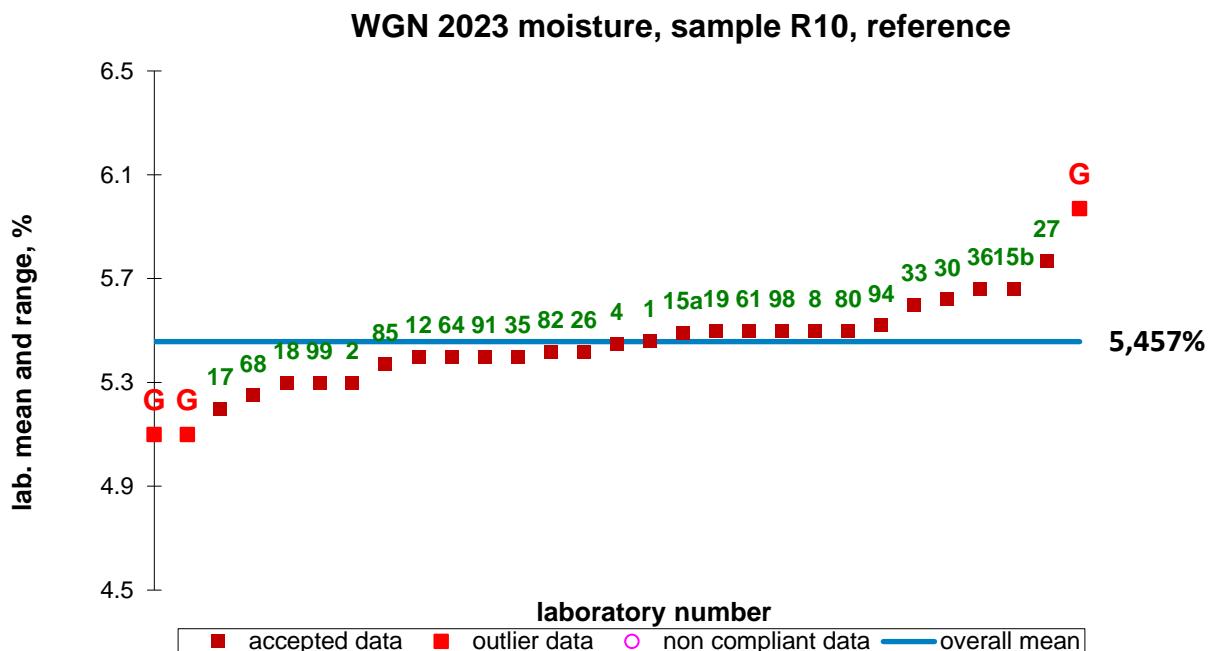
Outliers 15b, 25, 27, 30, 36 and 77a.



No outliers.



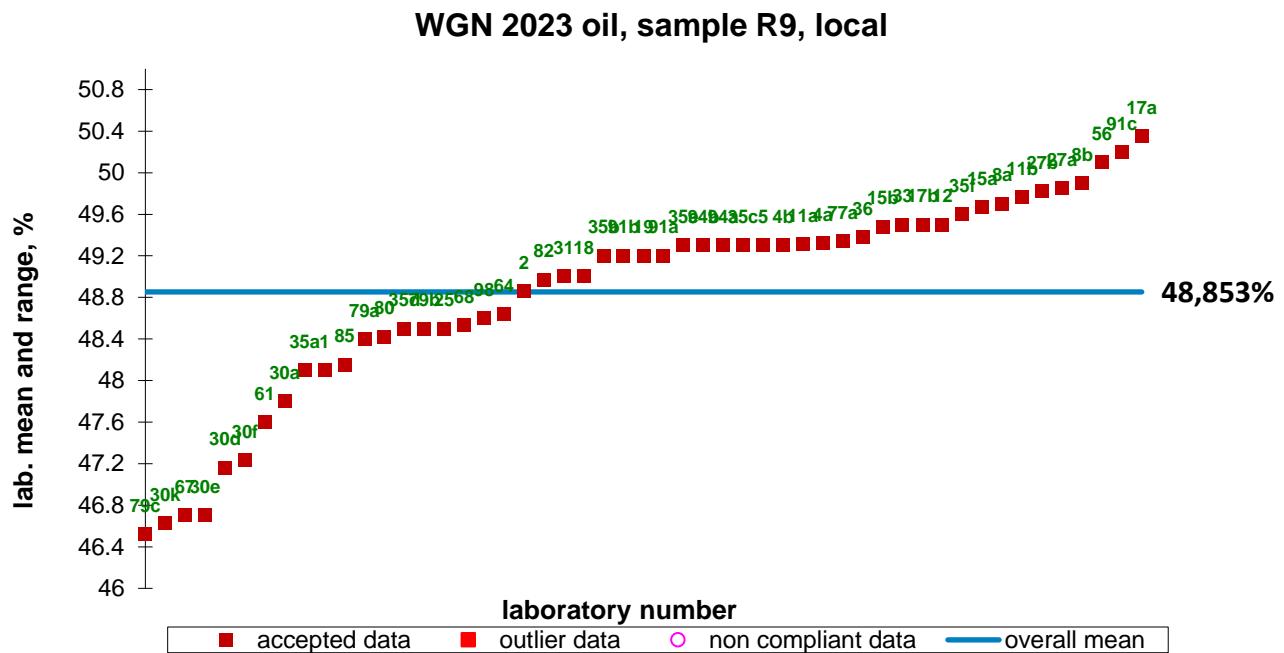
Outlier 27.



Outliers 5, 25 and 77a.

10 Oil in Rapeseed by local NIR prediction models

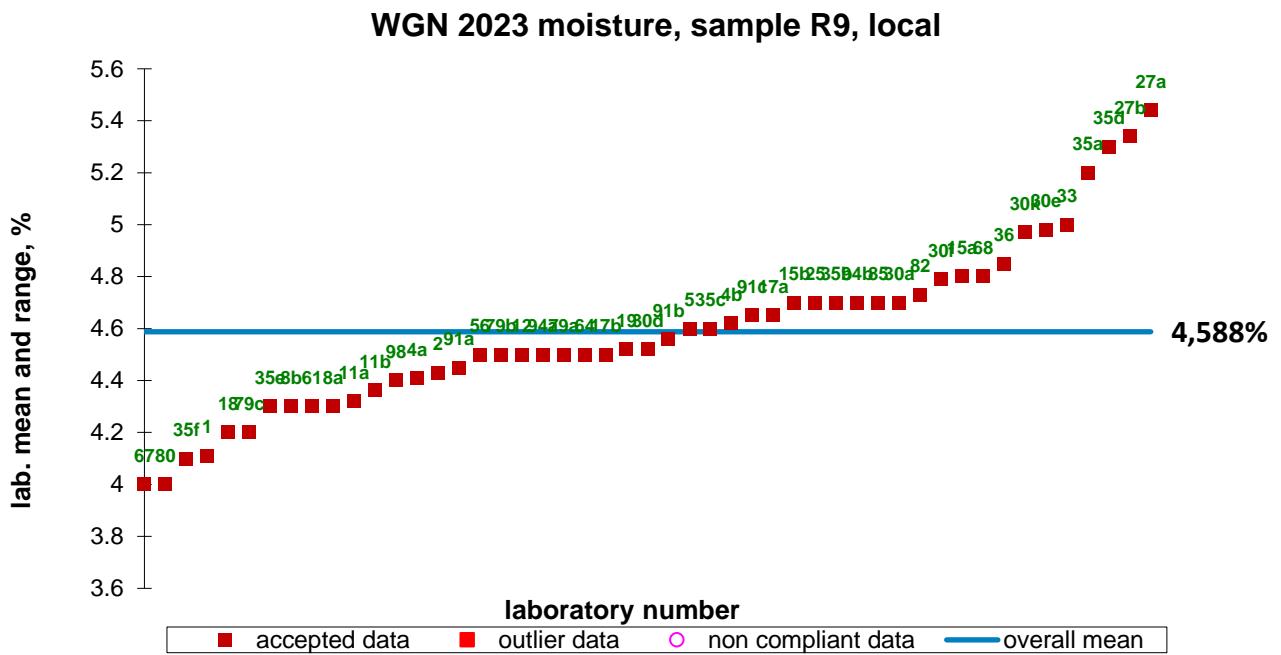
Only one typical example is given



No outliers.

11 Moisture in Rapeseed by local NIR prediction models

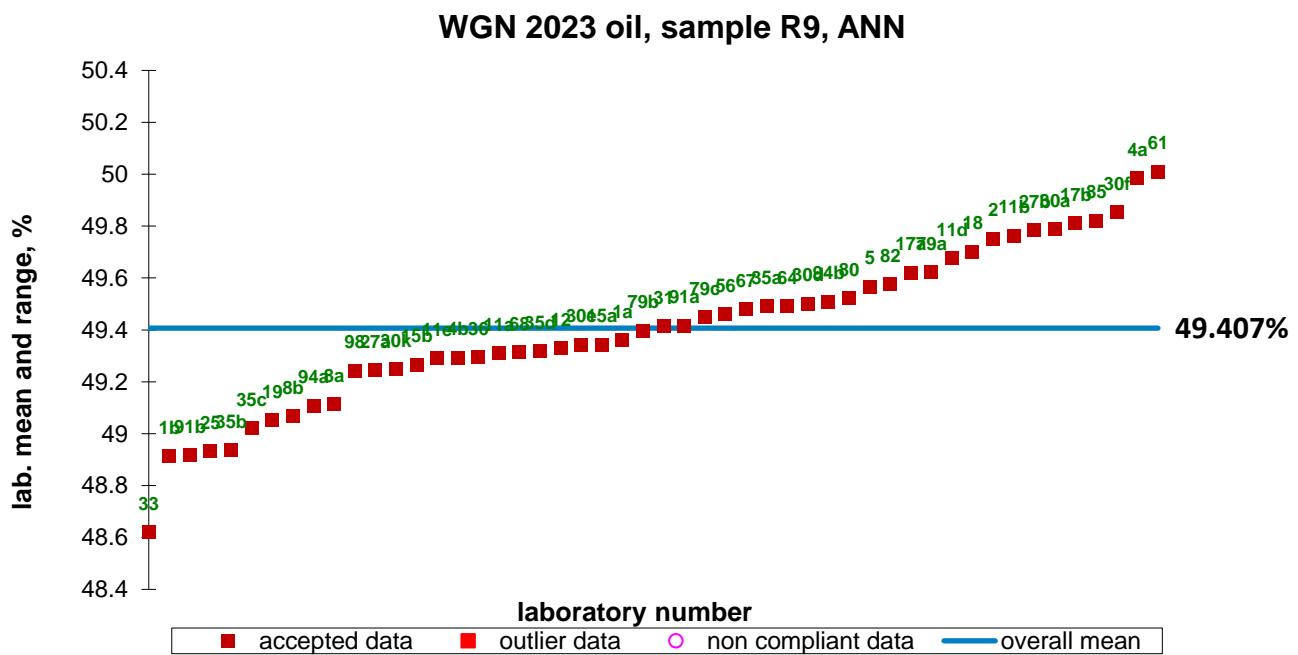
Only one typical example is given



No outliers.

12 Oil in Rapeseed by ANN model RAOI0035

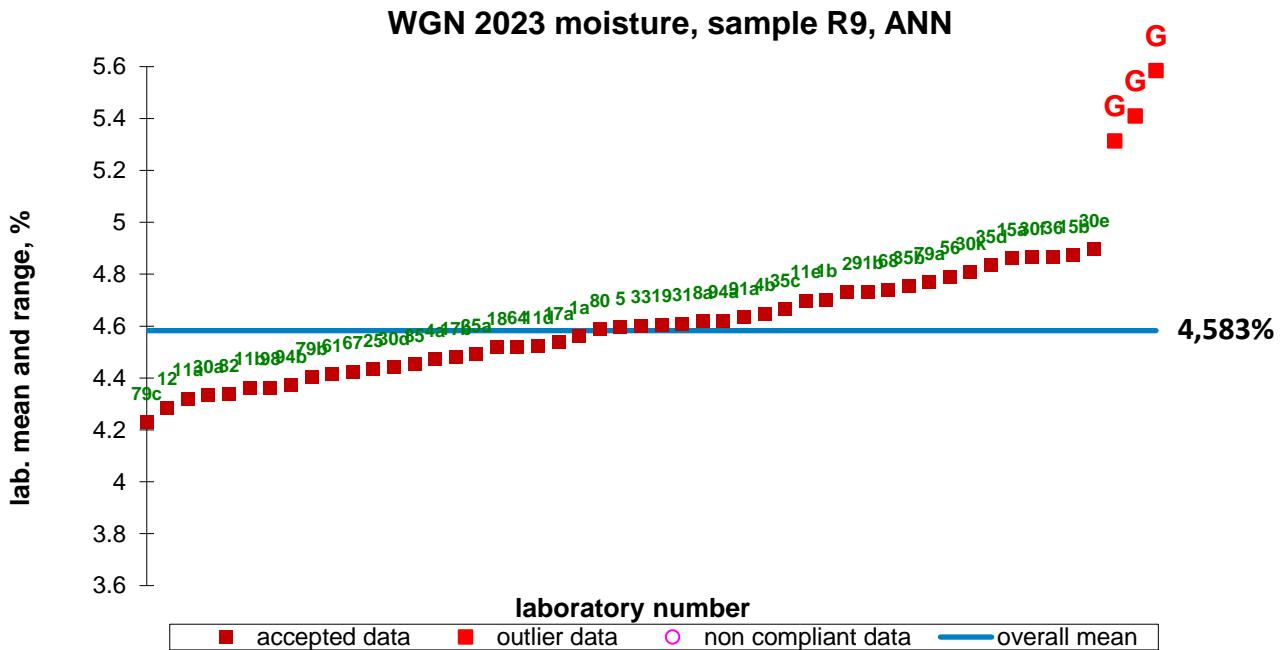
Only one typical example is given here:



No outliers.

13 Moisture in Rapeseed by ANN model RAMO0026

Only one typical example is given here:



Outliers 8b, 27a and 27b.