



No kid, no milk? Trials about induction of goat lactation without gestation

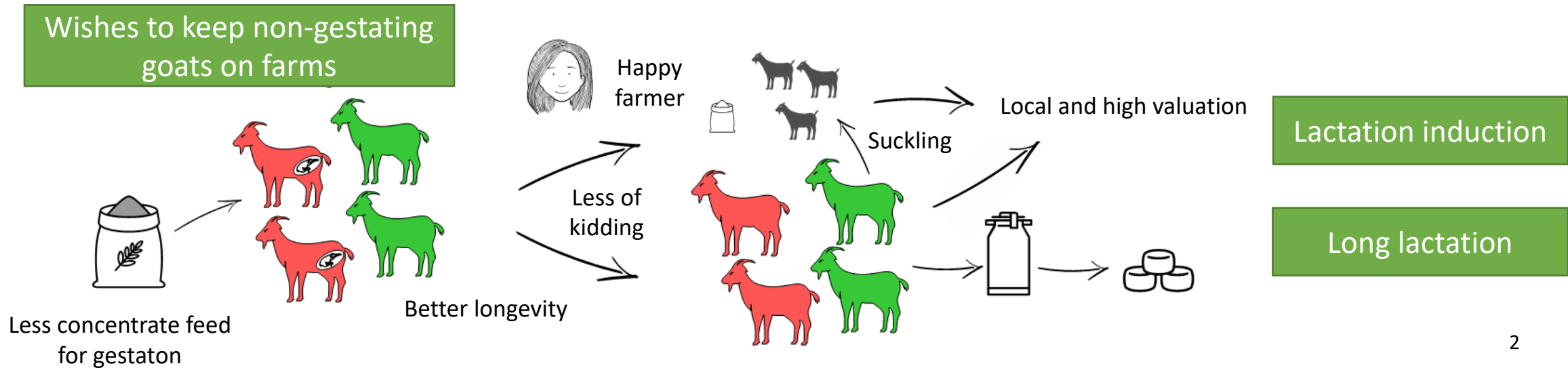
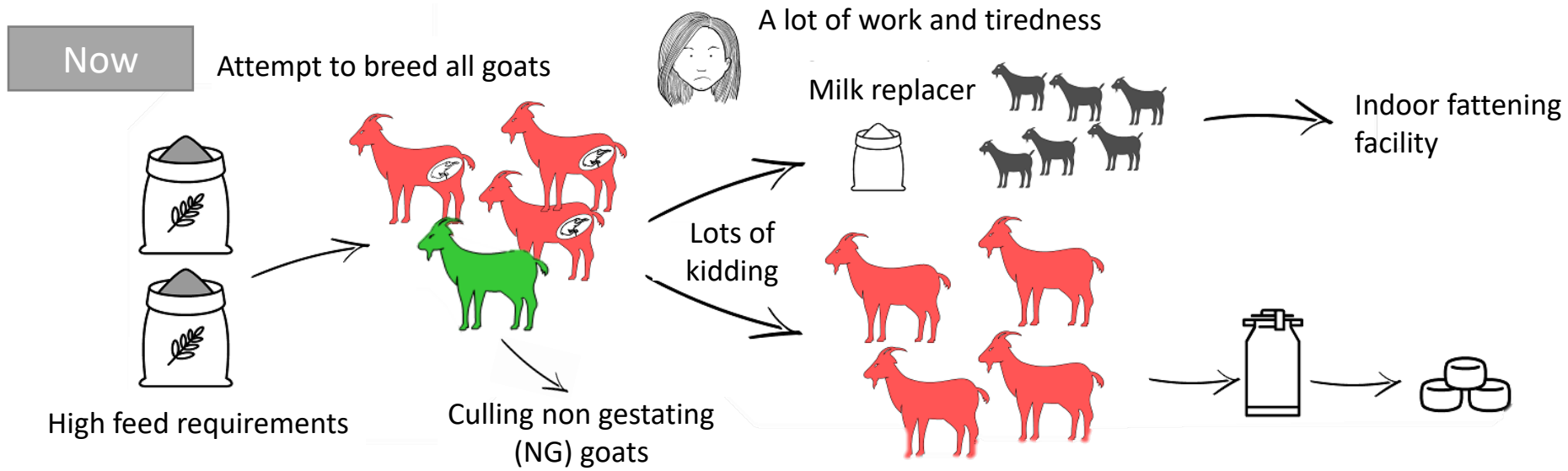
Laurène Fito, Caroline Constancis, Michel Bouy



EAAP + WAAP + Interbull **Congress 2023**

Lyon, France - August 26th / September 1st, 2023

No so easy to be a goat !



Lactation induction and long lactation

	Long lactation	Lactation induction
Dry period	No → milking all year round, → no udder regeneration between two lactations (subclinic mastitis and udder malformation increasing ^[1])	Yes → no milking all year round, → slower period for farmers → udder regeneration between two lactations
Frequency	Estimated at 20 % of goats in France (often 30 à 50% of goat in the herd) ^[2]	Often carried out on 1 or 2 goats each year, by mistake (milking of goats thought to have kidded).

Can lactation be induced in goats without hormone treatment ?

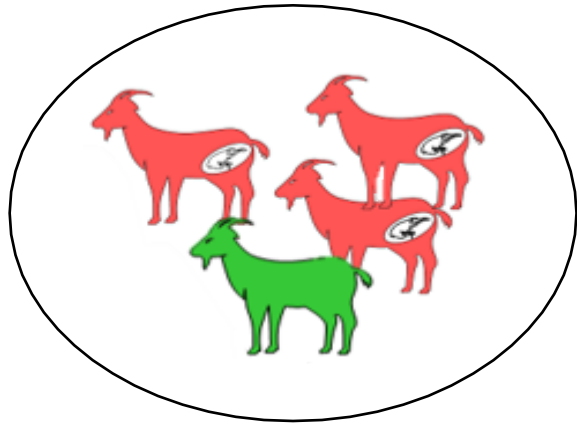
- ✓ **with group effect** (NG goat within the dairy herd)
Sensorial stimulus
progesteron and estradiol involved in mammogenesis

- ✓ **Manual teat stimulation**
prolactine is involved in lactogenesis ^[3, 4, 5, 6,7]
has already been used to induce lactation in women ^[8,9]

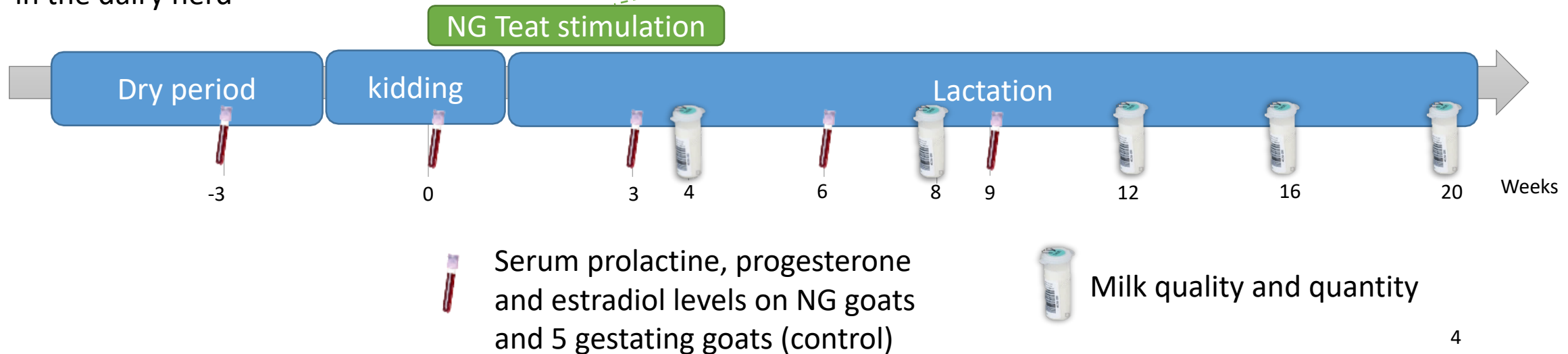
Materials and methods

6 farms, in spring 2022

Drôme department, Southern France



2 to 7 non gestating (NG) goats
in the dairy herd



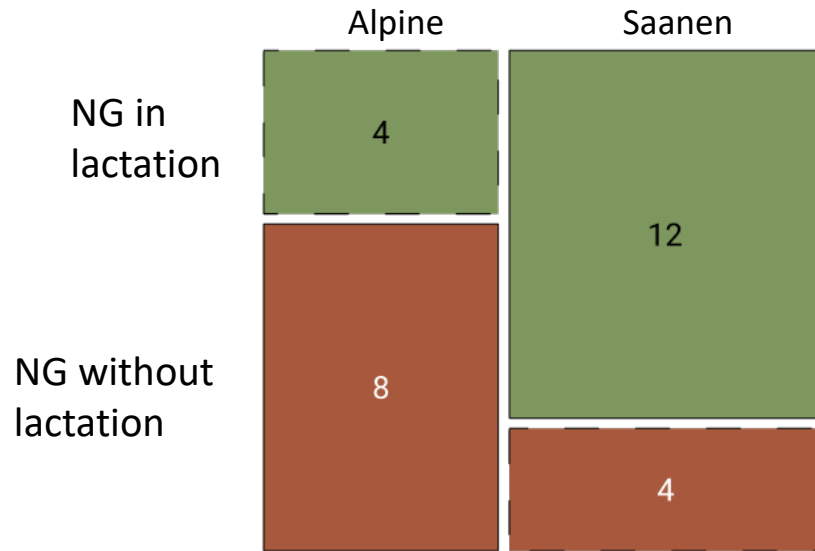
Results

Farm	Breed	Milk production (litre / goat/ day)	Number of goats	Number of NG goats	NG goats in lactation	Rate of NG goats in lactation
1	Saanen	3,8	218	6	6	100 %
2	Saanen	3,8	95	3	3	100 %
3	Alpine	1,5	41	7	5	71 %
4	Saanen	2,6	265	5	2	40 %
5	Alpine	3,0	53	4	0	0 %
6	Saanen	2,6	124	2	1	33 %

Summary statistics from table:

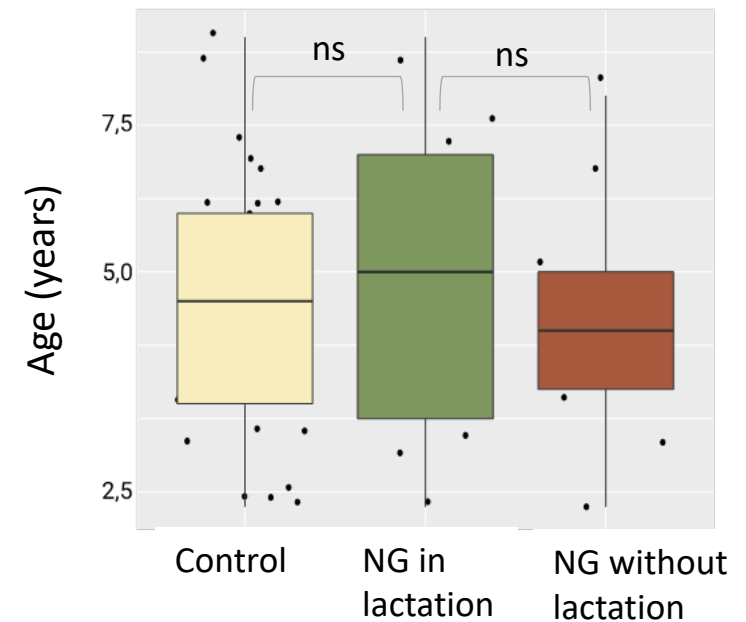
- Total Number of NG goats: 28
- Total NG goats in lactation: 17
- Rate of NG goats in lactation: 61%

Association between breed and lactation induction



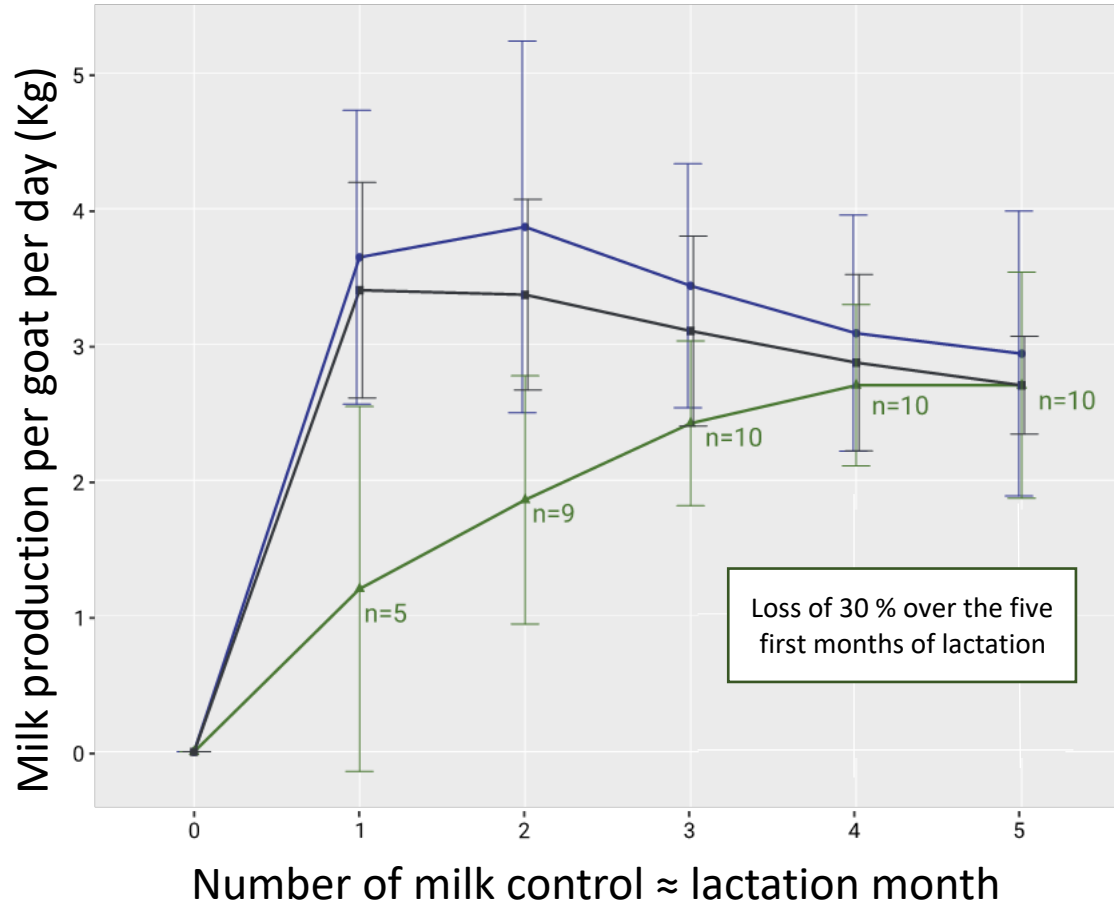
Fisher test: p-value = 0,056

Association between age and lactation induction

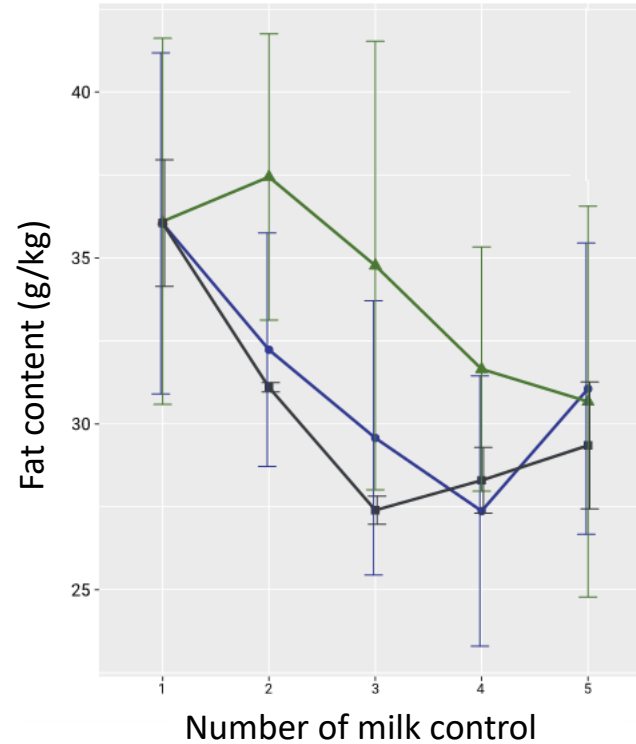


Results : Milk production and quality

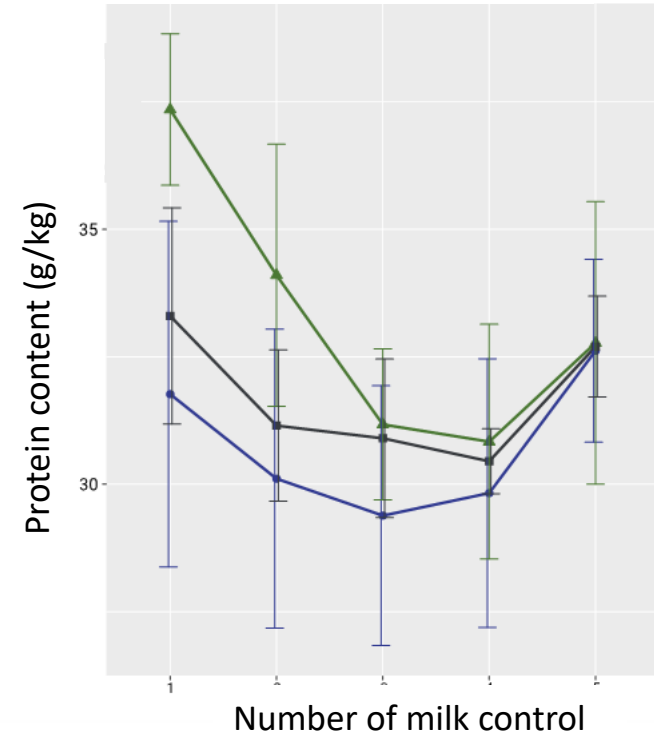
Milk production



Fat content



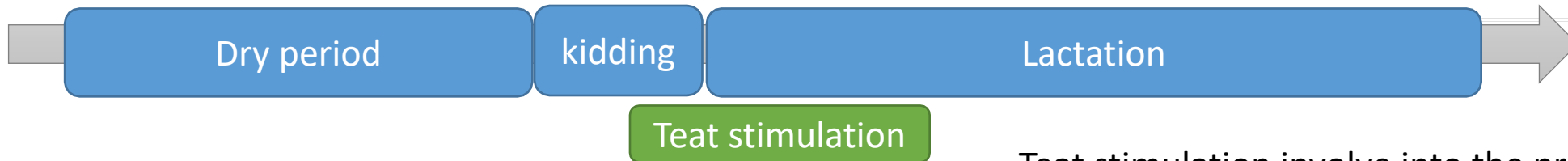
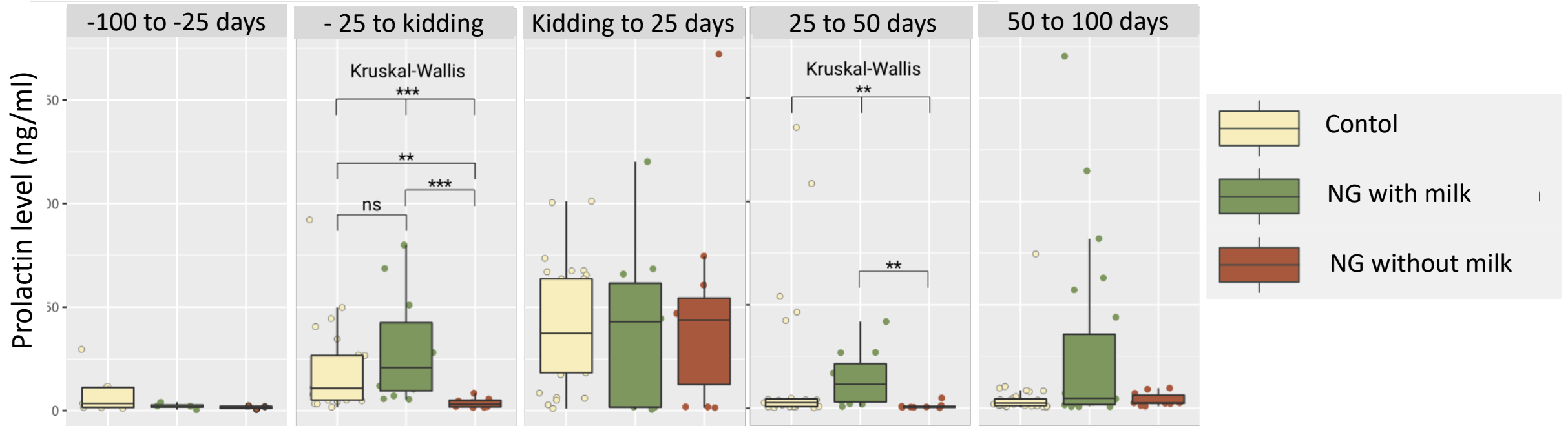
Protein content



- Control goat
- ▲ NG goat in lactation
more than 0.5 kg of milk per day
- Mean of dairy herd

Results : Hormonal profiles

Prolactin levels



Teat stimulation involve into the prolactin production

Estradiol and progesteron levels

no significant differences between groups

Conclusion



61 % of NG goat have induced a lactation, great variability from farm to farm.

No lactation peak but similar production level from mid-lactation. Production loss of around 30%.

Saanen tend to induce lactation more successfully than Alpines, but this needs to be verified in a larger-scale study.

According to participating farmers, lactation induction is involved by a succession of stimuli

Higher prolactin levels around kidding period

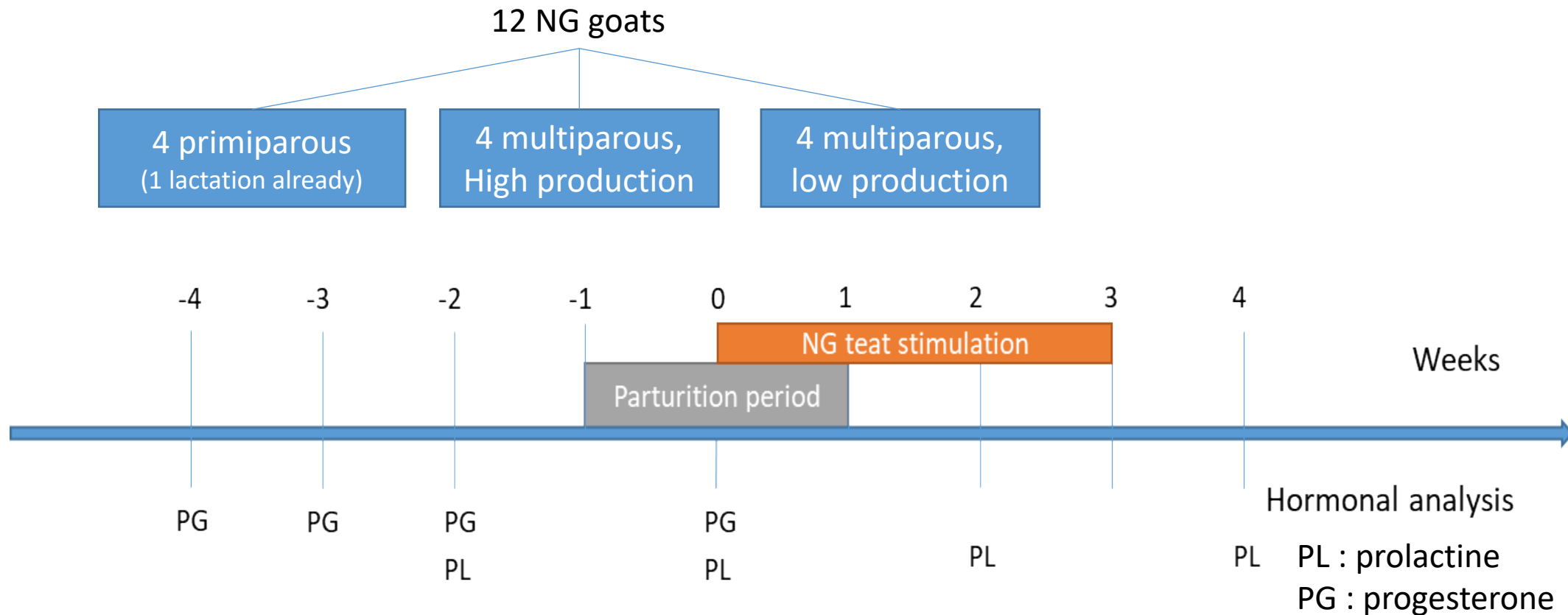


A new, large-scale project begins (2023-2025)

Within 10 farms :

- 4 Saanens and 6 Alpines herds
- 4 leaves kids within the dairy herd

Meeting in France, Germany, Switzerland , Austria



Tank you for your attention



[1] Safayi, S., Theil, P.K., Hou, L., Engbaek, M., Norgaard, J. V, Sejrsen, K., Nielsen, M.O. 2010. Continuous lactation effects on mammary remodeling during late gestation and lactation in dairy goats. *J. Dairy Sci.* 93, 203–217. <https://doi.org/10.3168/jds.2009-2507>

[2] Burq J., Seinger P. 2021. Mission d'appui à la filière Viande de chevreau. Conseil général de l'alimentation de l'agriculture et des espaces ruraux. Rapport n° 21026. 52 p.

[3] Abejide OR, Tadese MA, Babajide DE, Torimiro SEA, DaviesAdetugbo AA, Makajuola ROA. Non-puerperal induced lactation in a Nigerian community: Case reports. *Ann Trop Paediatr.* 1997 Jun;17(2):109–14.

[4] Slome C. Nonpuerperal lactation in grandmothers. *The Journal of Pediatrics.* 1956 Nov 1;49(5):550–2.

[5] JOHKE T. Prolactin Release In response to Milking Stimulus in the Cow and Goat Estimated by Radioimmunoassay. *Endocrinol Japon.* 1969;16(1):179–1985.

[6] Kensinger RS. Induced Lactation. In: Reference Module in Food Science [Internet]. Elsevier; 2016 [cited 2020 Sep 23]. Available from: <http://www.sciencedirect.com/science/article/pii/B9780081005965008453>

[7] Kolodny RC, Jacobs LS, Daughaday WH. Mammary Stimulation causes Prolactin Secretion in Non-lactating Women. *Nature.* 1972 Aug;238(5362):284–6.

[8] Reinhardt V, Schams D. Prolactin release in dairy heifers relative to duration of teat stimulation. *Neuroendocrinology.* 1975;17(1):54–61.

[9] Reinhardt V, Schams D. Analysis of teat stimulation as specific stimulus for prolactin in cattle. *Neuroendocrinology.* 1974;14(5):289–96.

Progesterone level

