FERTIWEB® : A TOOL FOR CALCULATION OF FERTILIZER RATE FOR DIFFERENT TECHNICAL REQUIREMENTS

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Policies to reduce water pollution from nitrates require farmers in vulnerable area to detail their nitrogen fertilizer rate calculation method. Software is a good way to meet this requirement.
But farmers are also looking for relevant tools to help them calculate their N dose as precisely as possible and if possible by integrating the climate of the year.

Arvalis and Aurea built a tool to calculate fertilizers rate N PKMgS and lime.

Three different levels of N calculation method are proposed :

FERTIWeb® Basic

> *All crops /France*

Technical specifications of the regional reference decrees

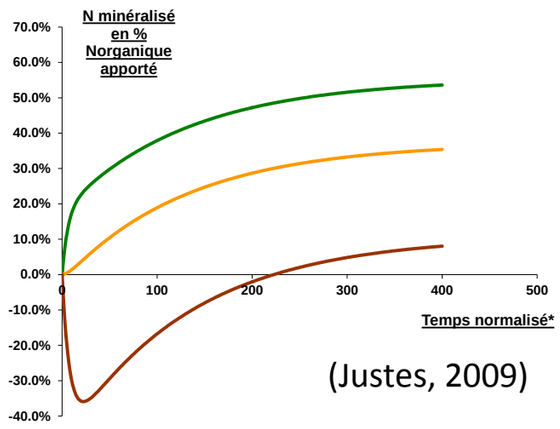
The minimum required

FERTIWeb® Technic

> *All crops /France*

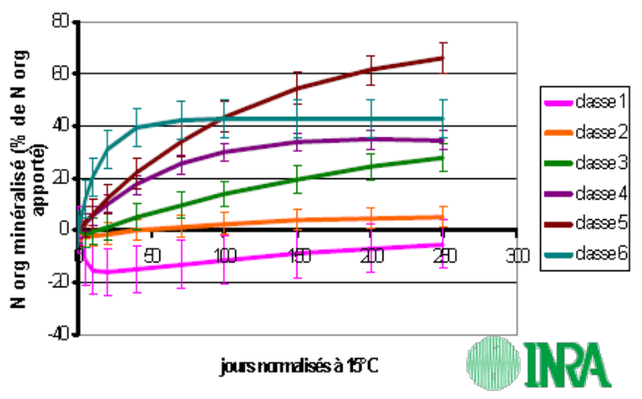
- Using the forecasted balance sheet method according to the principles recognized within the COMIFER (COMIFER, 2013)
- From results of field experimentation
- Integrating model functions recently improved

Richness of the setting
(soil type, organic fertilizer,)



(Justes, 2009)

Mineralization of catchcrop residues



Mineralization of organic fertilizer

Fixed regional scenarios of standardized days

FERTIWeb® Dynamic

> *Wheat, barley, maïze / France*

Modèle CHN
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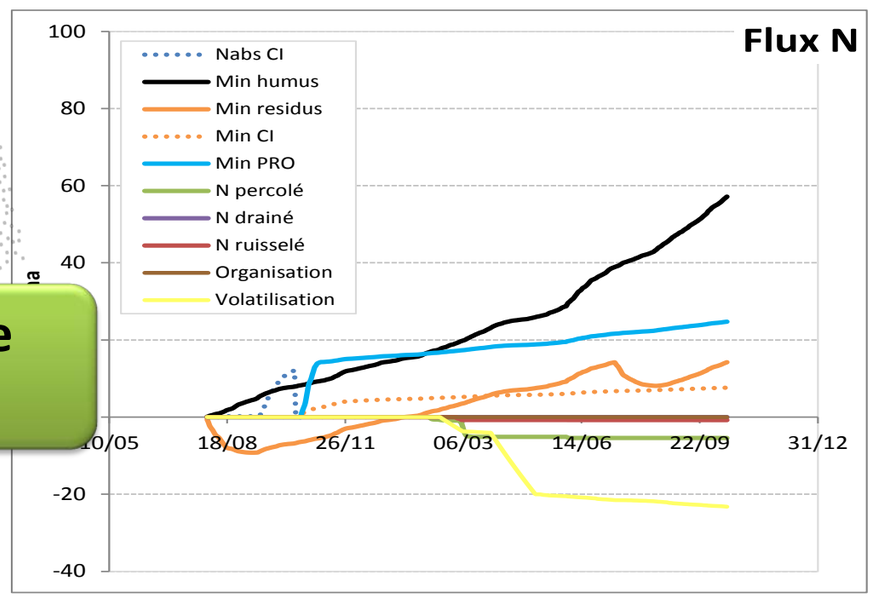
- Mechanistic crop model for wheat and maize
- formalism consistent with the tools carried by the RMT Fertilization and Environment
- "CHN" simulates daily flows of carbon (C), water (H) and nitrogen (N) into a soil-plant-atmosphere continuum
- Exchange in web service with CHN

Updating N and Water balances

Actual data base weather

Dynamic N Dose (updating)



- More precision
- Better adaptation to various contexts

CONCLUSION

The relevance of results is linked to the models quality and parameterization. Implementation nevertheless requires support to warn on the effects of each input data to the calculated nitrogen rate.
Improvements can be expected from the use of field sensors to specify complementary N fertilization during cultivation.

References :

- COMIFER 2013. Calcul de la fertilisation azotée – guide méthodologique pour l'établissement des prescriptions locales. COMIFER Edition 159 p.
- SOENEN B., et al., 2017. Dynamisation of the nitrogen balance method with "CHN" crop model. Poster, Innovative Solutions for Sustainable Nitrogen Management, June 26-28 in Aarhus, Denmark.
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