Reproductive Performance Comparison between Natural and Artificial Service in Jawarandu Goat

Dian Meididewi Nuraini, Sigit Prastowo, Nuzul widyas

Department of Animal Science, Faculty of Agriculture, Universitas Sebelas Maret, Surakarta, Indonesia

Corresponding e-mail : prastowo@staff.uns.ac.id

INTRODUCTION

- Goat's crossbreeding is a common practice in Indonesia as an effort to increase the genetic quality of local breed. One of the practices is **crossbreeding between local breed called Jawarandu with imported breed, Boer goat**, producing Boerja goat [1, 2].
- Successful goat crossbreeding is related to reproductive performance of the breeds. Reproductive performance can be assessed through several parameters, such as **pregnancy rate, litter size, and twinning rate** [3-5].
- In the crossbreeding between Jawarandu and Boer, two methods have been used: **natural service (NS) and artificial insemination (AI)**.
- Both procedures should be evaluated to determine the best method in Jawarandu and Boer crossbreeding.
- **This study aimed to compare the reproductive performance between NM and AI in Jawarandu doe in the crossbreeding practice with Boer buck.**

METHODOLOGY

243 NATURAL MATING

434 JAWARANDU DOES

18 BOER BUCKS

200 ARTIFICIAL INSEMINATION

REPRODUCTIVE PERFORMANCE

- Pregnancy rate
- Litter size
- Single kidding
- Twinning rate
- Triplet rate

DATA ANALYSIS

Data were analysed with t-test using SPSS 21.

Picture source:
1. https://docplayer.info/57454843-Penampilan-reproduksi-kambing-cross-boer-jawarandu-boer.html
2. http://nad.litbang.pertanian.go.id/ind/index.php/info-teknologi/847-ayo-beternak-kambing-boerka

RESULT

Table 1. Comparison of reproductive performance in natural service and artificial insemination in Jawarandu goat

Parameter	Natural Mating	Artificial Insemination
Pregnancy rate (%)	73.07[a]	21[b]
Litter Size	1.37 ± 0.50[a]	1.35 ±0.56[a]
Single kidding (%)	63.35[a]	64.86[a]
Twinning rate (%)	36.02[a]	33.14[a]
Triplet rate (%)	0.62[a]	0[a]

*Different superscript letter in same column shows significant difference ($p<0.05$)

DISCUSION

➔ **NM had higher pregnancy rate compare to AI ($p<0.05$)**

- Some affecting factors to low pregnancy rate in AI :
  - Miss-timing of insemination
  - Semen could not deposited in deeper cervic region due to anatomy structure of doe's cervic

➔ **Litter size, twinning and triplet rate showed no difference between NM and AI ($p>0.05$)**

- The LS, twinning and triplet rate lower than earlier report in Jawarandu cross boer, PE cross boer, but relatively higher than Saaenen.
- Possible factors: small body size due to low nutrition intake and high vatiation in parity and age

CONCLUSION

- NM showed better reproductive performance compared to AI for Jawarandu goat.
- Thus, the application of NM is suggested to be used in commercial breeding program.

Reference:

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4. Agossou DJ, Koluman N 2018 The effects of natural mating and artificial insemination using cryopreserved buck semen on reproductive performance in Alpine goats. *Arch Anim Breed* 61(4):459-461.
5. Kaunang D, Suyadi S, Wahjuningsih S 2014 Analisis litter size, bobot lahir dan bobot sapih hasil perkawinan kawin alami dan inseminasi buatan kambing Boer dan Peranakan Etawah (PE) *JIIP* 23(3):6.