
The effect of androstenone, skatole and indole on semen quality



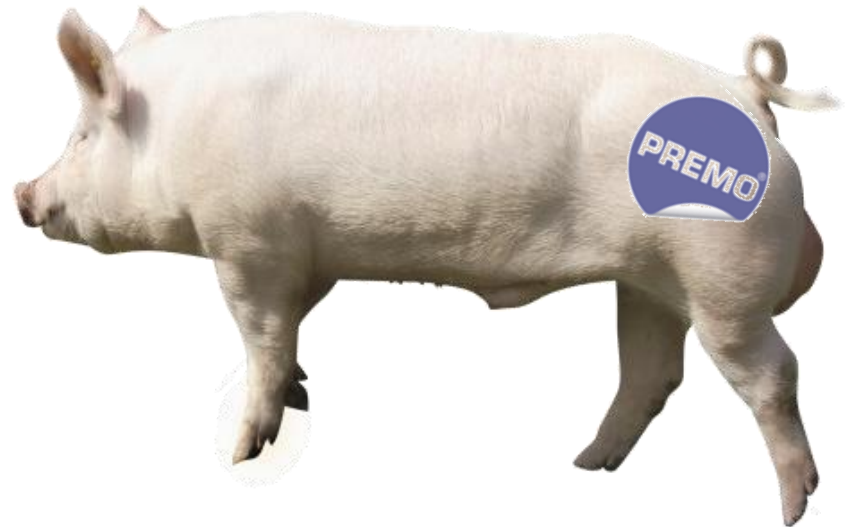
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Objective

Determine the effect of androstenone, skatole and indole concentration on semen traits in the Swiss terminal sire line **PREMO®**.



Experimental Design

- adipose tissue of 132 AI boars (biopsy)
- sample collection Sept. 2010 - April 2011
- boars were between 216 - 1807 days of age
- live weight between 145 - 447 kg
- chemical analysis (HPLC) of adipose tissue

- semen quality information recorded:

| | |
|------------|---|
| Volume | ml of ejaculate |
| Density | number of sperm / ml, in millions |
| # of sperm | total number of sperm, in billions |
| Motility | forward movement (%), estimated by technician |
| Doses | number of doses |
| Semen | longevity in days, dependant on quality and motility of sperm |

- all ejaculates collected between 60 days prior to the biopsy and 90 days after the biopsy (n = 3822) were analysed
- average number of observations per animal was 29.10.

Experimental Design

$$Y_{ijklmn} = \mu + YMS_i + A_j + T_k + AB_l + BTC_m + BOAR_n + e_{ijklmn}$$

y = observation

μ = general mean

YMS_i = i-th year / month / station ($i = 1, \dots, 18$)

A_j = j-th age class ($j = 1, \dots, 5$)

T_k = k-th technician ($k = 1, \dots, 8$)

AB_l = l-th abstentation class ($l = 1, \dots, 3$)

BTC_m = m-th boar taint component (androstenone, skatol or indol, $m = 1, \dots, 4$)

$BOAR_n$ = n-th boar ($n = 1, \dots, 132$)

e_{ijklmn} = random residual of the ijklmn-th observation

Results (Androstenone)

Estimated effect of androstenone on various semen quality traits



Androstenon Classes (Androstenone in $\mu\text{g/g}$):

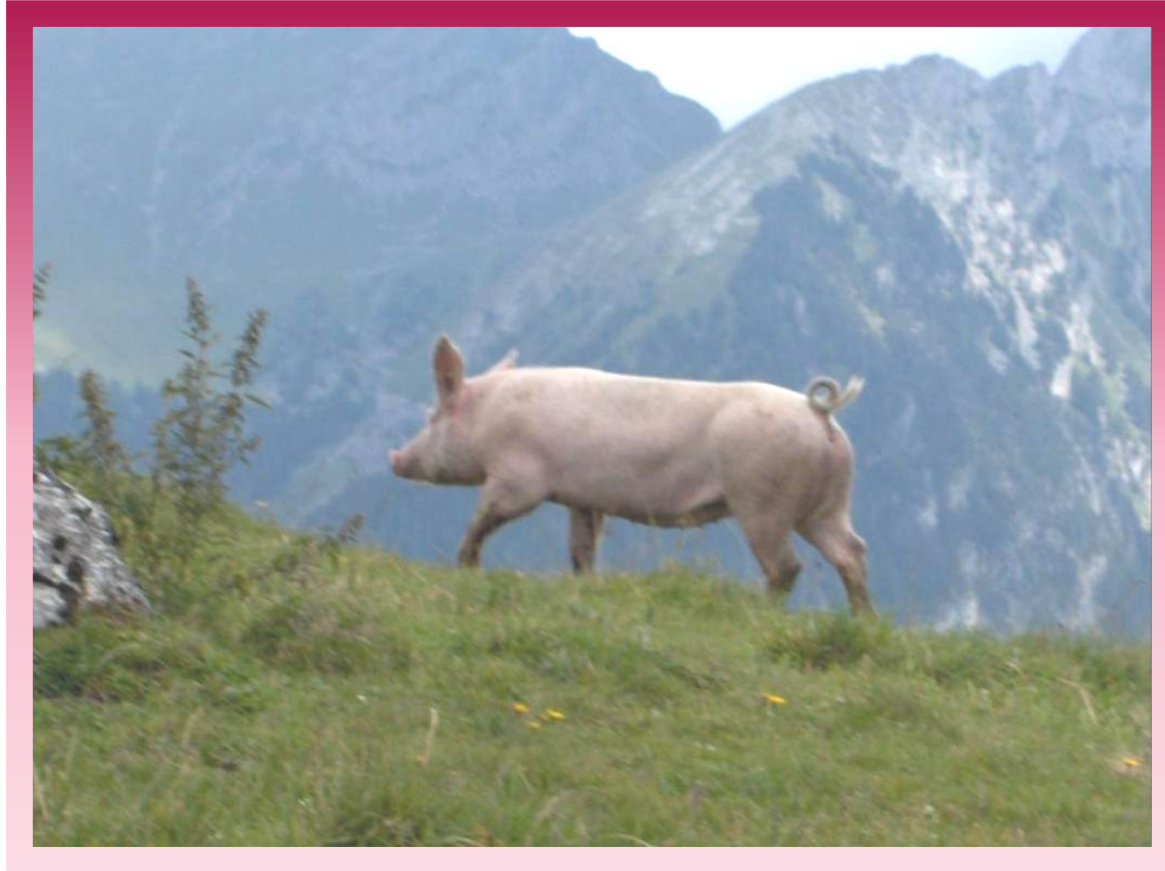
Class 1 = <1.99 , Class 2 = $2.0-3.99$, Class 3 = $4.0-6.99$, Class 4 = >7.00

Conclusion

Androstenone: minimal adverse effects on semen quality

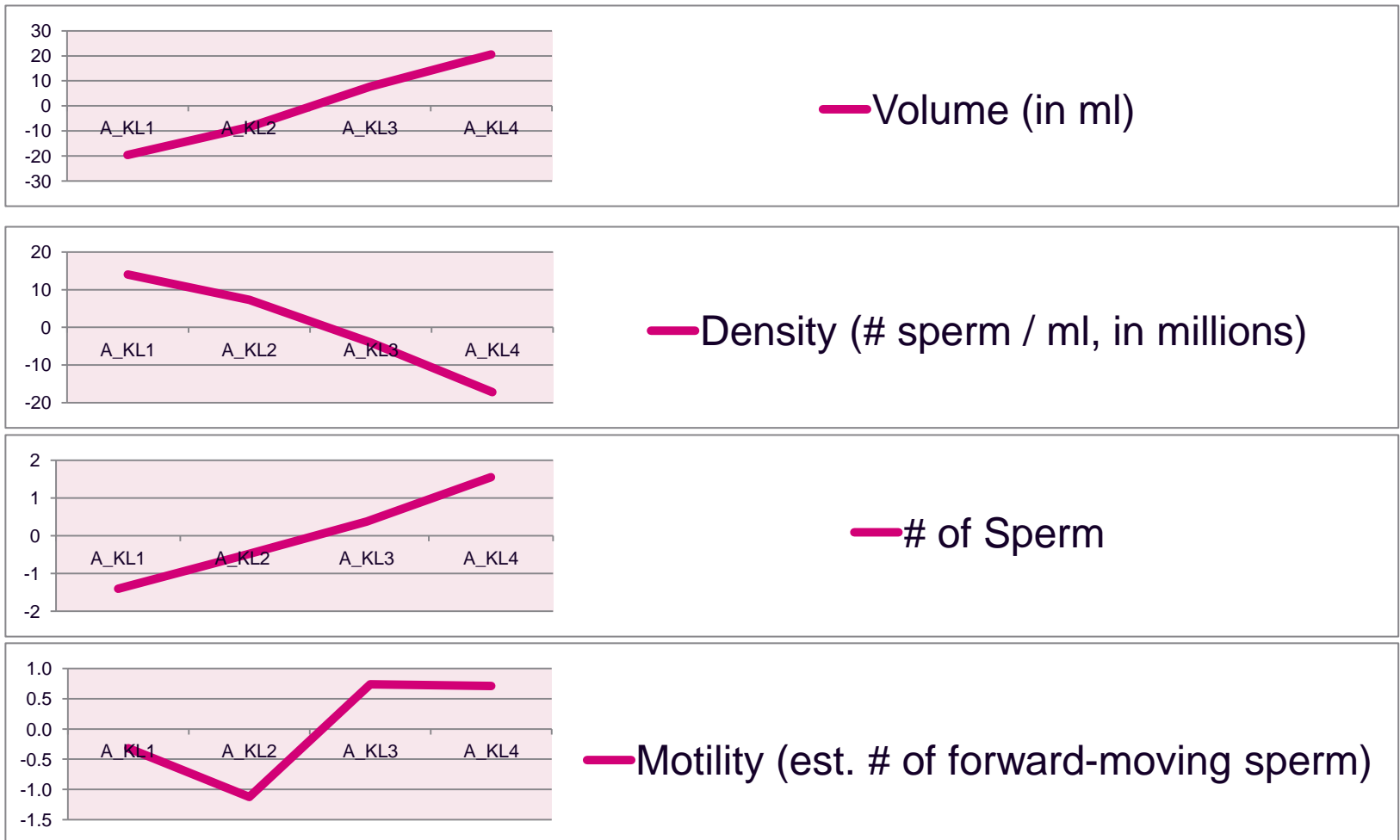
Skatole: no adverse effects on semen quality

Indole: no adverse effects on semen quality



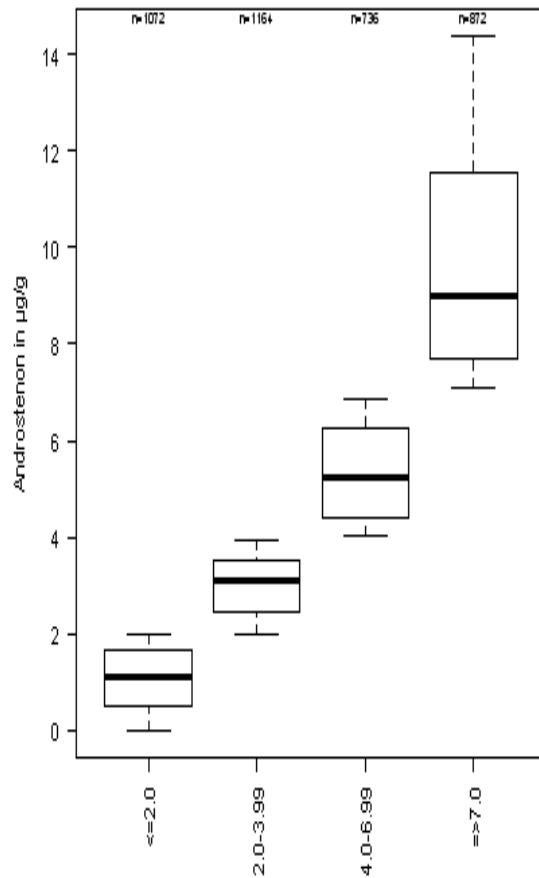
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Results (Androstenone)

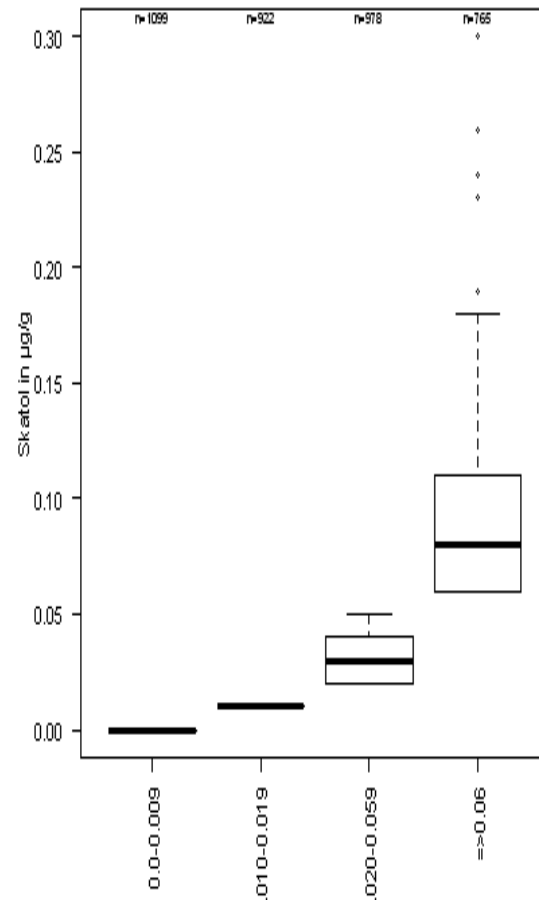


Classes

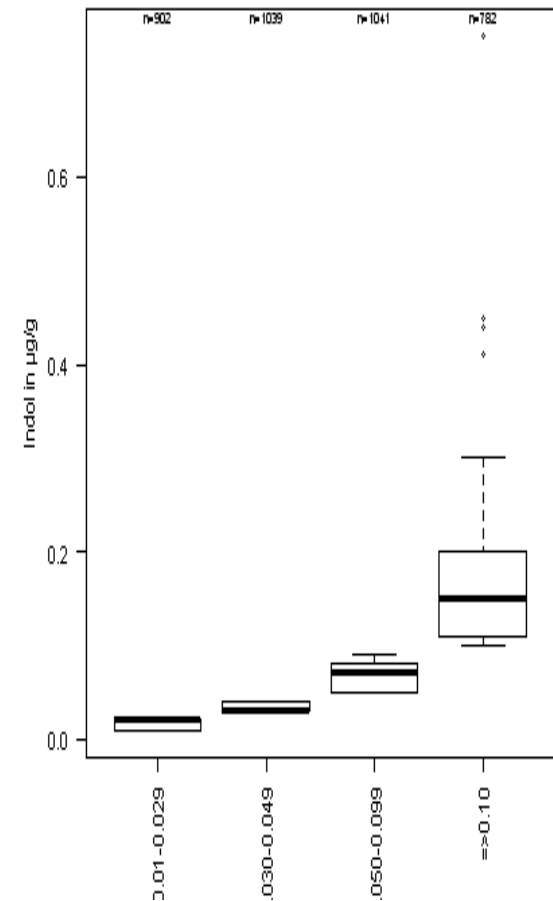
Androstenon Classes



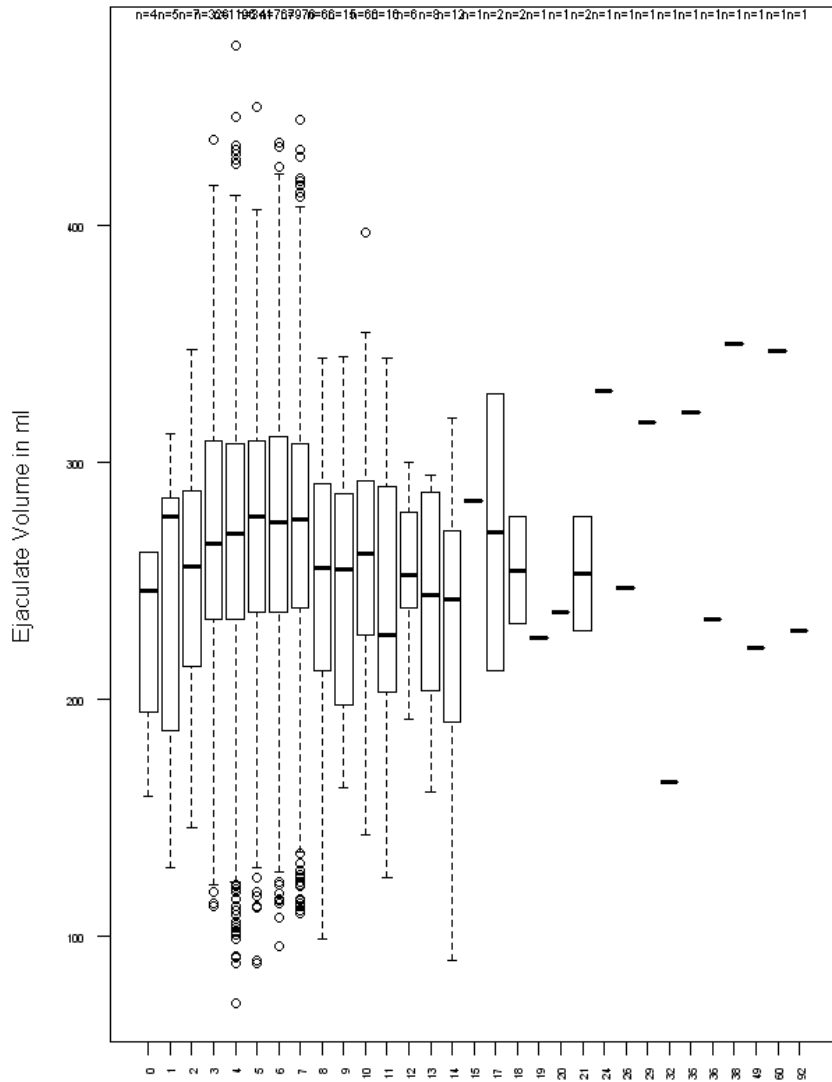
Skatol Classes



Indol Classes

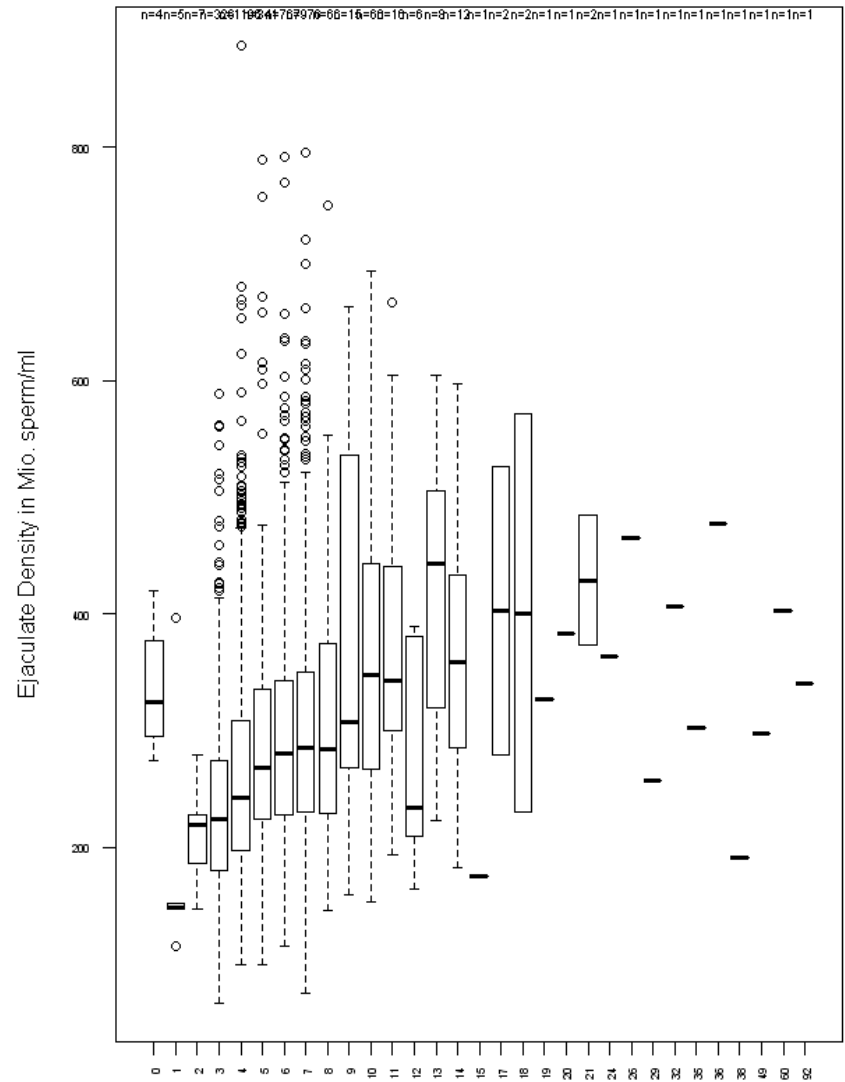


Ejaculate Volume



Frequency of collection

Ejaculate Density



Frequency of collection

3. Auswertung Samenqualität

