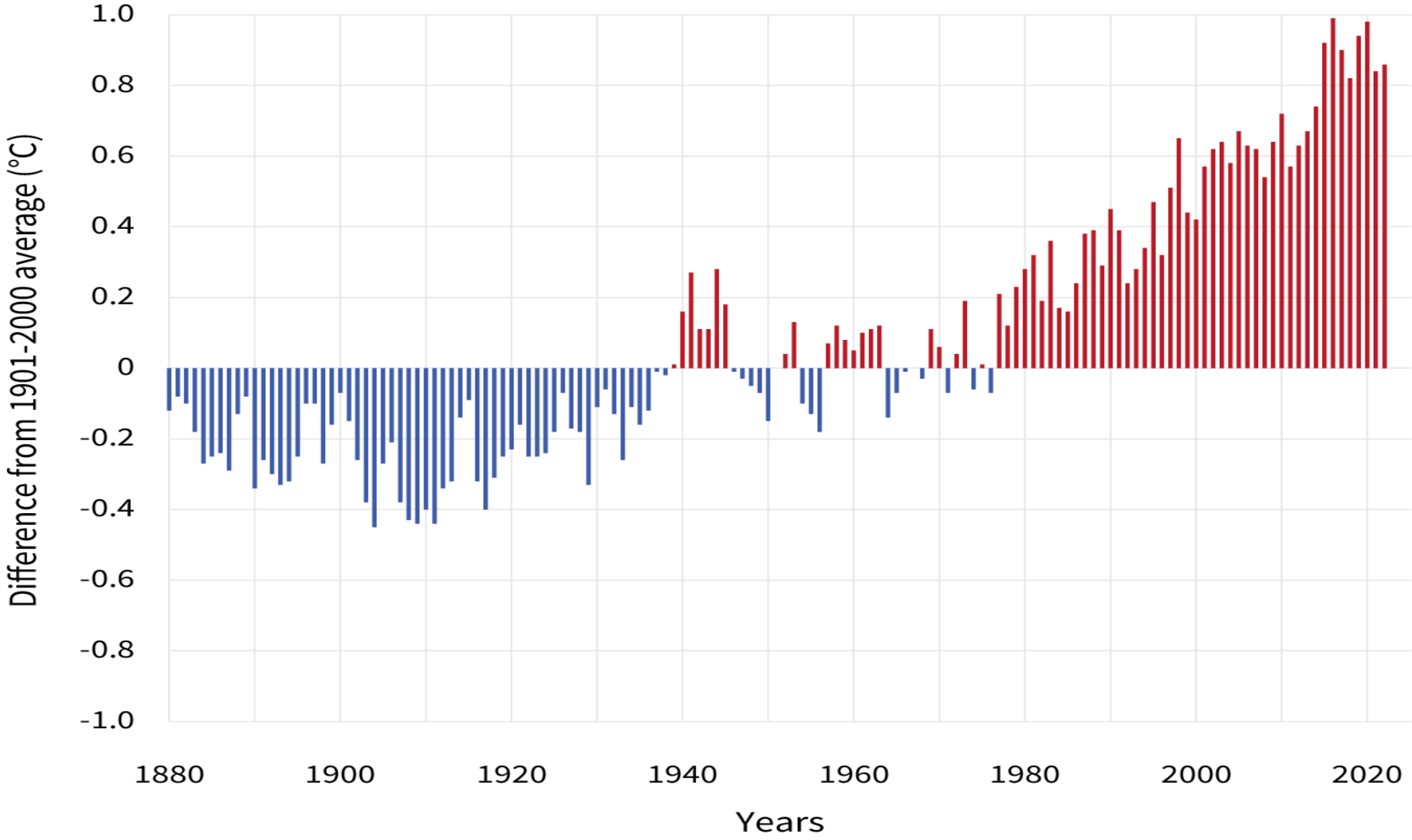
GLOBAL AVERAGE SURFACE TEMPERATURE



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VLAIO LA-Traject KLIMGRAS

Feed intake and milk production of dairy cows fed a ration with ensiled tall fescue compared to ensiled perennial ryegrass

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EAAP – Lyon - 31/08/2023

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Introduction

Research question:

- **Is there a difference in dry matter intake and milk yield of dairy cows fed with ensiled tall fescue or perennial ryegrass?**

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Material and Methods

Experimental design

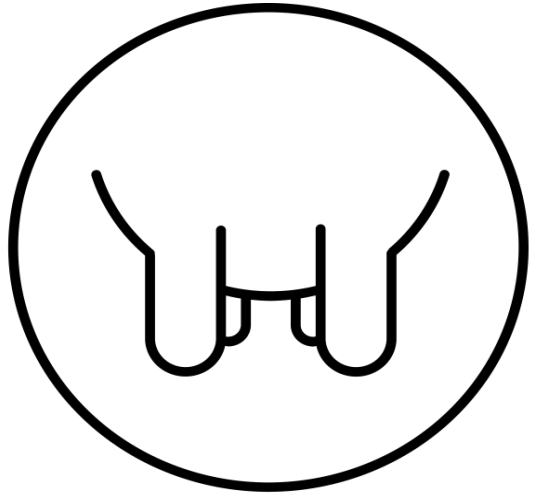
- Balanced Latin square
- 30 cows
- 3 treatments, 3 periods, 4 weeks each

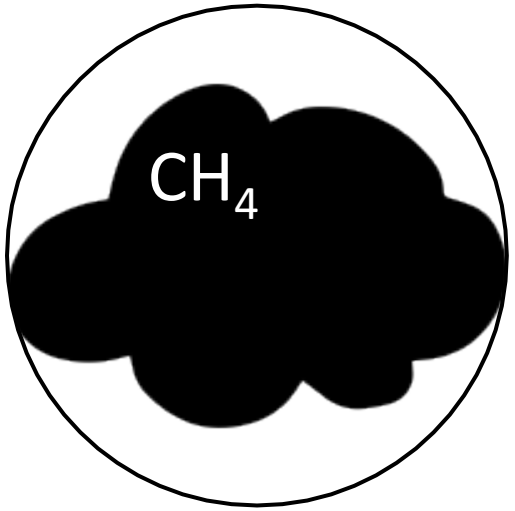
Exp. 1	GROUP A		GROUP B		GROUP C	
	A1	A2	B1	B2	C1	C2
Period 1	Lp2	Lp2	Fa	Fa	Lp4	Lp4
Period 2	Fa	Lp4	Lp4	Lp2	Lp2	Fa
Period 3	Lp4	Fa	Lp2	Lp4	Fa	Lp2

Lp2: diploid perennial ryegrass / Lp4: tetraploid perennial ryegrass / Fa: tall fescue

Material and Methods

Sampling and measurements





Material and Methods

Diet composition

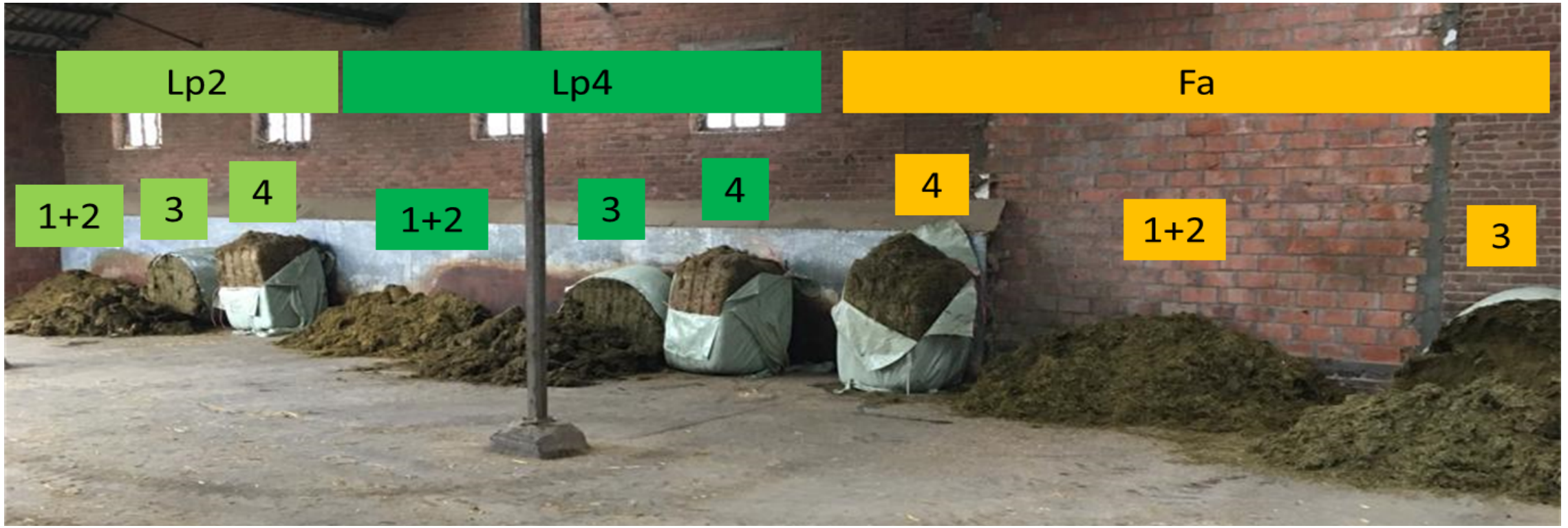
- PMR in RIC bins
- Balanced and starchy-rich concentrate in automatic feeders and Greenfeed
- 60% grass silage / 30% maize silage / 10% pressed beet pulp
- 60/40 roughage to concentrate ratio

% of DM	Lp2	Lp4	Fa
Grass silage	36,8	36,0	34,6
Maize silage	18,7	19,3	19,1
Pressed beet pulp	5,7	5,9	5,8
Soybean	5,1	5,1	5,1
Balanced conc.	21,1	20,9	22,0
Starchy rich conc.	6,6	6,6	7,0
Maize meal	5,7	5,7	5,6
Urea	0,2	0,2	0,2

Material and Methods

Diet composition

- Pre-wilted grass silage:
  - 4 cuts of 2021
  - Fed in proportion to yield/ha



Material and Methods

Chemical composition (g/kg of DM, unless noted):

	Lp2	Lp4	Fa
DM%	44	44	48
Crude Protein	158	159	163
Crude Fibre	183	176	177
Crude Ash	82	82	83
Crude Fat	29	30	27
Starch	182	185	188
Sugar	48	43	41
NDF	331	324	335
OEB_{91}	6	7	11
DVE_{91}	97	97	95
NE_L	7,0	7,0	6,7
FOS_{91}	598	603	575

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Results

Feed intake

kg	Lp2	Lp4	Fa
DMI_T	22,8^{a}	22,9^{a}	21,9^{b}
DMI_R	14^{a}	14,1^{a}	13,2^{b}
DMI_C	8,8^{a}	8,8^{a}	8,8^{a}

Intake in relation to energy and protein requirement

	Lp2	Lp4	Fa
DVE_{91}%	104^{a}	103^{a}	104^{a}
NE_L%	103^{ab}	105^{b}	100^{a}

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Results

Animal performance

	Lp2	Lp4	Fa
Yield (kg)	32,3^{a}	32,8^{a}	31,0^{b}
FPCM (kg)	34,6^{a}	35,5^{a}	32,8^{b}
Fat(%)	4,6^{a}	4,5^{a}	4,6^{a}
Protein (%)	3,8^{a}	3,8^{a}	3,8^{a}
Lactose (%)	4,6^{a}	4,6^{a}	4,6^{a}
Urea (mg/L)	246^{a}	228^{b}	295^{c}
Feed Efficiency	1,55^{a}	1,55^{a}	1,53^{a}

Results

Methane emissions

	Lp2	Lp4	Fa
CH_4 (g/day)	518^{a}	511^{a}	517^{a}
CH_4/DMI (g/kg)	22,8^{a}	22,4^{a}	23,7^{b}
CH_4/FPCM (g/kg)	15,2^{ab}	14,6^{a}	15,8^{b}

Conclusion

- **DMI** and **MY** are lower when fed tall fescue
- **CH4** emissions were **higher** per kg FPCM and kg DMI when fed tall fescue

Discussion

- Is tall fescue an alternative for perennial ryegrass?
- Which difference in MY is acceptable?
- New varieties of tall fescue and perennial ryegrass have been bred, their is improvement in both species so the gap between both stays the same

Future research

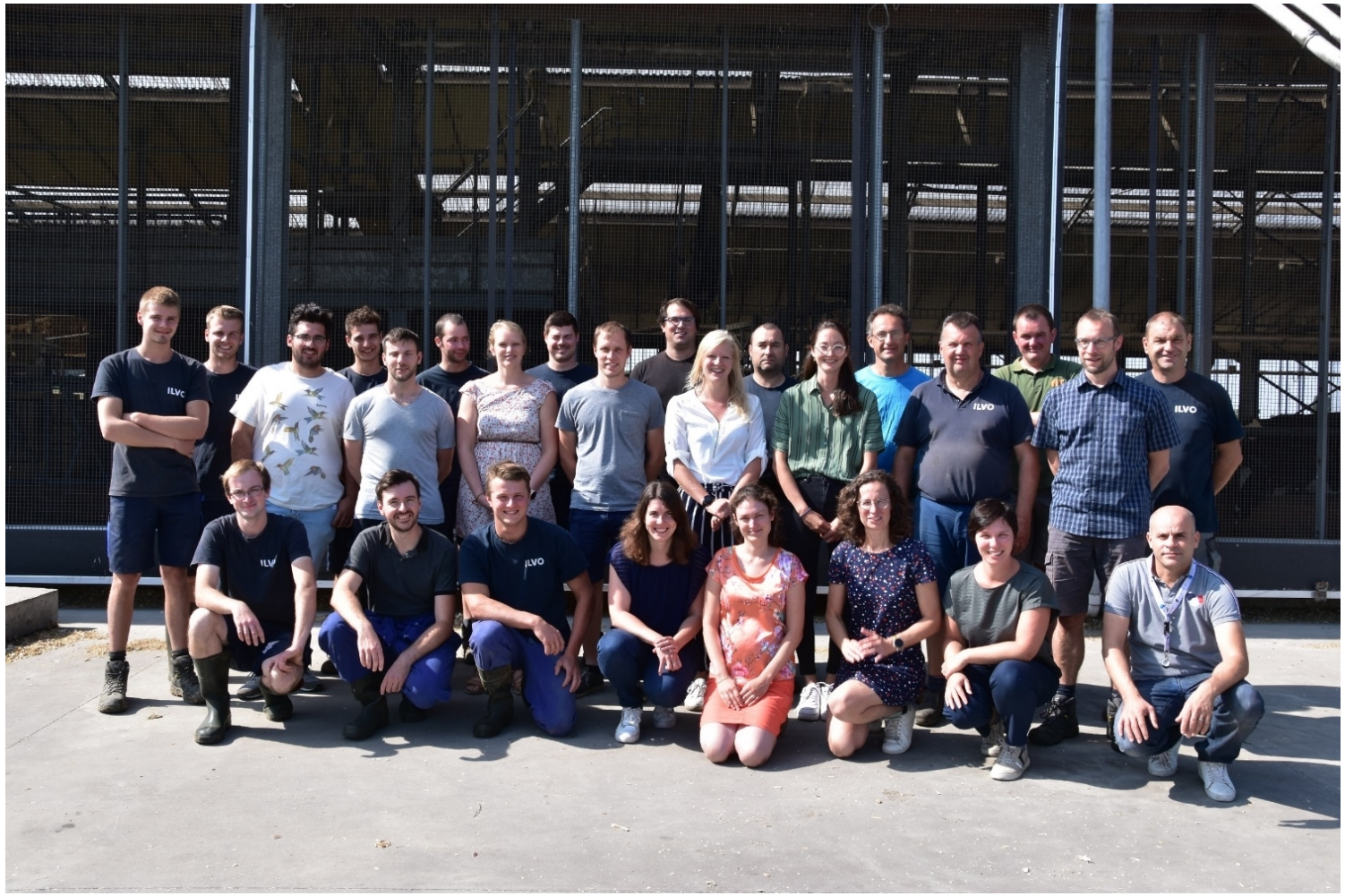
- Similar trials have been set up in the VLAIO KlimGras project

- What will be the effect when clover is added to replace a part of the pre-wilted grass silage?
  - Trial has been performed in 2022

Acknowledgements

Thanks to all of the sponsors of the KLIMGRAS project

Acknowledgements



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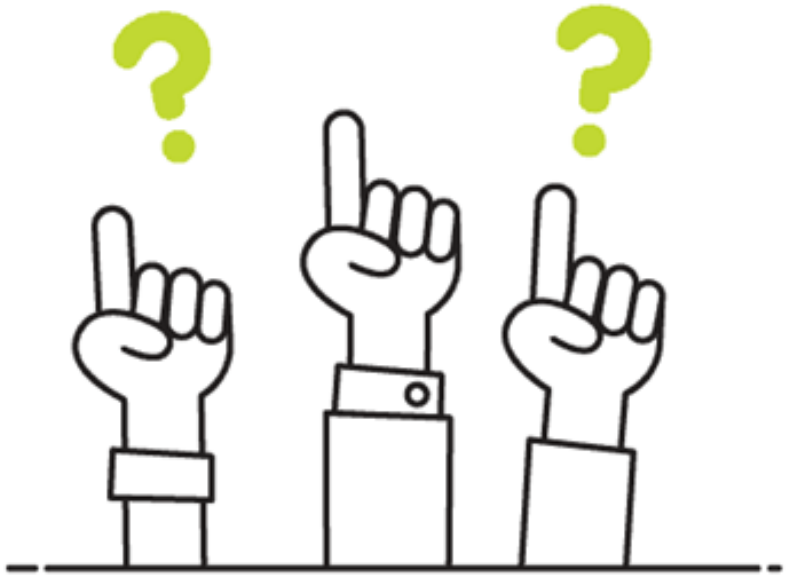
Thank you for your attention



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