



The Type of Container and Filling Method Have Consequences on Semen Quality in Swine AI Doses

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Main advantages of automatic filling of semen doses over the manual filling:

- shortens the time necessary to process the semen;
- makes it possible to load a much higher number of semen doses within a day of work

= improved efficiency

On the other hand:

- the sperm get in contact with the parts of a filling machine (hygiene related risk)
- sperm are pumped in tubes at a high speed (may cause additional stress)

Does the automatic filling influence the quality of preserved semen?

MATERIAL AND METHODS

Semen Collection

- 5 ejaculates from 5 sexually mature boars, from a commercial semen production.
- Collected by manual method with double glove

Semen Dillution

- BTS® (Minitube, Tiefenbach, Germany)

Semen Storage

- Storage in liquid state, at 17°C:
 - A. The old-style 100 ml plastic **bottle**, filled and closed **manually**;
 - B. The modern 100 ml plastic **tube**, filled and closed **automatically**



MATERIALS AND METHODS

Semen examination

➤ *Using CASA*

(SpermVision, version 3.7), daily:

- Day 1 (24 h after dilution);
- Day 2 (48 h after dilution);
- Day 3 (72 h after dilution)
- Day 4 (96 h after dilution);
- Day 5 (120 h after dilution).

➤ *Seminal parameters:*

- Total motility (TMot),
- Progressive motility (PMot),
- Average path velocity (VAP),
- Curvilinear velocity (VCL),
- Straight line velocity (VSL),
- Straightness (STR),
- Linearity (LIN),
- Wobble (WOB),
- Amplitude of lateral head displacement (ALH),
- Beat cross frequency (BCF)

- ! All the ejaculates used in this study showed more than 65% total motility

Statistical analysis

Independent t-test (presumption of equal means/variations; statistical significance was set at $p < 0.05$)

RESULTS AND DISCUSSION

Table 1

The values of seminal parameters after five days of preservation, according to the type of container that was used

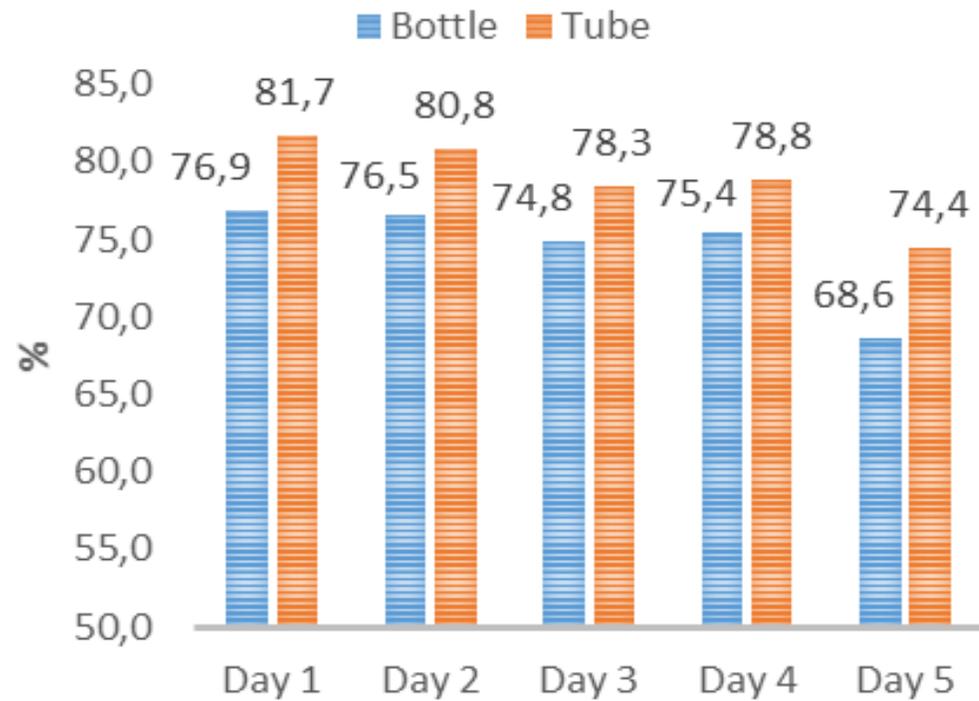
Type of container		TMot	PMot	VAP	VCL	VSL	STR	LIN	WOB	ALH	BCF
Bottle	Mean	68.60 ^a	64.49 ^a	69.27 ^a	102.99 ^a	62.19 ^a	0.89 ^a	0.60 ^a	0.67 ^a	2.42 ^a	34.43 ^a
	SD	11.93	12.78	11.50	16.25	10.51	0.02	0.05	0.06	0.35	3.21
Tube	Mean	74.43 ^b	70.38 ^b	73.73 ^b	118.07 ^b	65.51 ^b	0.88 ^b	0.56 ^b	0.63 ^b	2.63 ^b	37.69 ^b
	SD	10.54	11.54	8.61	19.12	7.60	0.02	0.06	0.06	0.37	2.06

Within the same column, different superscripts indicate a significant difference between the types of container ($p < 0.05$)

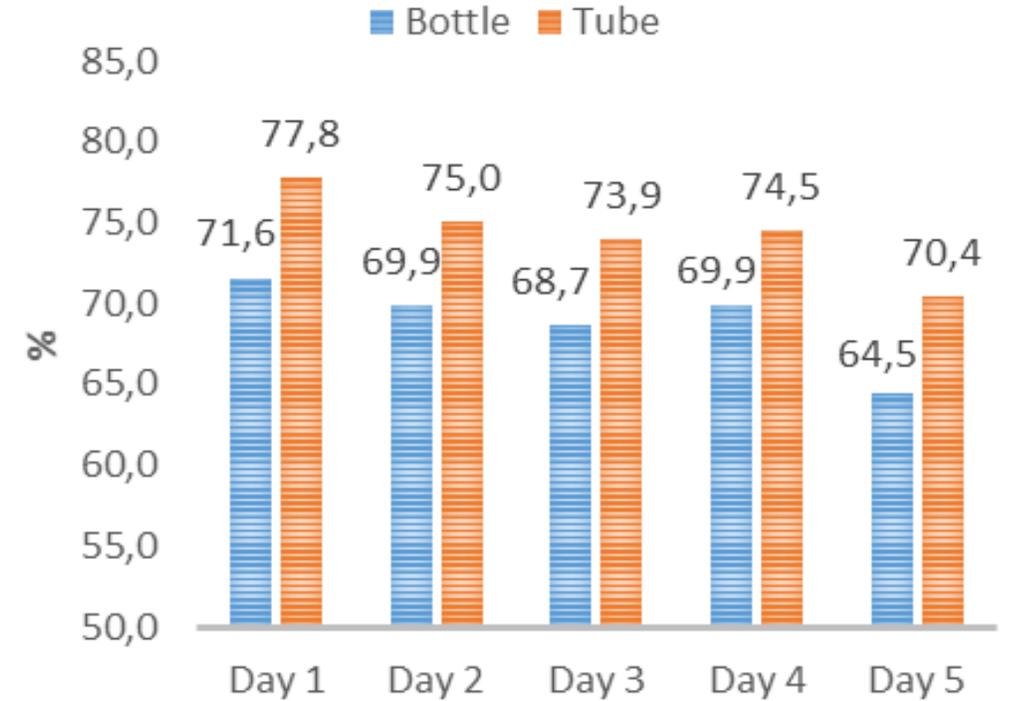
RESULTS AND DISCUSSION

The effect of container on the percentage of motile spermatozoa

Total motility

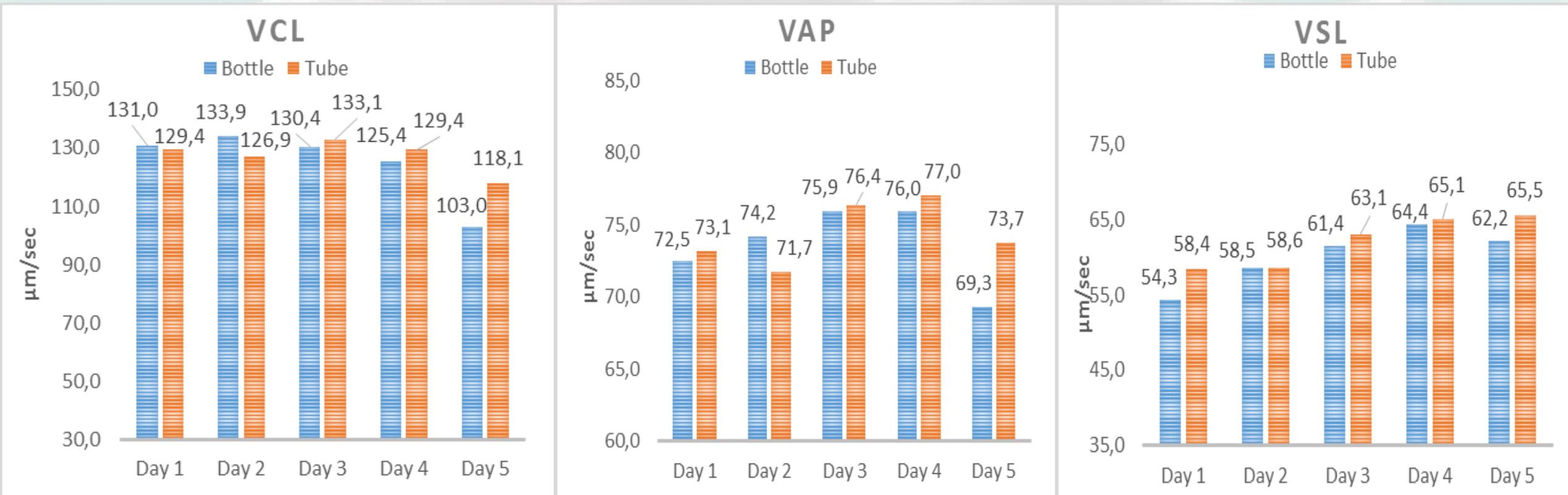


Progressive Motility



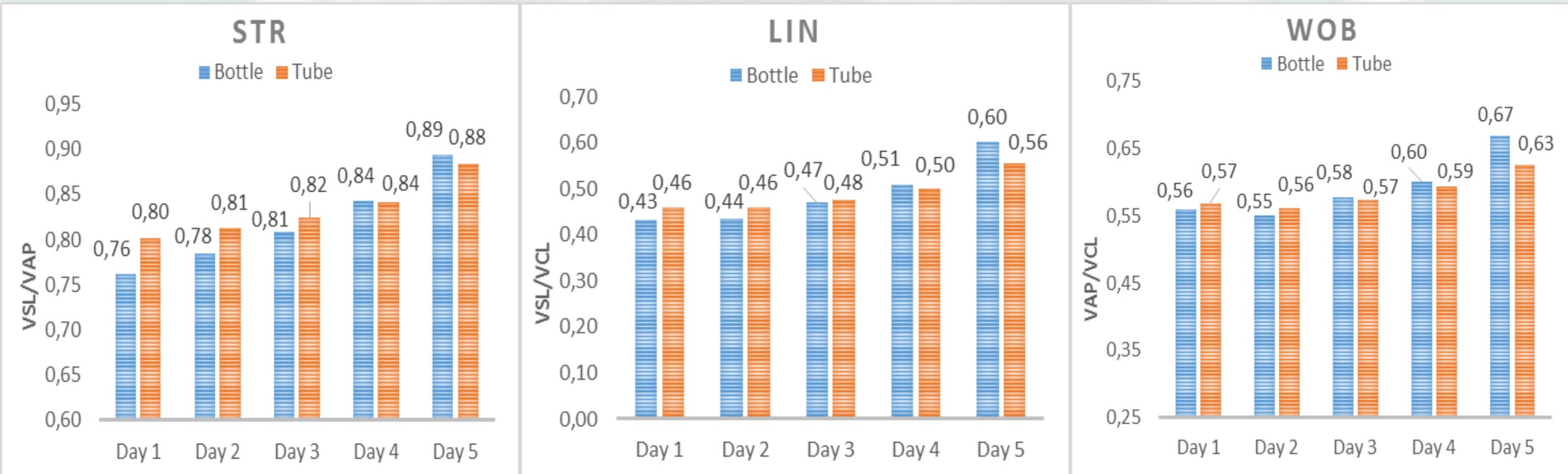
RESULTS AND DISCUSSION

The effect of container on the sperm velocity during storage



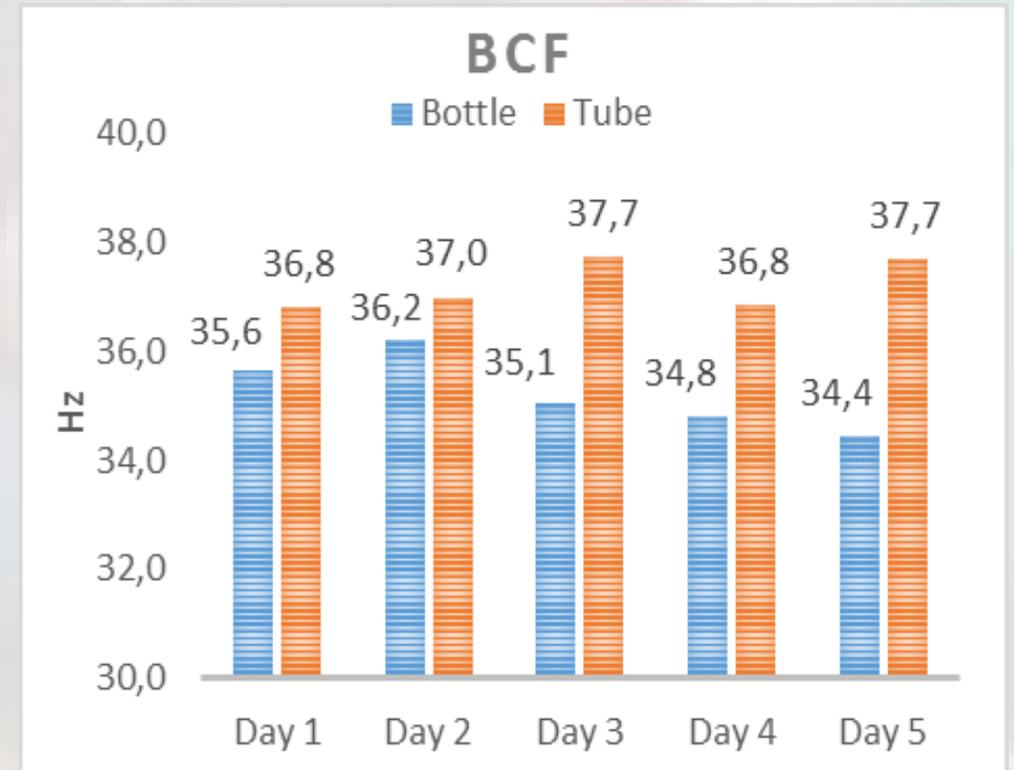
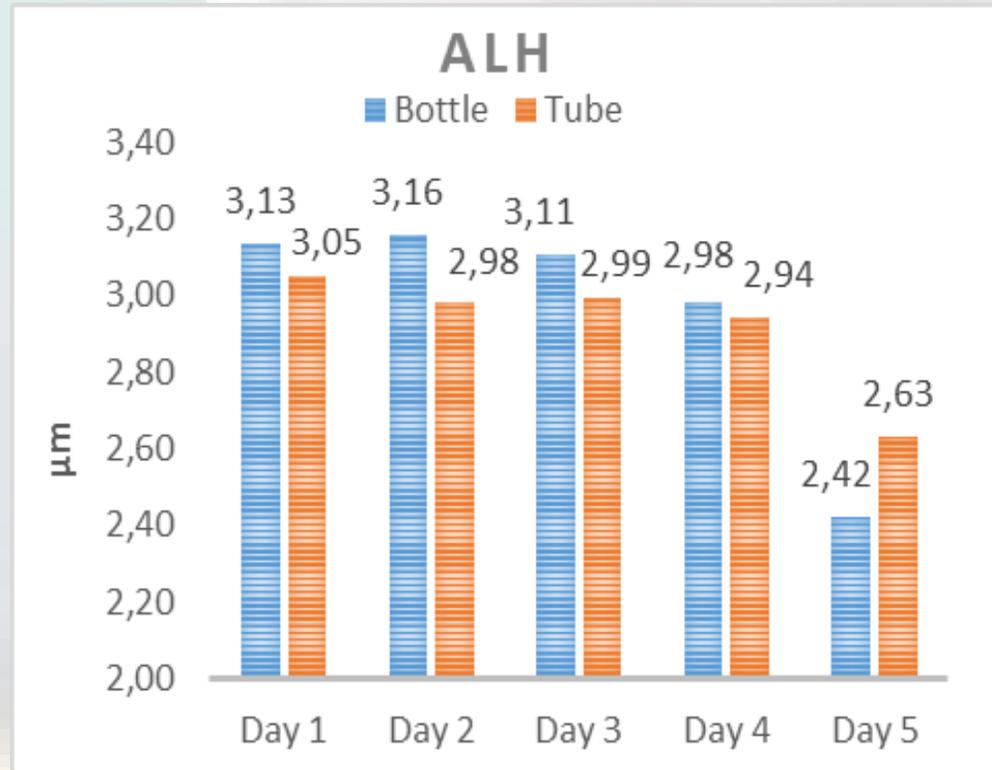
RESULTS AND DISCUSSION

The effect of container on the sperm movement uniformity during storage



RESULTS AND DISCUSSION

The effect of container on the sperm movement uniformity during storage



CONCLUSIONS

- Both types of container maintain the kinetic parameters of sperm within acceptable values; however, it seems that the tubes filled and closed automatically protect better the sperm motility compared to the bottles filled and closed manually;
- As the percentage of motile sperm is still the main criterion in assessing semen quality before artificial insemination in pigs, we can consider that the tubes filled and closed automatically represent not only an economic solution, but also a way to maintain the biological value of sperm for a longer period of time;
- The better protection of the tubes could be due to shortened contact of sperm with ambient air during processing and airtight closing, thus minimizing the bacterial contamination and gas exchanges.

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Besamungsverein Neustadt a.d. Aisch
Bäuerlich. **V**ielfältig. **N**achhaltig.



THANK YOU!

For any other question and/or inquiry I remain at your disposal at:
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