非外源性賀爾蒙同期化處理之母羊人工授精最新進展

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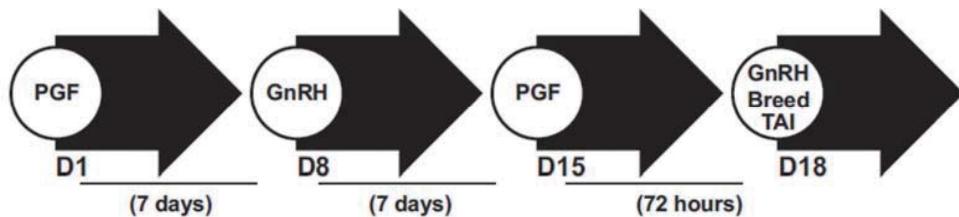
目的:山羊繁殖的非外源性賀爾蒙調控以維持乳羊產業永續發展

目標:

- 維持人工受精技術的施行以利育種之進行

- 規範
  - ✓ 突破現有使用外源性賀爾蒙的限制
  - ✓ 預期將完全禁止這類賀爾蒙的使用

- 應用其他技術的可行性
  - ✓ 公羊效應 + 光照策略+人工授精
  - ✓ 維持季節外生產

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繁殖季節內的應用策略

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Comparison of reproductive performance between Control and NCSynch treatment groups.

	Control				NCSynch			
	Year			Years 1–3 combined	Year			Years 1–3 combined
	1	2	3		1	2	3	
Number of does	15	26	25	66	15	26	25	66
Proportion in estrus (%)	13/15 (87)	24/26 (92)	21/25 (84)	58/66 (88)	10/15 (67)	24/26 (92)	14/25 (56)	48/66 (73)
Does bred (%)	13/15 (87)	24/26 (92)	21/25 (84)	58/66 (88)	15/15 (100)	26/26 (100)	25/25(100)	66/66 (100)
Pregnancy rate For Does bred (%)	8/13 (62)	19/24 (79)	8/21 (38)	35/58 (60)	11/15 (73)	20/26 (77)	14/25 (56)	45/66 (68)
Overall pregnancy rate (%)	8/15 (53)	19/26 (73)	8/25 (32)	35/66 (53)	11/15 (73)	20/26 (77)	14/25 (56)	45/66 (68)
Kidding rate (%)	7/15 (47)	19/26 (73)	8/25 (32)	34/66 (51)	11/15 (73)	20/26 (77)	14/25 (56)	45/66 (68)

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繁殖季節外的應用策略

Distribution of flocks in experiments 1 (Exp. 1), 2 (Exp. 2) and 3 (Exp. 3) during three consecutive years

Flocks	Year 1	Year 2	Year 3
A (Saânen)	Exp. 2: ±FGA (81)		
B (Alpine)	Exp. 2: ±FGA (49)		
C (Saânen)	Exp. 2: ± FGA (80)	Exp. 2: ±FGA (79)	Exp. 3: FGA vs. CIDR (65)
D (Alpine)		Exp. 2: ±FGA (48)	Exp. 3: FGA vs. CIDR (35)
E (Alpine)	Exp. 1: mel × FGA (113)	Exp. 1: mel × FGA (135)	Exp. 3: FGA vs. CIDR (80)

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Comparison of the response to the male effect between goats treated with long days and melatonin or only with long days and between FGA-treated and untreated goats

Treatment	n	% LH	IntBLH mean ± S.D. (h)	%OVUL	KR	IntBK mean ± S.D. (days)	PROL mean ± S.D.
Long days	114	92.7 (55)	65.3 ± 11.6	99.0	79.8	160.5 ± 7.4	2.0 ± 0.6
Long days and melatonin	104	90.7 (54)	64.0 ± 11.2	99.1	81.6	161.1 ± 9.4	2.1 ± 0.7
FGA-untreated	109	–	–	99.1	79.8	163.5 ± 8.5	2.0 ± 0.6
FGA-treated	109	91.7	64.7 ± 11.4	99.0	81.7	158.1 ± 7.4*	2.1 ± 0.7

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模擬求偶情境結合人工光照對誘發乏情季節乳用母羊發情與受胎之加成效果

| Item	Treatment	
	LD	CI+LD
Estrus rate	84.7% (603/712)[a]	97.2% (246/253)[b]
Conception rate	73.9% (526/712)[a]	90.5% (229/253)[b]

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無任何外源性賀爾蒙處理之AI方式
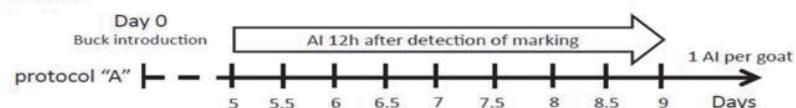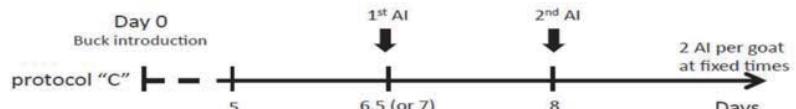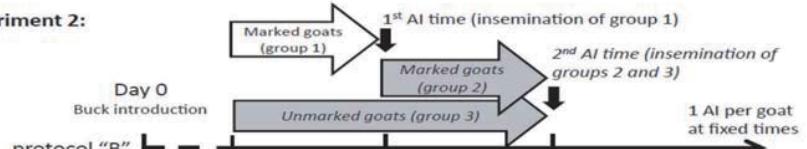
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Estrous and ovulatory responses to the "male effect" in five herds of goats over a 6-year period.

Parameter	n	Herds						Statistical analysis		
		A	B	C	D	E	Total	Herd	year	Interaction
Goats in estrus (%; from Day 0 to Day 13)[a]	446	87.8	69.6	88.2	82.2	93.0	84.3	P < 0.0001	P < 0.0001	—
Goats ovulating (%; from Day 0 to Day 13)	446	98.3	93.7	100	100	99.0	97.8	P < 0.05	P < 0.05	—
Goats with SC-NC profiles (%)	446	85.2	41.8	100	69.5	71.0	71.3	P < 0.0001	P < 0.001	—
Goats with NC profiles (%)	446	4.4	1.3	0.0	3.4	2.0	2.7	NS	NS	—
Goats with delayed profiles (%)	446	8.7	50.6	0.0	27.1	26.0	24.2	P < 0.0001	P < 0.01	—
SC-NC goats: ovulation 1 (short cycle)	318									
Goats in estrus (%)[a]	267	29.6	30.3	0.0	11.7	21.4	20.6	P < 0.01	NS	—
Day of estrus[a]	55	2.0 ± 0.3	2.4 ± 0.4	—	1.9 ± 0.2	2.3 ± 0.3	2.1 ± 0.2	NS	NS	NS
Day of progesterone increase	318	4.2 ± 0.1	4.5 ± 0.1	4.1 ± 0.1	4.2 ± 0.1	4.5 ± 0.1	4.3 ± 0.0	P < 0.001	P < 0.0001	NS
SC-NC goats: ovulation 2 (normal cycle)	318									
Goats in estrus (%)	317	91.7	97.0	85.3	95.1	97.2	93.7	NS	P < 0.01	—
Day of estrus	297	6.9 ± 0.1	7.5 ± 0.2	6.9 ± 0.1	7.1 ± 0.1	7.5 ± 0.1	7.2 ± 0.1	P < 0.0001	P < 0.01	NS
Goats with LH surge (%; from Day 5 to Day 9)[b]	272	86.7	93.8	91.2	76.5	81.7	83.8	NS	P < 0.05	—
Day of LH surge[b]	228	7.3 ± 0.1	8.2 ± 0.2	7.1 ± 0.1	7.3 ± 0.1	7.6 ± 0.1	7.4 ± 0.1	P < 0.0001	P < 0.0001	P < 0.05
Day of progesterone increase[c]	163	9.6 ± 0.1	10.3 ± 0.2	9.6 ± 0.1	9.7 ± 0.1	10.2 ± 0.2	9.8 ± 0.1	P < 0.001	NS	P < 0.05

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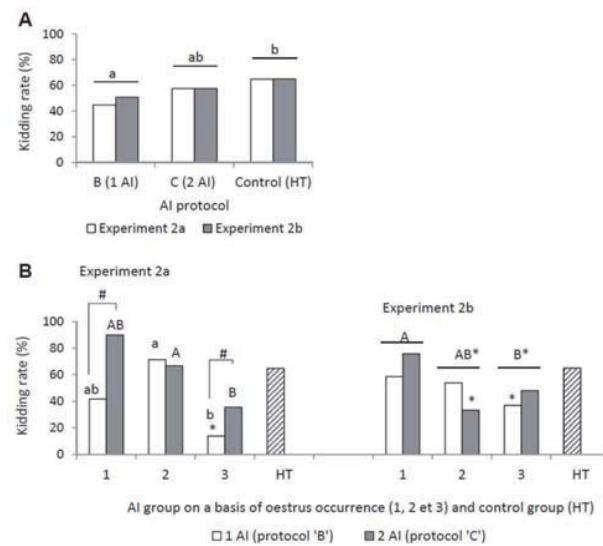
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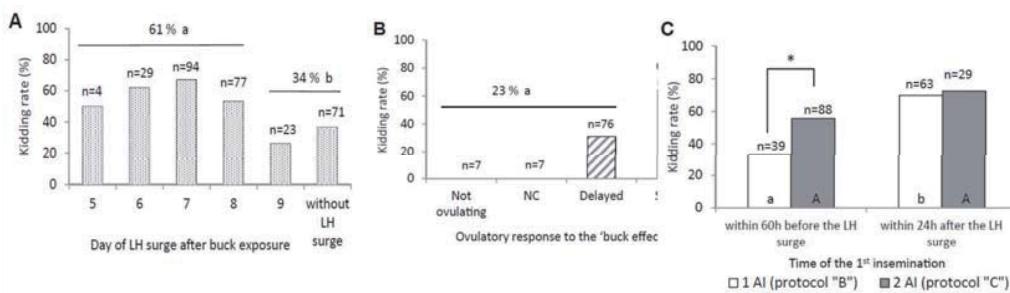
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結論

目前國內外有關山羊利用非外源性賀爾蒙之發情同期化處理後，繼之施以人工授精之研究甚少，但在精緻化發展進程中考量食品安全的議題，有關該部分相關研究應是未來長期發展之重點。

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