# Milk Production and Performance for Some Reproductive Traits of Sheep Breeds and Crosses in the West Bank

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**Abstract:**

The aim of this study was to investigate milk production and performance for some reproductive traits of Awassi and Assaf breeds and their crosses in the West Bank. The data included 1711 milk records on 1243 ewes and 3682 lambing records on 1837 ewes from the Awassi breed (AW), two Awassi-derived-lines (Improved Awassi, IA and Afec-Awassi, AA), Assaf breed (AF), and Awassi x Assaf crosses (XB). The data were from the demonstration farms of the Small Ruminant Middle East Regional Program in the West Bank, collected during the years 2003 to 2010. The farms covered eight geographic locations (Bethlehem, Dora, Hebron, Jerusalem, Ramallah, Nablus, Qalqilia, and Jenin). For milk traits, the number of ewes ($n$) and number of records ($l$) were as follows: $n$=287**,** $l$=435 for AW; $n$=138**,** $l$=224 for IA; $n$=24, $l$=40 for AA; $n$=254**,** $l$= 339 for AF, and $n$=564, $l$= 758 for XB. For reproductive traits, these were: $n$=153**,** $l$=431 for IA; $n$=448**,** $l$=778 for AW; $n$=26, $l$=56 for AA; $n$=433**,** $l$= 968 for AF, and $n$=803, $l$= 1505 for XB. The analysis model for milk traits included: location-breed (LB), Parity (PR), year-season of lambing (YS), induction of estrus (TRT: natural or PMSG sponges), number of lambs born per ewe lambing (NLB), number of milking tests (NMT), and lactation length (LL). For reproductive traits the model included LB, PR, YS, and TRT. The results showed significant differences in performance among breeds and in the performance of the same breed in different locations. The least squares means for total milk yield (kg) per ewe over 150 days of lactation were: 185.5±8.7 for AA (experimental station of Betqad in Jenin)), 171.4 ±3.7 for IA (experimental station of Betqad), 123.6±4.1 (Jerusalem) to 212.0±7.1 (Hebron) for AW, 184.7±5.2 (Qalqilia) to 274.9±8 (Jenin) for AF, and 174.8±3.5 (Dora) to 328.3±7 (Nablus) for XB. The AA line, which carries the Booroola fecundity (FecB) gene, had the highest reproductive performance while AW and IA had the lowest performance. The least squares means of number of lambs born alive per ewe lambing were 1.47±0.06 for AA, 1.15±0.02 for IA, 1.11±0.02 (Jerusalem) and 1.19±0.04 (Hebron) for AW, ranged from 1.16±0.05 (Jenin) to 1.31±0.02 (Qalqilia) for AF, and ranged from 1.11±0.03 (Bethlehem) to 1.30±0.06 (Jerusalem) for XB. The least squares means of lambing interval (in days) were 338±14 for AA, 355±5 for IA, 361±6 (Jerusalem) and 429±14 (Hebron) for AW, ranged from 276±11 (Jenin) to 356±16 (Hebron) for AF, and ranged from 269±9 (Jerusalem) to 390±10 (Jerusalem) for XB.

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