

# Animal Production Session

## Heritability of milk yield and some reproductive traits in sheep breeds in the West Bank

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### Abstract:

This study was conducted to estimate heritability ( $h^2$ ) of milk and reproductive traits in four sheep breeds in the West Bank: Awassi, Improved Awassi, Assaf, and Awassi x Assaf. The data were obtained from the Demonstration Farms project of the Middle East Small Ruminant Regional Program. Milk traits were total milk yield (TMY), total milk yield to 120 days of lactation (TMY120) and to 150 days of lactation (TMY150). Reproductive traits included number of lambs born per ewe lambing (NB), number of lambs born alive per ewe lambing (NBA), and lambing interval (LI). For milk traits, the number of ewes (n) and number of records (l) were: n=287, l=435 for Awassi; n=138, l=224 for Improved Awassi; n=254, l=339 for Assaf, and n=564, l=758 for Awassi x Assaf. For reproductive traits, n=448, l=778 for Awassi; n=153, l=431 for Improved Awassi; n=433, l=968 for Assaf, and n=803, l=1505 for Awassi x Assaf. Heritability estimates were obtained with a mixed model using derivative-free REML procedure. The estimates for TMY ranged from 0 in Awassi x Assaf to 0.10 in Improved Awassi. For TMY120 and TMY150, heritability ranged from 0 in Awassi x Assaf to 0.16 in Awassi. The estimates for NB varied from 0 in Awassi x Assaf to 0.09 in Awassi, and from 0 in Awassi x Assaf to 0.15 in Awassi for NBA. For LI, heritability was 0.03 in Awassi and 0 for the other breeds. Most records (except for Improved Awassi) lacked sire and dam identification which may have affected the estimates which had large standard errors. The estimates of heritability for prolificacy traits (NB and NBA) in Awassi indicate that selection could be used for genetic improvement of these traits. Estimates for milk traits need further investigation. We recommend that management should be further controlled and efficient on-farm recording system should be established whereby performance and pedigree affiliation are routinely recorded.

**Key words:** Heritability, milk yield, reproductive traits, Awassi, Assaf, West Bank

