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N regulations applied for grass seed crops in France:

Rules context and studies orientations

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Context: the french rules

- ❑ « Nitrates Directive » since 1992
- ❑ ... and now, « BCAE » (PAC 2006)
(Good Agricultural and Environmental Conditions)
 - *New Subsidies conditions (€/ ha)*
- ❑ Main points:
 - *Delimitation of « sensibles areas »*
 - *Codification of « Good agricultural practices »*
 - *Definition of regional « Actions programs »
(dependant of local authority - departement)*
 - *Control programs (+ evaluation of efficacy)*



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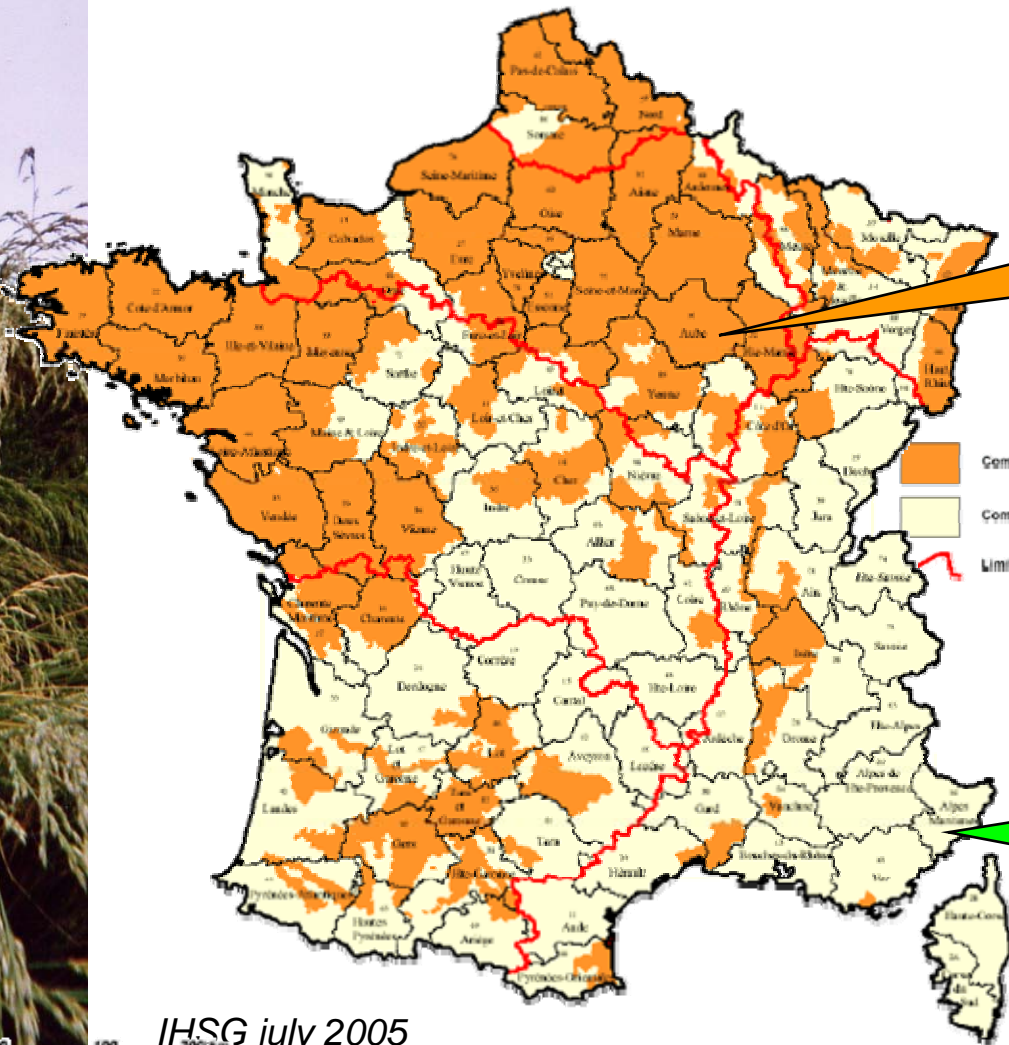
MINISTÈRE DE L'ÉCOLOGIE ET DU DÉVELOPPEMENT DURABLE

Nitrates Directives

DIRECTIVE NITRATES

Délimitation des zones vulnérables en 2003

Sensitive areas (3rd prog.)



Actions programs
(COMPULSORY)

Communes classées en zones vulnérables
 Communes non classées en zones vulnérables
 Limite de bassin agencé de l'eau


Source: Direction de l'Eau, Bureau de la Commission des Nitrates-Algèrès (juin 2003). Tableau de synthèse contre la Pollution

Good agric.
practices
(VOLUNTARY)

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Basic points of rules (valuable for all crops)

- ❑ N forecasting plan (calculated for each crop)
 - ❑ « N supplies paper book » (real fertilization registered)
-  2 essential documents for farmer
- ❑ Actions Plan (« Good Agricultural Practices»)
 - *N balance respect per crop*
 - *Prohibited period for N applications*
 - *Limitation of N organic (170 kg / ha / year)*
 - *Specific restrictions (0 N near river,...)*

 - *+ complementary local rules*

Basic points of rules

- Complementary local rules :
 - *Possibility to use*
 - « N balance method »
 - or « N reference rate» (FNAMS,)
 - *Obligation to split applications (2 mini ...)*
 - *Specific adaptations for some crops*
 -

Forecasting Plan for N supplies (example)

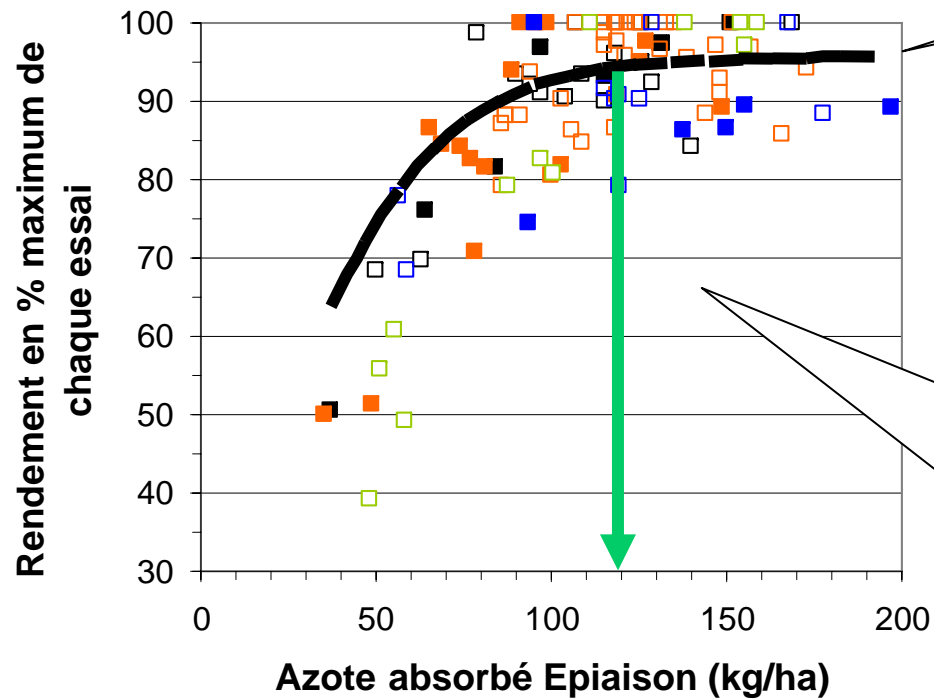
- ☐ Calculated on field scale for each crop
- ☐ **N balance** method (kg N / ha)

1 - N requirements for crop	—————	170
+		
2 - N soil non available	—————	20
—		
3 - N soil available (end winter residues)	—————	45
—		
4 - N from minéralisation O.M	—————	55
	—————	
= N fertilizer (kg / ha)	—————	90



N requirements determination Method

Example for tall fescue



logistic model

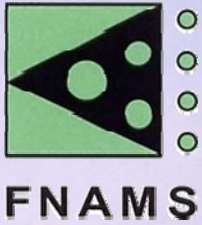
N requirements
=
If for 10 kg N/ha
absorbed more
yield increase
< 0.5 %

120 kg N



N requirements determination

Species	N absorbed (Kg / ha)		Total requirements (kg N / ha)
	Aerial parts (measured)	Root parts (estimated)	
Cooksfoot	140	+ 50	= 190
Per. Ryegrass	130	+ 40	= 170
Tall fescue	120	+ 40	= 160
Red fescue	110	+ 40	= 150
Italian ryegrass	80	+ 30	= 110

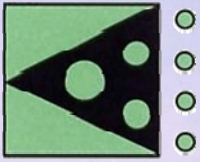


Comparaison FNAMS advices / actual practices for spring applications

Species	Total needs of crop (kg N/ha)	Advice N quantity (kg N / ha)	Farmers practices
Cooksfoot	190	150 (2 applic)	~idem
Perenial Ryegrass	170	130 (2 or 3 applic)	~idem
Tall fescue	160	90 (2 applic)	+ 30 to 60 kg
Red fescue	150	90 (2 applic)	~idem
Italian ryegrass	110	80 (1 applic)	+ 20 to 30 kg

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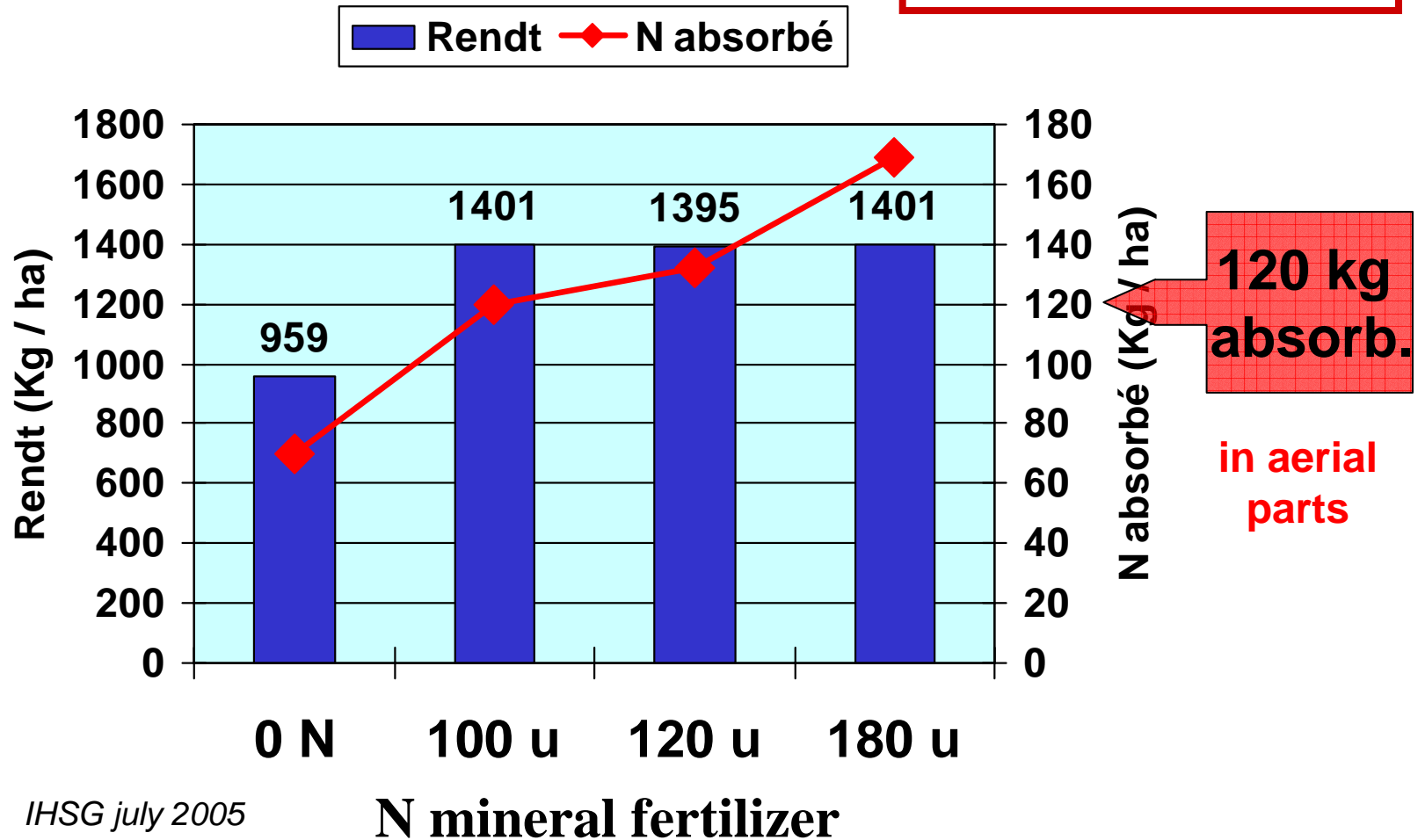


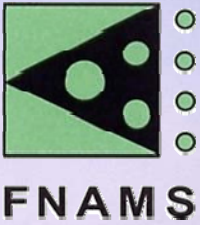
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Example for tall fescue (A1)

- average 4 trials: 32, 81, 10
- 2003 et 2004

Supply N 100 kg
= sufficient





Actual FNAMS studies

- ❑ To help seed growers to **respect** national and local rules and **justify** their practices
- ❑ To test "**N balance**" method on grass seed crops

1 - N requirements

+

2 - N soil non available

—

3 - N soil available

—

4 - N from minéralisation O.M

Which are the
« good »
values ?
(Ref FNAMS)

Estimated or
measured
values:

Which
précisions ?

= **N fertilizer** (Kg / ha)

Overview...

- ❑ To adapt the “N balance method” for each forage crop and demonstrate the utility and efficiency

- ❑ But...
 - “ Seed growers are afraid to be limited by N values ! ” (authorities references)