



PROJECT 2016-2018

INCREASING THE ENERGY OF CANADIAN FORAGES FED TO HIGH PRODUCING DAIRY COWS



Principal Investigator:

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Number of students trained (MSc, PhD, Post-Doc):

N/A

TOTAL BUDGET

\$866,817

INVESTMENT PARTNERS



Agriculture and Agri-Food Canada



OBJECTIVE:

The overall objective was to produce forages more balanced in terms of readily-available energy (sugars) and rapidly degradable proteins to reduce the needs for concentrates and corn silage, and to increase the proportion of milk produced from forages in a cow's diet.

KEY OUTCOMES:

- Two alfalfa populations with greater sugar concentrations were developed under controlled conditions. They will be evaluated under field conditions and used to develop a new alfalfa cultivar with a greater sugar concentration for Canadian farmers.
- Twenty-six genes related to sugar concentration in alfalfa were identified. They will be used to identify plant material with superior sugar concentration and accelerate the development of cultivars with this trait.
- Three improved management practices were identified to produce forages with a better sugar to protein ratio that could result in improved animal productivity:
 - Forages at the first cut rather than at the second and third cuts have a greater sugar to protein ratio, regardless of the forage mixtures and cutting management strategies;
 - Cutting mixtures at the early bud stage of alfalfa results in a greater forage sugar to protein ratio than cutting at the early flowering stage.
 - Increasing the proportion of timothy or tall fescue in the seed mixture results in a greater forage sugar to protein ratio.

LINK TO KTT TOOLS

Website: agrometeo.org

- A new web-based decision support tool was developed on Agrométéo Québec. Easy-to-access and local information on the optimum time for cutting forages to maximize forage digestibility and yield has been provided to Quebec dairy farmers since April 2019.