

Weekly available pasture biomass was measured using a C-Dax Pasture Meter, and the average pasture stock of the platform was calculated. A subgroup of 30 cows in each system were paired for parity, genetic merit, production and days in milk (DIM), to evaluate milk production during two 15-day periods in spring, when cows had am and pm grazing sessions with concentrate supplementation at milking. Average milking frequency was 2 and 2.2 for CMS and VMS, respectively. Both systems appeared to achieve similar annual MP per hectare, MS per hectare, MP per cow and average pasture stock per hectare (17,597 and 18,479 L/ha; 1,463 and 1,433 kg/ha; 8,359 and 8,435 L/cow/lactation and 1,082 and 1,143 kg MS/ha, CMS and VMS, respectively). Spring data were analyzed using linear mixed models including repeated measures and the results showed MP differences: fat corrected milk 3.5% and milk protein were higher in VMS (30.65 vs 31.42 kg/cow, $P \leq 0.10$; 0.94 vs 1.03 kg/cow, $P \leq 0.05$, CMS and VMS, respectively). Milk fat production was not different between treatments. The single year whole-farm system evaluation showed that VMS could achieve similar biophysical performance than a CMS given the same natural resources (soil, pastures, feed and herd) and infrastructure. The differences found in milk production in spring mean that there could be a potential to explore management practices that can enhance individual performance in VMS.

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Decision support tools for grass-based fodder management on dairy farms: current adoption and perspectives

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Many decision support tools (DSTs) have been developed to help dairy farmers optimally manage the high variability in quality and availability of grass-based fodder, but their adoption rate remains low. The objective of this study was to characterize and understand the adoption rate of such DSTs. In February 2021, 61 Walloon (Belgium) dairy farmers responded to an online survey concerning their farm characteristics and their use of 23 DSTs related, either directly (pasture or grassland) or indirectly (feeding or techno-economic), to grass-based fodder use. A focus was also done on the barriers to and incentives for adopting them, their current interest in DSTs, and satisfaction with the guidance on using these DSTs. Those DSTs were further classified following their level of technical sophistication: “indicator” (i.e. DSTs giving informative values corresponding to the step of data collection), “software” (i.e. DSTs comparing informative values with other parameters of interest corresponding to the step of data interpretation) and “automated tool” (i.e. DSTs taking decision and acting). In order to test the hypothesis that the user type had an influence on the perception and the preferred DSTs, we performed a clustering on the first three axes of a Multiple Correspondence Analysis based on farm characteristics and DST use. Feeding, techno-economic, grassland, and pasture DSTs were used at least a few times a year by 100%, 89%, 93%, and 33% of the farmers, respectively. Regarding the level of technical sophistication, indicator, software, or automated tool were used at least a few times a year by 100%, 67%, and 41% of the farmers, respectively. The DSTs used most frequently were milk analysis (both online and on the invoice), forage analysis, and management accounting. Even though pasture management DSTs were used the least, farmers were the most interested in them, especially in plate meter and pasture management software cited by 15% and 10% of the farmers, respectively. Farmers indicated that DSTs were too expensive and time consuming even if they could ultimately save them time and money. The most lacking form of guidance was continuous education. Four types of users were identified: high user no grazing (H-NG), high user traditional or technical grazing (H-T/TG), moderate user organic (M-ORG), and low user traditional grazing (L-TG). Beside differences in frequency of DSTs use, user types had preferences for specific DSTs; e.g., H-NG used automatic concentrate dispensers most frequently, while M-ORG used a pasture calendar most frequently. To be successful, DST developers should better target sector needs, increase continuous education, and create DSTs adapted to diverse user types. Furthermore, as indicators are frequently used, their effectiveness would likely be improved by increasing communication about how to interpret them, providing an opportunity for low-cost DSTs.

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Spacio-temporal dynamic study of livestock's and their feeding behaviors implication on environment in the Algerian Sahara

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