Estimation of Economic Values of Productive Traits in Taleshi Sheep of Iran

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ABSTRACT

In order to estimate economic values of productive traits (meat, milk and wool) in Taleshi native sheep breed of Iran, records from economic parameters and performance of local Taleshi flocks were used. The economic values of traits were used to select the maximum profit estimation also to study the sensitivity rate of the model the effects of 20 percent increase / decrease in the price of milk feed and other costs were estimated. Average values of estimated absolute economic values for meat, wool and milk were 1229798.139, 833959.858 and 27174.717 Iranian Rial (IRR)/kg, respectively. Life analysis of economic values showed that these values were changing and sensitive to the variable management and nutrition costs, although they were less affected by the change in total cost of the growing system of Taleshi sheep.

KEY WORDS economic value, meat, milk, Taleshi sheep, wool.

INTRODUCTION

The human population is growing fast which it seems that in spite of the recent progresses in new issues and technologies, they are not enough to fulfill feed requirements of humankind. Planning a suitable breeding system would be an important practical method in using the production potential of local sheep flocks. Therefore, it is essential to estimate economic values of production traits in a one or multivariate selection scheme to evaluate the priority incomes and costs of a breeding system. Harris and Newman (1994) explained a production system and formulated system objectives for the main steps of a breeding program in sheep. Panzoni (1988) and Groen et al. (1997) mentioned that determination of breeding objectives and evaluation of economic values, are prior criteria in developing the breeding objectives. Taleshi sheep is a good quality mutton-producing breed with long wool fibers, however, it has small tallow. These potentials are of an importance in sheep industry in Iran. According to the extensive breeding system, there is a necessity for identifying the productive potential and economic efficiency of this breed. It will improve economic production and income of Taleshi sheep in rural areas. In order to accomplish these objectives, the present study was conducted to estimate economic indexes, sensitivity of values in selection for maximum profit using simple explanatory models of extensive breeding system in Iran.

MATERIALS AND METHODS

In order to estimate economic values, information from total costs and incomes from 40 local Taleshi flocks in 2011 were used (Research state of Taleshi sheep, Gilan province, Iran). To investigate the effect of different economic and production factors on the economic values, a
population of Taleshi sheep was simulated. The structure of this population was male and female sheep, 3 month-olds, 4 to 11 months-olds, culled and 12 to 18 months-old replacement lambs. Since there were seasonal differences affecting the performance of animals and costs, mean value of measures were calculated. The income was consisted of money from selling wool, culled animals (male and female) and dairy products. Costs were consisting of fixed and variable cost (nutrition and raising, husbandry, salary of workers, sanitation and wool shearing, as non-nutrition variables).

Milk, wool and meat production were traits considered for studies. The equation of yearling income of flocks was as follows:

\[ P_{\text{flock}} = N_f (R_f - C_f) - C_{\text{CF}} \]

Where:
- \( P_{\text{flock}} \): yearling income from the flock.
- \( N_f \): number of stud ewes.
- \( R_f \) and \( C_f \): incomes and costs, respectively from one sheep, in a year.
- \( C_{\text{CF}} \): yearling constant cost of the flock.

### RESULTS AND DISCUSSION

Table 1 represents the parameters of the model and Table 2 summarizes the costs of nutrition and non-nutrition factors for each group. In order to estimate economic values, the standard method and maximum income trend, the partial derivative of the profit equation for each trait were used. In a semi-intensive system, current costs explained 98 percent of total costs. Vatankhah (2005) studied the rural system of Lori Bakhtiari sheep and reported that current costs were 97.65 percent of total costs; Molayi-Moghbeli (2005) mentioned 98.60 percent in Raeini goat.

Nutrition costs were estimated 37 percent and 38 percent of the total and current costs, respectively. However, non-nutrition costs were 61 and 62, respectively. It was in agreement with the results reported by Molayi-Moghbeli (2005) in Raeini goats and Kosgey et al. (2001) in tropical sheep breeds.

The difference was likely due to the raising system of Taleshi sheep was more dependent on pasture, then the feeding costs were low and sanitation costs were more. It may be noted that because of the local husbandry, the shares of constant costs only explained 2 percent of total costs. In the present study, income from selling meat, wool and milk / dairy products, were 48, 37 and 15 percent of total income, respectively. In maximum income trend, the economic values of meat, wool and milk were 1229798.139, 833959.859 and 27174.717 IRR, respectively, which meat production had the highest value and wool and milk were at second and third levels.
Change in economic values of traits according to the ±20 percent changes in the cost of inputs, base total price (Table 3), feed costs (Table 4), non nutrition costs (Table 5) and in base constant prices (Table 6) were evaluated. Tables 3-6 represent that in maximum profit trend and with a 20 percent decrease in costs, change in economic values, also change in the level of economic values would not be considerable. Table 6 shows that ±20 percent of change in constant costs had no significant effect on the sensitivity of estimated values in a maximum profit trend. Otherwise, 20 percent increase in current and feed costs, made a considerable change in estimated values and of the level of values.

## CONCLUSION

This work has provided a base from which to define the economic limitations to genetic improvement in pasture environments for sheep. Genetic improvement in pasture environments is likely to be of greater benefit to farms with fewer constraints to improvements in production, such as better-quality hill grazing land. For farms in this location, the economic value of improving litter size was only positive within defined production limits. There is little economic reward to genetic improvement programs beyond these limits because the cost of production outweighs the benefits of extra financial returns. An application of this generic methodology would be for animal production systems where environmental factors play a major role in the suitability of different genotypes. It is important in such situations to model the true importance of each trait, the implications of changing the environment, and of changing the genotypes.

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## REFERENCES


