atf animal task force
A European Public-Private Partnership

EAAP
European Federation of Animal Science

2nd one-day symposium
of the Animal Task Force & the EAAP Commission on Livestock Farming Systems

GHG emissions mitigation in practice – at farm gate : feed systems, increased soil carbon sequestration and energy production

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Young farmer –

CEJA vice-president

Permanent grasslands

⇒ Respect of optimal livestock level for no overgrazing
Rotatiional grazing
Dairy cow : 2,5 UGB/ha (spring), variable in function of rains in the summer / Beef cow : 4 UGB/ha

! Droughts

Irrigation?
Trees?

- Carbon sequestration

- Production of rich forage (crude protein in the spring (20% protein, 100 g DVE), sugars with the sun), with lower milk congestion unit (=1,11) (< corn silage (=1,25) and grass silage (= 1,33))




Lucern

- No nitrogen fertilisation

Production even if droughts!

- Higher content of crude protein in lucern (20% protein, 70 DVE)




Temporary grasslands

= mix of varieties of grasses and leguminous plants
> 3 years

- Carbon sequestration from > 3 years
- Lower nitrogen fertilisation (80 N <<<< 140 N + 80 N + 50 N)

- Higher content of crude protein in the forage

➔ mean % protein for all harvests : 19%, 80 DVE
➔ DVE 1st cut, 2022 = 93 vs. classical forage (only R-G) = 61

! Droughts
But more resistant than a rye-grass

Irrigation?
Trees?

Forage intercrops

= mix of cereals (triticale & oat) and leguminous plants (pea, vetch)

Sowing in September ➔ Harvest in the Spring

- No nitrogen loss from the previous crop (wheat)
- Low nitrogen fertilisation (80 N)
- Production of forage : less rich than grasses and leguminous

➔ Ok for young animals and beef cows

No tillage practices

After 3-4 old temporary grasslands or forage intercrops for the soil preparation for sowing of corn silage
Less carbon release

Not possible in each parcel
Causes :

- Drought

Solutions :

- Earlier harvest of forage intercrops
- Early first passage of the machine on all the parcels

… New things need trial-and-error and importance of the climate!





Home-made concentrates

= mix of cereals (triticale, oat) & one leguminous plant (pea)

Sowing in September ➔ Harvest in July-August ➔ Rolling ➔ Home-made concentrates (goal : 16% protein) for young animals

- Low nitrogen fertilisation
- Less protein importation

➔ Example of 2 parcels

0 N	**80 N**
6,6 t/ha, 17% protein (1,12 t protein/ha)	8 t, 14,5% protein (1,16 protein/ha)
➔ 6,6 t concentrate	➔ 8,8 t concentrate (with 10% soja) + 2,2t with 80 N = 1777€/8,8t Soja = 384€ for 800kg ==> 982€/t extra

Manure

BULLETIN D'ANALYSE D'AMENDEMENT ORGANIQUE. (BA N° AO08/0418)

Date d'échantillonnage: 31/07/2008 — Références de l'échantillon: Lisier - vaches laitières — N° d'analyse: AO08/0418
Date de réception: 31/07/2008 — Catégorie: Lisier de bovins
Date d'envoi: 12/08/2008 — Echantillonneur: Stéphane Veragten
Dates d'analyses: Du 31/07/2008 à 12/08/2008 — Etat de l'échantillon à la réception: Bon

Déterminations		sur matière fraîche		sur matière sèche		Statistiques ** (Moyenne
Matière sèche		5,5	%			9,69 %
Cendres totales		1,79	%	32,67	%	29,99 %
Cendres insolubles		0,55	%	10,04	%	10,65 %
Chlorure		0,07	%	1,32	%	1,17 %
Matière organique totale		37	kg/T	67,33	%	70,01 %
Azote ammoniacal	N-NH4+	1,38	kg/T	2,52	%	2,18 %
Azote organique	N	1,48	kg/T	2,69	%	2,3 %
Azote total	N	**2,86**	kg/T	**5,21**	%	**4,36** %
Phosphore						

Liquid manure
➔ 2,86 UN
whose 1,38 directly accessible

Allows complete fertilisation of forage, partial fertilisation of crops

BULLETIN D'ANALYSE D'AMENDEMENT ORGANIQUE. (BA N° AO21/0095)

Date d'échantillonnage: 3/06/2021 — Références de l'échantillon: Fumier GIP — N° d'analyse: AO21/009
Date de réception: 3/06/2021 — Catégorie: Fumier de bovins
Date d'envoi: 7/07/2021 — Echantillonneur: Arnaud Toegers
Dates d'analyses: Du 3/06/2021 à 7/07/2021 — Etat de l'échantillon à la réception: Bon

Déterminations		sur matière fraîche		sur matière sèche		Statistiques ** (Mo
Matière sèche		18,8	%			22,68 %
Cendres totales		5,68	%	30,16	%	32,04 %
Cendres insolubles		2,84	%	15,09	%	18,71 %
Chlorure		0,38	%	2,01	%	10 %
Matière organique totale		132	kg/T	69,84	%	67,96 %
Azote ammoniacal	N-NH4+	0,010	kg/T	0,005	%	0,14 %
Azote total	N	**6,45**	kg/T	**3,42**	%	**2,51** %

Solid manure
➔ 6,45 UN
whose 0,01 directly accessible
Progressive availability of the N (on 3 years)
Depends on the quality of the soil ➔ the « power of mineralisation »

Biomethanisation (a project)

Decrease of N2O and CH4 release

Complete fertilisation of crops possible

1 ton solid manure ➔ 0,36 ton liquid digestate N of the original manure (40-50% mineral) & 191 kWh (value of the energy?)
1 ton liquid manure ➔ 0,58 ton liquid digestate & 51 kWh

1 ton of manure + corn silage (max 20%) + green organic waste ➔ 900 kg liquid digestate 6 UN (mostly available) + 5000 MWh

= Solution for small and middle-size farms & share of work and responsabilities

Thank you!

Questions?

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