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TAINTSTOP, an innovative feed concept:

Influence on Boar Taint

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TAINTSTOP: a feed concept for finishing entire male pigs, based on 3 pillars:

- Fibers: influence the intestinal fermentation pattern and decrease skatole production by the hindgut
- Feed additives: support the metabolism of the animal (liver function)
- Balancing dietary protein and specific fiber nutrients

What are the effects on boar taint upon feeding TAINSTOP 3 or 2 weeks pre-slaughter ?

Material and Methods (1)

- 3 pig feeding experiments were carried out in which TAINSTOP (T) was compared to a commercial feed (C) during the last weeks before slaughter :

Trial	Farm	Pig genetics	Treatment	N pigs	Weeks Pre-slaughter	Sensorial analysis (N pigs)	Chemical analysis (N pigs)
1	A	Danbred X Piétrain	C, T	197	3	Yes (197)	Skatole, Androsten. (100)
2	A	Danbred X Duroc	C, T	171	3	Yes (171)	Skatole, Androsten. (100)
3	A	Danbred X Piétrain	C, T	125	2	No	Skatole (50)

Sensorial analysis (on neckfat): Human Nose Test (HNT) at ILVO, Gent by expert panel on the day of slaughter and the day after slaughter

Skatole and Androstenone analyses were made by ELFI Analytik GbR (Neufahrn, Germany)

Results and discussion: TAINTSTOP versus CONTROL

- No treatment effects on the carcass weights or the lean meat %
- Sensorial analysis: significant reduction in % tainted samples

Trial	Sensory score	Control	TAINTSTOP	P-value
1	Average (% tainted)	0.082 +/- 0.31 (8.0)	0.000 +/- 0.000 (0.0)	0.042 (0.008)
2	Average (% tainted)	0.121 +/- 0.402 (7.6)	0.01 +/- 0.098 (1.0)	0.004 (0.053)

Sensory score: Human Nose Test at ILVO, Gent by expert panel on the day of slaughter and the day after slaughter on a scale from 0: no taint to 4: strong boar taint.

Results and discussion: TAINTSTOP versus CONTROL

- Effect of TAINSTOP on skatole:
 - Significant reduction in all trials (factor 2.5 to 5)
 - More consistent (lower) skatole levels (decrease of ‘outliers’)

Trial	Chemical analysis	Control	TAINSTOP	P-value
1	Skatole, ppb (% > 250 ppb)	137 +/- 118 (12)	33 +/- 19 (0)	< 0.001 (0.027)
2	Skatole, ppb (% > 250 ppb)	79 +/- 73 (6)	30 +/- 35 (0)	< 0.001 (0.242)
3	Skatole, ppb (% > 250 ppb)	56 +/- 43 (0)	17 +/- 12 (0)	< 0.001) (1.000)

Results and discussion: TAINTSTOP versus CONTROL

- Effect of TAINSTOP on androstenone:
 - Numerical decrease – not significant

Trial	Chemical analysis	Control	TAINSTOP	P-value
1	Androstenone, ppb (% > 3000 ppb)	1450 +/- 1160 (16)	1153 +/- 735 (4)	0.244 (0.063)
2	Androstenone, ppb (% > 3000 ppb)	2363 +/- 1392 (26)	2164 +/- 1264 (24)	0.447 (0.817)

Results and discussion: TAINTSTOP versus CONTROL

- The 2 weeks pre-slaughter feeding of TAINSTOP (trial 3) had the same reducing effect on boar taint (skatole reduction) as 3 weeks pre-slaughter
- Confirmed by ILVO (Heyrman et al., 2017)
 - Significant reduction of skatole ($p < 0.001$) for both the 2 and 3 weeks pre-slaughter treatments
 - Significant reduction of androstenone for both treatments ($p = 0.001$)
 - Significant reduction in boar taint incidence (sensory score) from 13.9 to 2.2% (2 weeks TAINSTOP pre-slaughter), $P = 0.003$ and a trend of decrease from 13.9 to 5.6% (3 weeks TAINSTOP)

Material and methods (2)

- 3 additional pig feeding experiments were carried out in which TAINSTOP (T) was compared to some alternative feed formulas (C, ALT1, ALT2, ALT3, ALT4, ALT5, ALT6, ALT7) during the last 3 weeks before slaughter:

Trial	Farm	Pig Genetics	Treatment	N pigs	Chemical analysis (N pigs)
4	C	Topics x Piétrain	C, T, ALT1, ALT2	102	Skatole (101)
5	C	Topics x Piétrain	T, ALT3, ALT4,ALT5	123	Skatole (100)
6	A	Danbred x Piétrain	T, ALT6, ALT7	195	Skatole (75)

Skatole analyses were made by ELFI Analytik GbR (Neufahrn, Germany)

Results and discussion: TAINSTOP versus ALTERNATIVE FORMULAS

Trial	Chemical Analysis	Control	TAINSTOP	ALT 1	ALT 2	ALT 3	ALT 4	ALT 5	ALT 6	ALT 7
4	Skatol, ppb (% > 250 ppb)	398 +/- 751 ^b (33) ^{ab}	75 +/- 129 ^a (4) ^a	187 +/- 173 ^b (27) ^{ab}	428 +/- 531 ^b 44 ^(b)	-	-	-	-	-
5	Skatole, ppb (% > 250 ppb)	-	68 +/- 68 ^a (4)	-	-	85 +/- 90 ^{ab} (4)	117 +/- 93 ^{ab} (13)	181 +/- 254 ^b (15)		
6	Skatole, ppb (% > 250 ppb)	-	24 +/- 8 ^a (0)	-	-	-	-	-	39 +/- 33 ^a (0)	71 +/- 74 ^b (4)

CONCLUSIONS

- Feeding TAINSTOP during 2 to 3 weeks pre-slaughter causes:
 - A significant reduction of skatole in neck fat
 - A more homogeneous distribution of skatole levels with less outliers
 - A numerical decrease of androstenone levels
 - A significant reduction of tainted samples
- The full TAINSTOP concept is more effective than alternatives that represent parts of the concept
- TAINSTOP is a valid and animal friendly alternative to castration without anaesthesia



**Thank you for
your attention**

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