

BIOLOGICAL EFFICIENCY OF GOAT MILK PRODUCTION

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1. OBJECTIVES

Establish the milk quantity produced by body weighth of goats
= find out the efficiency of milk production

2. INTRODUCTION

- the most effective milking species among ruminant: **GOAT**
- estimated production by lactation: 10 times level of the body weight:
 - average body weight: 50-60 kg
 - average milk production: 500-600 kg

3. MATERIALS AND METHODS

- 297 female goats
- 5 breeds:
 - Hungarian Milking White (HMW); n=52
 - Hungarian Milking Brown (HMB); n=19
 - Hungarian Milking Multicolour (HMM); n=31
 - Alpine; n=68
 - Saanen; n=127

- Body weight index (BWI; %): from body weight (BW; kg) and wither height (WH; cm) data (*Horn, 1973*)

BWI = $\frac{\text{body weight}}{\text{wither height}} \cdot 100$

- lactation length (day)
- lactation yield (liter)

Correction of lactation yield:

LY – 1: 200-days production

LY – 2: 200-days production corrected by number of lactation

1 st lactation:	1.54
2 nd lactation:	1.15
3 rd lactation:	1.05
4 th lactation:	1.00
5 th lactation:	1.05
6 th lactation:	1.05
7 th lactation:	1.15
from 8 th lactation:	1.54

(from Molnár and Molnár, 2001)

Efficiency:

- EFF – 1: LY – 1 / BW
- EFF – 2: LY – 2 / BW
- EFF – 3: LY – 1 / BWI
- EFF – 4: LY – 2 / BWI

5. CONCLUSIONS

- According to the methods of corrected lactation yield
- the most efficient milk producing breed: **HMB**
 - average efficiency: **9.31 times** of body weight

4. RESULTS

Body Measurement (Table 1.):

- body weight: Saanen > Alpine > HMB > HMM > HMW
- withers height: Alpine > Saanen > HMB = HMM > HMW
- BWI: Saanen > Alpine > HMB > HMM > HMW

Milk production (Table 2.):

- LY – 1: Saanen > Alpine > HMB > HMM > HMW
- LY – 2: Alpine > Saanen > HMB > HMM > HMW
- LY – 2: better results than LY – 1
- Alpine and Saanen: LY > LY-1

Efficiency (Table 3.):

- more favourable using BW than using BWI
- EFF – 1: HMB > Alpine > Saanen > HMM > HMW
- EFF – 2: HMB > Saanen > Alpine > HMM > HMW

Table 1. Mean±standard deviation of BW, WH and BWI of does by breeds

	HMW	HMB	HMM	Alpine	Saanen
BW	45.40 ± 8.70	50.95 ± 7.22	48.63 ± 9.39	54.02 ± 7.71	54.63 ± 10.96
WH	64.35 ± 4.28	65.58 ± 6.06	65.58 ± 5.13	67.34 ± 4.96	66.26 ± 3.99
BWI	70.25 ± 10.70	77.76 ± 9.23	73.84 ± 11.57	80.44 ± 11.81	82.34 ± 15.04

Table 2. Mean±standard deviation of corrected lactation yields (LY-1, LY-2)

	HMW	HMB	HMM	Alpine	Saanen
LY-1	332.84 ±190.00	448.20 ±181.37	393.93 ±187.09	468.77 ±173.51	454.74 ±152.68
LY-2	398.17 ±246.79	500.64 ±178.07	431.84 ±199.83	501.59 ±188.74	511.94 ±189.11

Table 3. Efficiency of goat milk production by breeds

	HMW	HMB	HMM	Alpine	Saanen
EFF-1	7.45 ± 4.04	8.82 ± 3.39	8.15 ± 3.49	8.63 ± 2.84	8.49 ± 2.81
EFF-2	8.87 ± 5.02	9.81 ± 3.24	8.99 ± 3.85	9.28 ± 3.35	9.59 ± 3.69
EFF-3	4.78 ± 2.61	5.78 ± 2.22	5.33 ± 2.33	5.81 ± 2.01	5.61 ± 1.85
EFF-4	5.69 ± 3.28	6.45 ± 2.19	5.87 ± 2.54	6.25 ± 2.39	6.32 ± 2.34