CHARACTERISTICS OF FRESH SEMEN OF LARGE WHITE YORKSHIRE BOAR REARED IN KERALA

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High prolificacy, feed conversion efficiency, short generation interval and smaller capital investment makes pig farming one of the most profitable investments in Kerala. Though artificial insemination (AI) in pig industry plays a major role in upgradation of species, it is not as popular as in cattle because of drawbacks of semen quantity required for insemination and low cryopreservability of boar semen. The article describes the normal parameters of Large white Yorkshire (LWY) boar semen reared under Kerala conditions.

Twenty two ejaculates from four LWY boars maintained at the Centre for pig production and research, Mannuthy, were collected using gloved hand technique and a dummy mount. The semen was collected in a pre-warmed amber coloured insulated conical flask after allowing it to pass through a Buchner funnel to separate the gel mass. The collected semen was immediately transported to the laboratory for preliminary evaluation in an insulated container. The fresh semen collected was evaluated for volume, colour, pH, progressive sperm motility and concentration. Percentage data recorded were transformed using Arcsine prior to analysis. Treatment means were compared using one way Analysis of variance (ANOVA).

The colour of the gel free ejaculates ranged from milky to thick milky. Of the 22 ejaculates collected, three had thin milky colour, 15 had milky colour and four had thick milky colour. The observations of the presents study were similar to the findings of Sreekumaran (1974). Frunza *et al.* (2008) reviewed that the normal colour for boar semen ejaculate was white with bluish shadows. The colour became clearer with increased frequency of collections, as the spermatozoa concentrations decreased. The volume of the semen ejaculates ranged between 110-250 mL, with a mean volume of 167.73 ± 7.95 mL. The volume of semen did not differ significantly among the four boars. This was in accordance with the gel free ejaculate volume observed by Kantharaj (2001) in Large White Yorkshire (168.11 ± 4.15 mL). Hafez (1993) recorded a range of 50-400 mL for semen volume in boars. The semen volume observed in the present study fell within these reported ranges. The overall average fresh semen pH was found to be on the alkaline side (7.40 ± 0.04), ranging from 7.10-7.80. On an individual boar basis the pH was found to range from 7.30 ± 0.08 to 7.52 ± 0.09. There was no significant difference observed in the pH of semen ejaculates between the boars. According to Johnson *et al.* (2000), the pH of boar semen ejaculate was in the range of 7.2-7.5, which was in accordance to the findings in the present work. The pH recorded by Strzezek et al. (1995) in Yorkshire boar semen was slightly lower (7.1 ± 0.07). Semen ejaculates of the same animal can differ in its pH. The secretions from the accessory sex glands determined the alkalinity of the ejaculate with their lower or higher contribution (Mann, 1974).

The overall sperm progressive motility, immediately after collection, ranged from 70.0 – 85.0 per cent with an average of 76.82 ± 1.12 per cent. Individual boar progressive motile sperm per cent varied from 74.0 ± 1.0 to 79.17 ± 2.01. No significant difference was observed in progressive motility of sperm in fresh semen between boars, which was in agreement with

Table 1. Fresh semen characteristics of Large white Yorkshire boars ejaculates

Semen characteristics		Range	Mean ± SE	Overall range and Mean ± SE (n=22)
Gel free volume (mL)	Boar 1 (n = 6)	120-200	155.0 ± 10.88	110 – 250 167.73 ± 7.95
	Boar 2 (n = 6)	110-210	163.33 ± 14.06	
	Boar 3 (n = 5)	120-220	166.00 ± 16.61	
	Boar 4 (n = 5)	110-250	190.00 ± 23.02	
pH	Boar 1 (n = 6)	7.20-7.80	7.43 ± 0.09	7.10-7.80 7.40 ± 0.04
	Boar 2 (n = 6)	7.10- 7.60	7.35 ± 0.08	
	Boar 3 (n = 5)	7.10-7.50	7.30 ± 0.08	
	Boar 4 (n = 5)	7.30- 7.80	7.52 ± 0.09	
Concentration (millions/mL)	Boar 1 (n = 6)	237.67 – 271.95	259.34 ± 5.24	141.75-310.80 232.65±11.46
	Boar 2 (n = 6)	141.75 – 310.8	237.09 ± 25.06	
	Boar 3 (n = 5)	147.00-260.00	218.67 ± 19.61	
	Boar 4 (n = 5)	147.75– 292.95	209.28 ± 35.51	
Progressive motility (in per cent)	Boar 1 (n = 6)	75.00-85.00	79.17 ± 2.01	70.00 – 85.00 76.82 ±1.12
	Boar 2 (n = 6)	75.00-80.00	77.50 ± 1.12	
	Boar 3 (n = 5)	70.00-80.00	78.00 ± 2.00	
	Boar 4 (n = 5)	70.00-75.00	74.00 ± 1.00	

the findings of Kantharaj (2001). Much lower values of 65.7 per cent were observed by Sreekumaran (1974). Cerolini et al. (2001) recorded motility of 63 ± 2.2 per cent in a study which included boars of different genetic lines (Landrace, Large White and commercial hybrids).

The overall sperm concentration ranged from 141.75 to 310.8 million/mL with a mean ± SE of 232.65 ± 11.46 million/mL. On an individual boar basis the sperm concentration varied from 209.28 ± 35.51 to 259.34 ± 5.24 million/mL. No significant variation was observed among the sperm concentration between the four boars. This was in accordance with the observations of Labussiere (1990; 200-300 million/mL) and Strzezek et al. (1995; 211 ± 22.07 million sperms/mL) in Yorkshire boar semen. Kantharaj (2001) recorded a sperm concentration of 261-329 million/mL with an average of 288.28 ± 2.73 million/mL in Large white Yorkshire boar semen, which was slightly higher than the concentration observed in the present study.

The sperm concentration in the semen decreases as the frequency increases. With increasing frequency, the ejaculate volume is mainly contributed by seminal fluid from accessory glands and there will be a reduction in the concentration.

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