

Table 2. Results of follicular observations (mean±sem) before (d OPU +1 = d15 and d29) and after (d OPU + 5 = d19 and d33) FSH administration (7 animals).

	FSH + 0% LH		FSH + 20% LH	
	(d15, d29)	(d19, d33)	(d15, d29)	(d19, d33)
n follicles	10.0±2.1 ^a	18.7±2.1 ^b	9.7±2.0 ^a	18.3±2.0 ^b
follicular diameter (mm)	3.5±2.7 ^a	7.0±1.2 ^b	3.6±2.8 ^a	6.8±2.0 ^b
n follicles > 10 mm	0.1±0.4 ^a	2.7±0.4 ^b	0±0.4 ^a	1.4±0.4 ^b
n follicles > 8 mm	0.1±1.0 ^a	6.6±1.0 ^b	0±0.9 ^a	5.0±0.9 ^b

ANOVA 1: $p < 0.05$. Within FSH group: different superscripts indicate significant differences (horizontally).

Table 3. Estradiol blood levels (mean ± sem) of days 4 to 7, 17 to 20 and 31 to 34 (7 animals).

	FSH + 0% LH		FSH + 20% LH	
	(d4 to 7)	(d17 to 20 d31 to 34)	(d17 to 20 d31 to 34)	(d17 to 20 d31 to 34)
estradiol (pg/ml)	5.1±0.8	5.7±0.8	5.9±0.8	

ANOVA 1: $p > 0.05$

Conclusion

Both FSH treatments were effective in stimulating follicular development in these prepubertal animals. Nevertheless, estradiol peak production was again not observed after FSH treatment. Therefore we conclude that our initial hypothesis (no estradiol peak production because of lack of LH in the FSH preparation) has to be rejected.

● PREGNANCY-ASSOCIATED GLYCOPROTEIN PROFILES OF 5 HEIFERS MEASURED BY THREE RADIOIMMUNOASSAY SYSTEMS

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Pregnancy-associated glycoproteins (PAGs) are expressed in the superficial layer of the ungulate trophoderm. Molecular biology investigations showed that several PAG genes are present in the bovine genome and they share high sequence identity with each other. These studies also showed that the

expression pattern of the PAGs is temporal and spatial. Till now PAG I₆₇ was isolated and characterized from the bovine placentomes (1), PAG₅₅, PAG₅₉, and PAG₆₂ were purified from caprine placental extracts (2). Radioimmunoassay developed to detect PAGs in biological fluids (3) became efficient tools for establishment of pregnancy diagnosis and pregnancy follow-up in goat and cattle.

This study was undertaken to characterize the PAG profiles using 4 RIA systems of 5 Holstein Friesian heifers during the first part of their pregnancy.

Blood samples were collected frequently from the jugular and the coccygeal veins of the animals. After clotting the samples were centrifuged (at 1500g for 15 min), the serum was removed and was stored at -20°C till the RIA measurements. The four PAG RIA measurements were performed according to a protocol described by Zoli *et al.* (1992) and by Perényi *et al.* (2001). The PAG profiles are presented in figures 1–5. From the PAG concentrations determined by the four RIA systems the following ratios were calculated: RIA 2/RIA 1 and RIA 3/RIA 1. Analyzing the PAG profiles it can be seen that PAG molecules first appeared in the maternal blood in detectable concentrations at 19–25 days after AI. Intensive increase could be observed till day 33–37. After day 35–40 the PAG profile of RIA 1

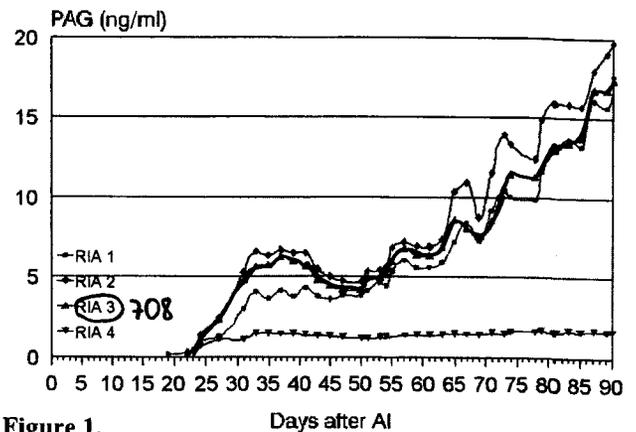


Figure 1.

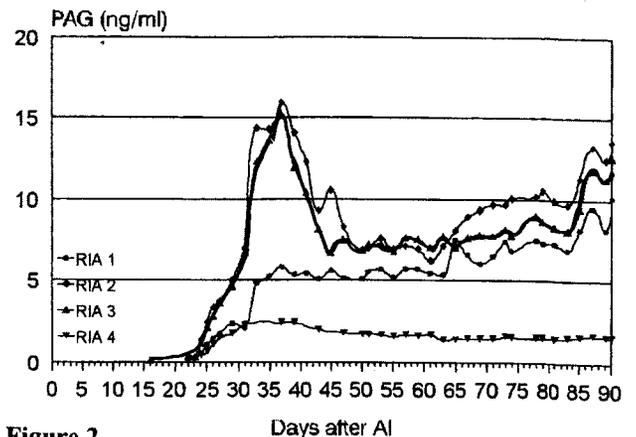


Figure 2.

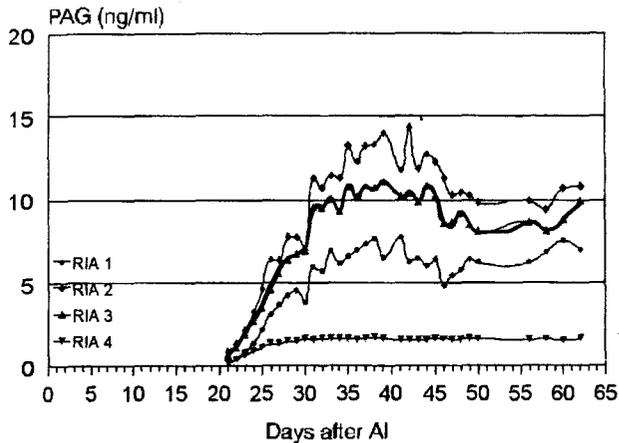


Figure 3.

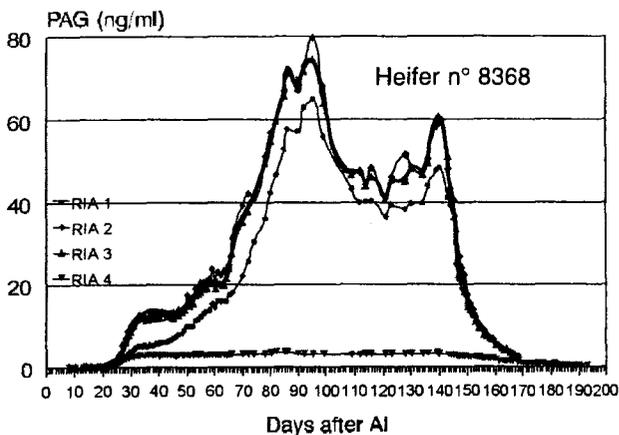


Figure 4.

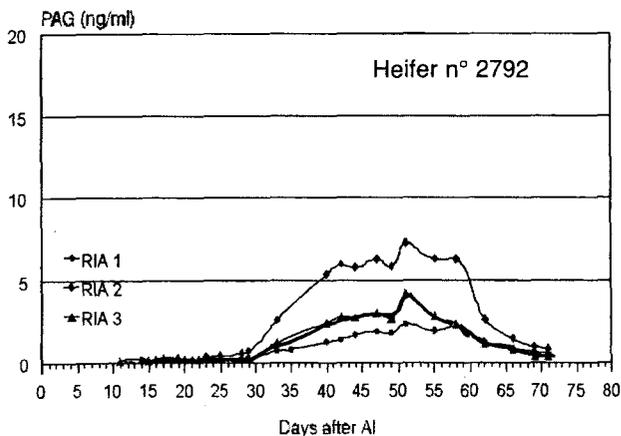


Figure 5.

showed a plateau with concentration of PAG remaining constant, in the first three figures in RIA 2 and RIA 3 profiles decrease could be observed. Except some points at the detection limit of the tests, the PAG concentrations measured by RIA 2 and 3 were higher than those by RIA 1. The mean RIA 2/RIA 1 and RIA

3/RIA 1 ratios determined for the first 90 days of pregnancy are shown in figure 6. From day 21–25 till day 41–50 these ratios were higher than 1.5, after they started to decrease and remained higher in the examined period for RIA2/RIA1.

The heifer N° 8368 presented increasing PAG levels in all the three RIA systems till day 90–100, after a decrease could be observed. The profile of this animal shows a second increase at around day 135–140. At day 144 abortion occurred and the expulsion of two fetuses was observed. After day 144 PAG concentrations were decreasing sharply. The heifer n° 2792 presented a late embryonic mortality. The embryonic death occurred probably between 51 and 62 days after AI, after PAG levels decreased sharply.

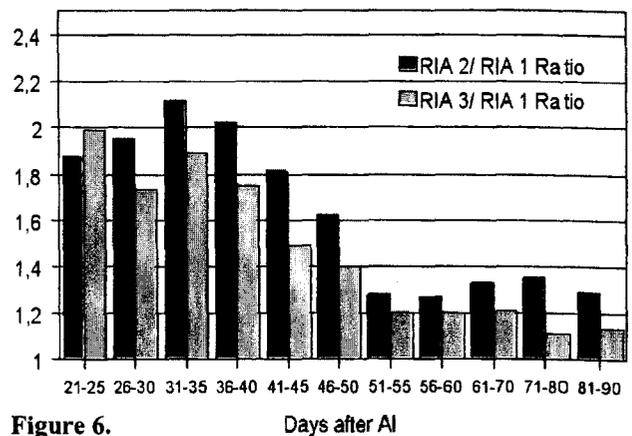


Figure 6.

Our results showed that between 20 and 50 days after AI, PAGs better recognized by RIA 2 and RIA 3 are secreted into the maternal blood. The higher RIA 2/RIA 1 and RIA 3/RIA 1 ratios determined between day 21 and 50 suggest that RIA 2 and RIA 3 also detected additional PAG molecules non identical with PAG I67. It was also shown, that RIA 2 and RIA 3 can be used as a sensitive tool to follow up pregnancy.

References

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- Zoli AP., Guilbault LA., Delahaut P., Ortiz WB., Beckers JF. (1992). Radioimmunoassay of a bovine pregnancy-associated glycoprotein in serum – its application for pregnancy diagnosis. *Biol. Reprod.* 46 (1), p. 83–92.