**LUARS Research 2022 – Results from Forage Experiments**

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2022 crop season has been dry. Total rainfall during June and July was only 87 mm. As a result, the yields were low. Given below are the results from the experiments on forage crops at LUARS in 2022:

*Barley Varieties for Forage Production:*

* Fifteen varieties were evaluated for forage production.
* Highest forage dry matter yield was registered by *Amberly* (11.30 MT/ha; 8.4 % protein), *AB Advantage* was the next best high forage yielding variety (9.30 MT/ha; 10.9 % protein).
* Averaged over 2021-2022, *Amberly* (9.51 MT/ha), *AB Tofield* (9.29 MT/ha) and *Oceanik* (9.24 MT/ha) were the three top forage producing varieties.
* *AB Tofield* (13.4 %), *AB Hague* (13.1 %) and *TR1867* (12.4 %) had a high protein content.
* RFV was highest in *Oceanik* (173) followed by *AB Cattelac* (151).
* *Considering the dry matter yield and protein content, AB Tofield (6 row barley; a dual purpose grain and forage variety) can be recommended for forage production! AB Tofield seed can be obtained from SeCan.*

*Malting Barley Varieties for Forage Production:*

* Seventeen malting varieties were evaluated for forage production.
* Highest forage dry matter yield (11.2 MT/ha) was obtained with *CDC Churchill* followed closely by *AB Brewnet* (10.7 MT/ha). AA*C Goldman* (9.95 MT/ha) was the next best variety for forage production.
* Averaged over 2021-2022, *CDC Churchill* (10.7 MT/ha) and *CDC Copper* (10.2 MT/ha) and produced the highest forage dry matter yields. *AB Brewnet* yield (10.0 MT/ha) was pretty much the same as *CDC Copper.*
* *Butta 12* (13.5 %), *CDC Fraser* (12.0 %) and *CDC Copper* (11.2 %) had higher protein content than the other varieties (7.5 % to 10.5 %).
* *CDC Copper* had the highest RFV (167) followed closely by *CDC Churchill* (159).
* *Considering the dry matter yield and RFV, CDC Copper can be recommended for forage production! CDC Copper is a dual purpose variety (grain and forage production) and its seed can be procured from FP Genetics.*

*Alfalfa Varieties (Seeded in 2020): Two cuts were taken!*

* Two western alfalfa varieties (*Revolution MD* and *Response WT*) were compared with two Atlantic Canadian varieties (*AAC Trueman* and *Elite*); *WL319HQ* (RR alfalfa) was a check variety.
* Dry matter yield from two cuts varied from 3,355 kg/ha with *AAC Trueman* to 3,970 kg/ha with *Revolution MD*. Two other varieties that produced similar yields to *Revolution MD* were *Elite* (3,938 kg/ha) and *Response WT* (3,857 kg/ha). Based on average of the two years (2021 and 2022), *Response WT* (4,561 kg/ha) gave the highest and *AAC Trueman* (4,089 kg/ha) the lowest dry matter yield. However, the yield differences between the varieties were not statistically significant.
* First cut protein content varied from 19.3 % in *WL319HQ* to 22.1 % in *AAC Trueman* and from 19.7 % in *Elite* to 21.6 % in *WL319HQ* in the second cut.
* RFV was highest in *AAC Trueman* (133) in the first cut and highest in *WL319HQ* (132) in the second cut. Generally speaking, higher RFV could mean higher milk yield.
* *Considering the protein content and RFV, AAC Trueman can be recommended for cultivation on farms.*

*Alfalfa Varieties (Seeded in 2021): Two cuts were taken!*

* Six alfalfa varieties were compared for their forage yield and quality.
* *Shockwave BR* gave the highest (4,193 kg/ha) and Evermost (3,355 kg/ha) the lowest dry matter yield. However, the yield differences between the varieties was not statistically significant.
* Protein content in the first cut ranged from 21.4 % in *Shockwave BR* to 23.5 % in *135*.
* Second cut protein content was the lowest (20.7 %) in *135* and highest (22.8/22.7 %) in *Revolution MD/Dynasty*.
* *Evermost* had the highest RFV (168) in the first cut and *Revolution MD* had the highest RFV (139) in the second cut.

*Comparative Performance of Alfalfa and Galega (Seeded in 2011): Two cuts were taken!*

* *Galega* gave ~500 kg/ha higher dry matter yield than *alfalfa*, which was more grass than alfalfa. Alfalfa stand had become scanty over the years.
* Averaged over 2012 to 2022, *Galega* (5,070 kg/ha/year) produced higher dry matter yield than *alfalfa* (4,574 kg/ha/year).
* *Galega* had 2.6 % point higher protein content in the first cut and 1.7 % point higher protein content in the second cut as compared to *alfalfa*.
* RFV was somewhat higher in *alfalfa* (132) than *Galega* (127) in the first cut, whereas in the second cut RFV was more or less the same in *alfalfa* (136) and *Galega* (135).
* *Higher yield and higher protein content in Galega than in alfalfa, could make Galega a better fodder than alfalfa!*

*Alternate Forage Legumes (Seeded in 2020): Two cuts were taken!*

* *Galega*, s*ainfoin*, *alfalfa* and *red clover* were compared for their production potential and forage quality. *Sainfoin* and r*ed clover* didn’t survive the 2021-2022 winter.
* Dry matter yields from *Galega*, *alfalfa* and *Trefoil* were 2,449, 2,411 and 1,788 kg/ha.
* In the first cut, *Galega* had 1.3 % point higher protein content than *alfalfa* and *Trefoil* had 1.6 % point higher protein content than alfalfa.
* Second cut protein content was highest (25.1 %) in *Galega* and lowest in alfalfa (19.8 %).
* RFV in the first cut was highest (144) in *alfalfa*, whereas in the second cut, *Trefoil* had the highest RFV (153).

*Forage Production Potential with Kernza, Perennial Rye and their Mixtures with Alfalfa (Seeded in 2017):*

* In the Kernza alone treatments, regrowth of Kernza was too poor to take the second cut. Therefore, only one cut was taken.
* *Alfalfa* + *Kernza* (80:20 mixture) recorded the highest dry matter yield (4,128 kg/ha) in 2022 and also highest total dry matter yield over five years (2018-2022 – 23,892 kg/ha = 4,778 kg/ha/year). Dry matter yield from *alfalfa + Ace 1* (*Perennial Rye*) 80:20 mixture was 3,771 kg/ha in 2022. However, *Ace 1* did not survive beyond winter 2018-2019 and *alfalfa + Ace 1* was virtually alfalfa alone.
* In the first cut, protein content was higher in *alfalfa + Ace 1* (80:20) mixture (24.0 %) followed by a*lfalfa* + *Kernza* (80:20 mixture) – 21.1 %. Protein content in *Kernza* alone ranged from 15.9 % to 20.3 %.
* In the second cut, a*lfalfa* + *Kernza* (80:20 mixture) had lower protein content (15.5 %) than *alfalfa + Ace 1* (80:20) mixture (22.2 %)
* In the first cut, RFV (118) was highest in a*lfalfa* +*Kernza* (80:20 mixture). In the second cut, higher RFV (138) was recorded with a*lfalfa* + *Ace 1* (80:20 mixture) than with *alfalfa + Kernza* (80:20) mixture (111).

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