BENEFITS OF GROWING ALFALFA

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Workshop on "Plant Proteins – Agronomic practices and environmental benefits"
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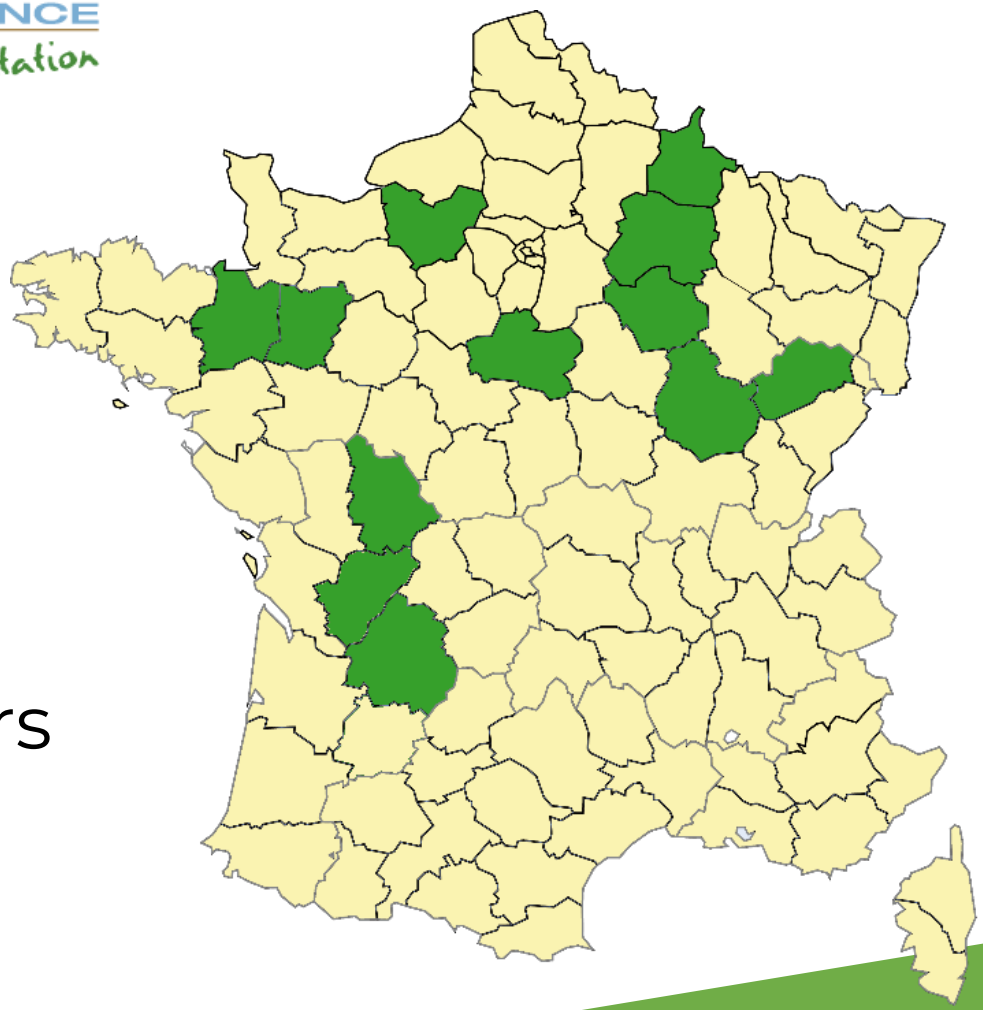
Who are we?

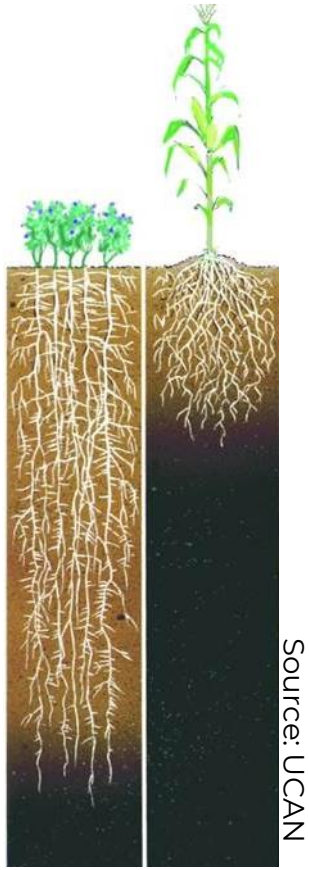
- 100% alfalfa dehydration companies in France
  - 27 dehydration factories
  - 10 000 farms

- Member of CIDE (Commission Intersyndicale des Déshydrateurs Européens - European Dehydrators' Working Group)



Specific environmental benefits of alfalfa (1/3)

- Cycle of Nitrogen
  - Fixation of deep nitrates
  - Proteins synthesis
  - Redistribution in upper layers (30-40cm)
  - Up to 2 years of nitrogen for following crops
  - Water quality increased as [nitrates] is lowered
- Carbon storage
  - Organic form
  - Lower soil acidity (source: Déshyouest 2012)



Source: UCAN

Specific environmental benefits of alfalfa (2/3)

- Treatment Frequency Index (TFI)
  - Chemical weed management using lower doses
  - Medium TFI: 0,5
  - Study in progress: TFI = 0,25 with 88% efficiency
  - Can also be 0 depending on agronomic practices

- Natural Weed Management
  - High covering power + pluriannual + several cuts/yr
  - Excellent crop for organic conversion
    - Well integrated into Organic rotation

Specific environmental benefits of alfalfa (3/3)

- Ecological focus area
  - Only legume crop eligible due to 2017 regulation changes (EU 2017/1155)

- Biodiversity:
  - Strong biodiversity impact
  - Honey plant

Protein production

- In 2017 :
  - Soy (1)
  - 2,5 T/ha, 38% proteins
  - 0,95 T of proteins / ha

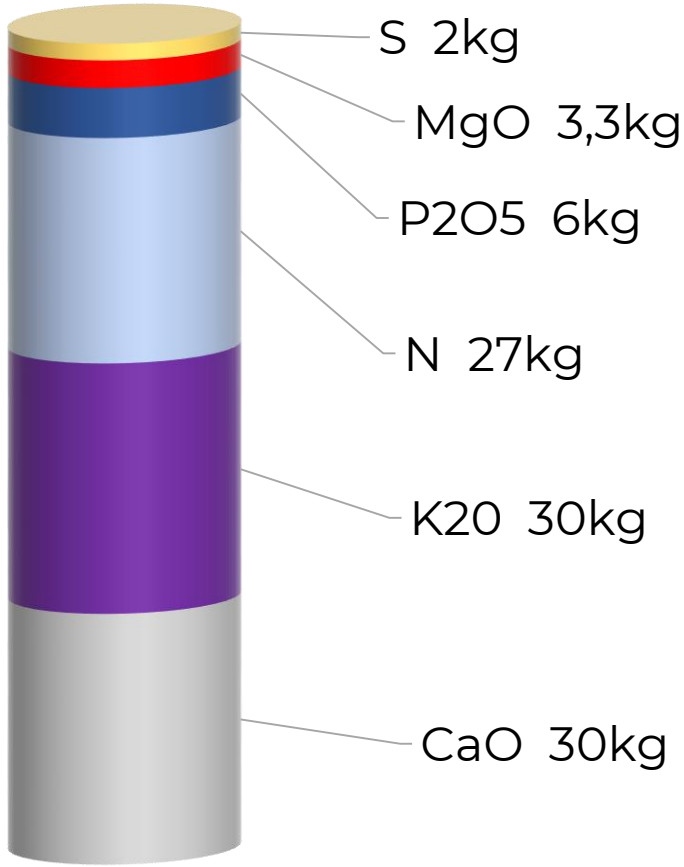
  - Alfalfa (2)
  - 12,5 T/ha, 18% proteins
  - 2,25 T of proteins / ha

x 2,37

Sources: (1) Coop de France Nutrition Animale
(2) Coop de France Déshydratation

Nutrition management in alfalfa production

- No nitrogen import required
- S, P, K and Mg are required
- S = important for high protein %



Exportation for 1T of dried matter

Source: INRA

Suitable regions for alfalfa production

- Almost everywhere
  - Non acidic soil
  - Non hydromorphic soil

  } Red clover is a good alternative

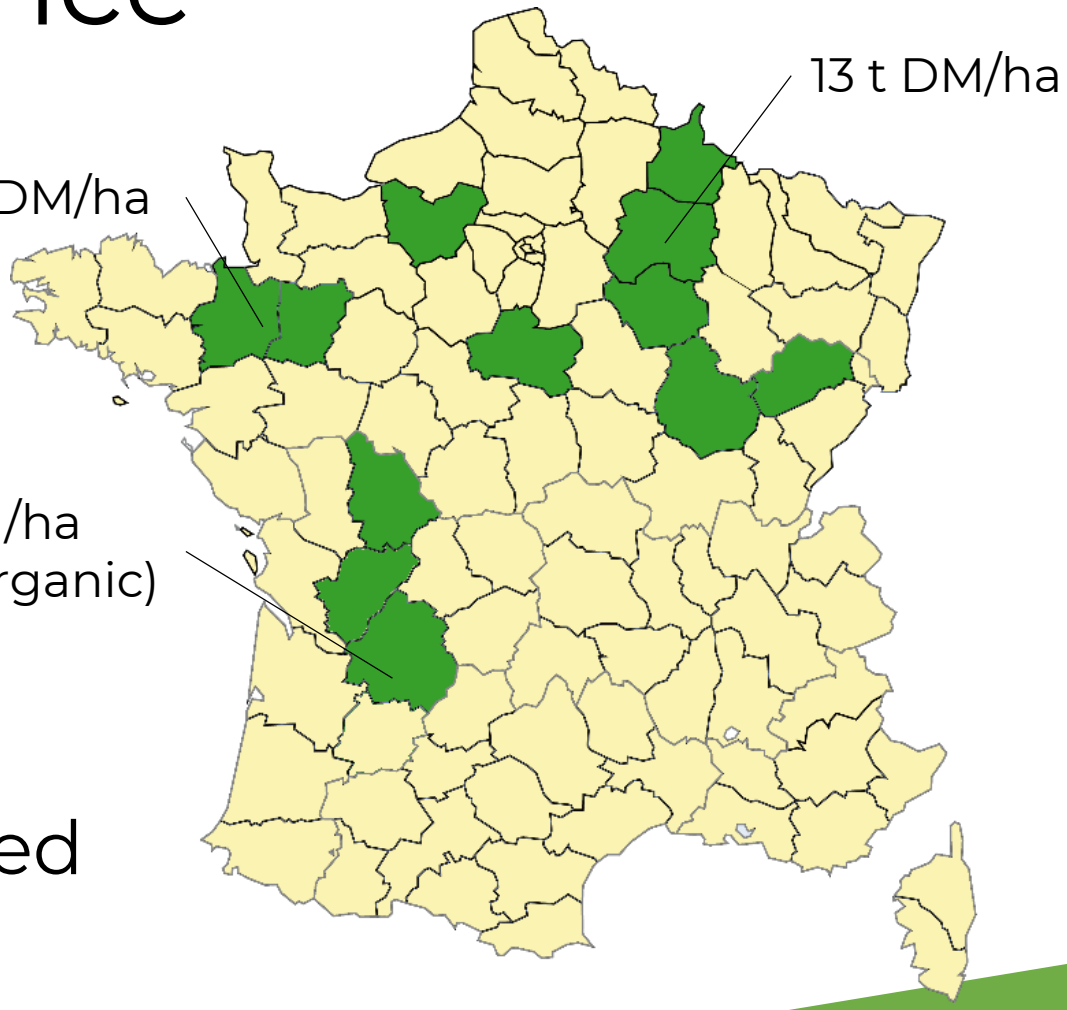
- Regular water requirement but very low sensitivity to hydric stress

- Mild winter = more cuts = higher dried matter production (>30 t DM/ha)

Source: INRA

Specific case: France

- 2018
  - 850kt DM
  - 66 720 ha
  - 12,7 t DM/ha
  - 7% organic



- Only dehydrated
- No stats on non-dehydrated

Economical benefits

- Savings:
  - Mechanical usage = 95€/ha (energy + human resources)
  - Residual nitrogen = 60€/ha
  - No insurance protection against hailstorms = 25€/ha

- Challenges:
  - Lower price compared to wheat, rapeseed…

Source: CDER, 2012

Economical benefits

	Wheat	Spring Barley	Rapeseed	3 crops mean	Alfalfa
T/ha	8,2	7,2	3,8	-	12,8
€/T (non-organic)	205	205	485	-	85
Direct aid (€/ha)	-	-	-	-	112
Proportional charges (€/ha)	590	435	555	-	445
2nd sewing cost (€/ha)	40	-	-	-	-
Gross margin (€/ha)	1050	1040	1285	1125	755
Alfalfa specificity (€/ha)	-	-	-	-	180
Restored margin (€/ha)	-	-	-	-	935

Source: CDER, 2012

Opportunities and challenges in dairy production

- Challenges :
  - Schools only teach soy/rapeseed + corn
  - Price slightly higher than rapeseed
  - Conservation (dehydrated excluded)
  - Hard to use in a 5-7 years crops rotation (usually better in a 9 years crops rotation)
- Opportunities:
  - Better Ω_3 / Ω_6 than rapeseed (1)
  - Better Cheese transformation
  - Animal wellbeing (digestibility, fertility, lameness…)
    - Better longevity => higher economical rentability
  - Protein autonomy
  - Protein + energy (cellulose + fibers + low cluttering) (dehydrated)
  - Volatile rapeseed price
  - Non-GMO demand growing
    - Better price (starting at +20€/1000L)

(1) Source: Arvalis, 2017

Different forms of use on farm

- Dehydrated (as pellets or hay)
  - Price
  + No decay
  + Calibrated product (constant quality)

- Silage
  - Decay
  - <performance (vs dehydrated) at same weight (cluttering)
  + Self production

THANK YOU

Did you hear that ladies? We're going to have great alfalfa to gather pollen from! It's amazing!

la coopération agricole
produisons l'avenir