# Article information:

Determination of nitrogen dilution curves of corn, canola, and spring wheat in Canada using classical and Bayesian approaches - ScienceDirect
<https://www.sciencedirect.com/science/article/pii/S1161030122000296>

# Article summary:

1. New or refined critical, minimal and maximal N dilution curves were determined for corn, canola, and spring wheat in Canada using classical and Bayesian approaches.

2. The study showed the strong interaction between plant N and water status, explaining the lower efficiency of N fertilizer in western than in eastern regions.

3. The use of a larger dataset than in previous studies allowed for the determination of new critical, minimum and maximum N dilution curves with a larger domain of validity.

# Article rating:

May be slightly imbalanced: The article presents the information in a generally reliable way, but there are minor points of consideration that could be explored further or claims that are not fully backed by appropriate evidence. Some perspectives may also be omitted, and you are encouraged to use the research topics section to explore the topic further.

# Article analysis:

The article “Determination of nitrogen dilution curves of corn, canola, and spring wheat in Canada using classical and Bayesian approaches” is an informative piece that provides insight into the dynamics of crop nitrogen (N) uptake to optimize N management and increase the sustainability of crop production. The article is well-written and provides detailed information on the methods used to determine new critical N dilution curves for the main annual field crops used in Canada (spring wheat, canola and corn). It also presents data from a wide range of pedoclimatic conditions, crop management practices, and cultivars across Canada.

The article is reliable as it provides evidence to support its claims by citing previous studies conducted on winter wheat as well as other sources such as Ontario Ministry of Agriculture Food and Rural Affairs (Omafra), Canola Council of Canada (2012), Centre de référence en agriculture du Québec (Craaq), Salette & Lemaire (1981), Lemaire et al., 1992 & 2019). Furthermore, it presents both classical statistical approach involving two steps to determine critical points used to calculate parameters for the critical N dilution curve as well as a one step Bayesian approach which allows estimating 95% credibility intervals for calculated critical curves.

However, there are some potential biases that should be noted when reading this article. Firstly, it does not present both sides equally; while it does provide evidence from previous studies conducted on winter wheat to support its claims regarding spring wheat’s critical N curve being inadequate for spring wheat growth conditions in eastern Canada, it does not provide any counterarguments or evidence from other sources that may contradict this claim. Secondly, there is no mention of possible risks associated with using these new curves or how they may affect crop production if applied incorrectly. Lastly, there is no discussion on how these results may be applied practically or what implications they may have on agricultural practices in Canada.

In conclusion, this article provides reliable information regarding determination of nitrogen dilution curves for corn, canola and spring wheat in Canada using classical and Bayesian approaches but should be read with caution due to potential biases mentioned above.

# Topics for further research:

* Nitrogen management in crop production
* Risks associated with nitrogen dilution curves
* Practical applications of nitrogen dilution curves
* Implications of nitrogen dilution curves on agricultural practices
* Counterarguments to nitrogen dilution curves for spring wheat
* Effects of nitrogen dilution curves on crop production

# Report location:

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