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Intensive cutting management of alfalfa-based mixtures

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Introduction

- Cutting forages at an early stage of development allows for the production of high-quality forages but at the expense of yield and persistence (Bélanger et al. 1992; Dhont et al. 2004).

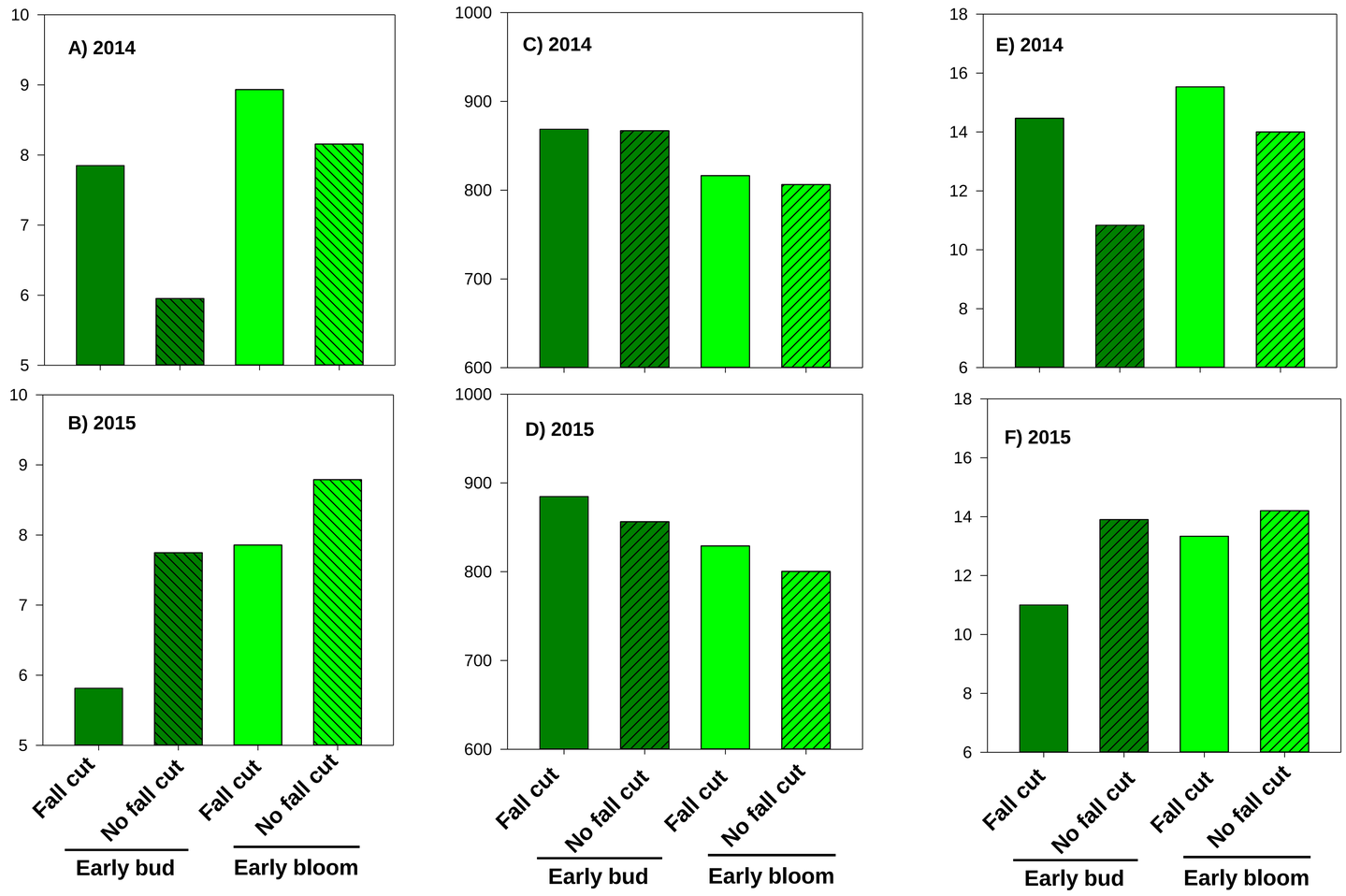
Objective

- To quantify the effect of cutting management on the forage yield and nutritive value of alfalfa-based mixtures at four sites from climatically-contrasted regions of Canada.

Materials and Methods

- **Four cutting regimes with different intensity levels**
  - Cuts at early bud with a fall cut
  - Cuts at early bud without a fall cut
  - Cuts at early bloom with a fall cut
  - Cuts at early bloom without a fall cut
- **Four alfalfa-based mixtures**
  - Pure alfalfa
  - Alfalfa + timothy
  - Alfalfa + tall fescue
  - Alfalfa + timothy + meadow fescue
- **Four sites**
  - Normandin (QC); 1359 growing degree-days (GDD, 5°C basis)
  - Saint-Augustin-de-Desmaures (QC); 1712 GDD
  - Sainte-Anne-de-Bellevue (QC); 2098 GDD
  - Agassiz (BC); 2259 GDD
- **Four replications**
- **Seeding in 2013 and measurements in 2014 and 2015**
  - Dry matter (DM) yield by cutting at a 5-cm height
  - *In vitro* digestibility of DM
  - Total digestible nutrients (TDN)
  - Milk production potential estimated with MILK2013 (Undersander et al. 2013)
  - Statistical analysis was done for each site
    - Significant effect ($P < 0.05$) of cutting regimes for most attributes
    - Little interaction between cutting regime and mixture

Results and Discussion



[1] Average of four sites

- Cutting the four alfalfa-based mixtures at the early bloom stage rather than at the early bud stage of development resulted in:
  - greater annual DM yields even though one less cut was taken (A, B)
  - lower annual digestibility of dry matter (C, D).
- A fall cut increased annual DM yield in the first post-seeding year (A) but it reduced annual DM yield the following year (B).
- Intensive cutting management of alfalfa-based mixtures with cuts at the early bud stage of development and a fall cut reduced the estimated annual milk production per hectare in the second post-seeding year (F).

Conclusion

The production of more digestible forages with intensive cutting management did not compensate for the yield loss in the first two post-seeding years in terms of estimate milk production per hectare.

References

Bélanger, G. et al. 1992. Can. J. Plant Sci. 72:793–799; Dhont, C. et al. 2004. Crop Sci. 44:144–157; Undersander, D. et al.. 2013. University of Wisconsin alfalfa/grass evaluation system – MILK 2013. UW Extension.

Acknowledgments

This research is supported in main part by Agriculture and Agri-Food Canada, and by additional contributions from Dairy Farmers of Canada, the Canadian Dairy Network and the Canadian Dairy Commission under the Agri-Science Clusters Initiative.

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