

PRELIMINARY DATA ON COMPARISON OF SMALL AND MEDIUM DAIRY FARMS IN ALBANIA

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Abstract

The objective of the study was to compare the performance of the small dairy farms (2-4 cows) and medium dairy farms (≥ 6 cows) in Albania, with reference to the annual farm income, the cost of milk production and the problems faced. Data on production, expenses and returns were recorded on a monthly basis for each farm over a period of 12 months. Data such as using milking machine, artificial insemination, needs for training, fodder production and feed bought in the market were collected.

The difference in milk yield is very little between such farms (2.1%). The annual profit per farm for the small farms is 106.8 Euro and for the medium ones is 254.4 Euro. The small farms sell 79,1% of the milk production while the medium ones 88,9%. In both cases the fodder production and part of concentrate feed is produced in the farm however the small farms bought 1064 kg/cow concentrate while the medium ones 1,682 kg/cow. All farmers are asking for trainings how to prepare silage and good quality hay, as well as learning livestock good practices.

Keywords: *dairy farm, farm income, small and medium farms.*

Introduction

In 2010, in Albania are operating 219,952 farms with cattle (out of 350,654 farms in total) or 62.7%. The average of cows per farm is 1.5 units. Only 14.5% (3,188 unit) of the farms have more than 6 cows and they produce 20% of the total cow milk (Agricultural Statistical Year Book, 2010)

The last decade witnessed the emergence of the so-called medium size dairy farms owning 6- 20 cows. These farmers have been looking at dairying as an economic activity and they are looking forward to modernize their activities. Another reason to study farms with more than six cows is the Instruments Pre-Accession and Rural Development-Like (IPARD) Program which will support such farms.

Little information is available on the economics of production on the small and medium size dairy farms, so the study was therefore undertaken to collect on farm data pertaining to revenue and expenses on both types of farms and make an economic analysis.

Materials and methods

The study was conducted in the central part of Albania, Elbasan and Durres districts. 40 small and medium sized farms (20 per each district) were monitored. Data collection lasted from September 2010 till August 2011. Small farms were defined as those having 2 to 4 cows and medium farms those having 6 or more cows. Both districts are breeding 10% of the cows

population in Albania and the milk yield is 3120 kg/year compare with 2631 kg of the average of the country {1, 2}

The medium farms were selected with 6 or more cows because the IPARD-Like Program that will start during autumn 2012 will support farms that are managing 6 or more cows.

Data collection: Each farm was visited monthly over a period of 12 months. The following data were recorded (according to the questionnaire prepared and tested):

A. Income and expenses:

- Milk yield: the amount of milk produced by each cow,
- Quantity of milk sold in the market or to the dairy processor (quantity and price),
- Quantity of milk used for the calves and for the family consumption,
- Incomes from sales (milk),
- Expenses for the fodder production, like alfalfa hay and silage,
- Expenses for the animal feed bought in the market,
- Expenses for veterinary service, including insemination,
- Expenses for fuel, electricity, water, trips, lease on land, and land tax.
- Estimated cost of labor needed to take care of the herd per year

B. Technical data, such as:

- Insemination (artificial or natural mating),
- Milking (milking machine or by hand),
- Type of animal feed used (including microelements or premix),
- Animal health (diseases and parasites),
- Training needs.

Data analysis: A model was developed in Microsoft Excel program for data analysis, and statistical data processing was done with Statgraphics Centurion XVI.

Results and discussions

Data on milk yield, Incomes per Farm (IpF) (Frank & Vanderlin, 2001) cost of milk (Frank & Vanderlin, 2001) and the ratio milk quantity sold in the market vs. total milk production are summarized in Table 1, as shown below:

Table 1: Milk yield, IpF, milk cost according to the farm size (number of cows).

Number of heads	Milk yield	IpF (Euro)	Milk cost (Euro/kg)	Milk sold vs milk produced (%)
2-4 cows	4695	106,8	0,29	79,1
6+ cows	4796	254,4	0,25	88,9

Statgraphics Centurion XVI was used for statistical data processing and results are shown below:

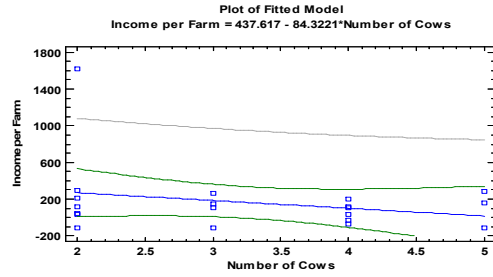


Fig. 1: Small farms IpF (Euro) vs. Number of cows/year

$$\text{Income per Farm} = 437.617 - 84.3221 * \text{Number of Cows}$$

Since the P-value in the ANOVA table is greater or equal to 0.05, there is not a statistically significant relationship between Income per Farm and Number of Cows at the 95.0% or higher confidence level.

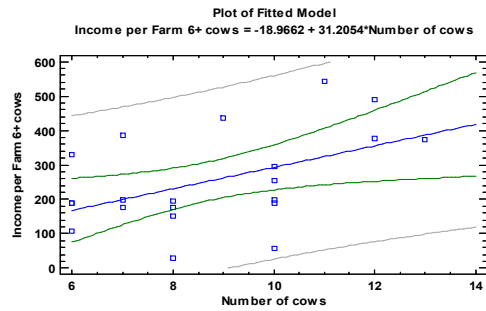


Fig. 2: Medium farm (Euro) vs. Number of cows/year

$$\text{Income per Farm 6+ cows} = -18.96 + 31.20 * \text{Number of cows}$$

Since the P-value in the ANOVA table is less than 0.05, there is a statistically significant relationship between Income per Farm 6+ cows and Number of cows at the 95.0% confidence level.

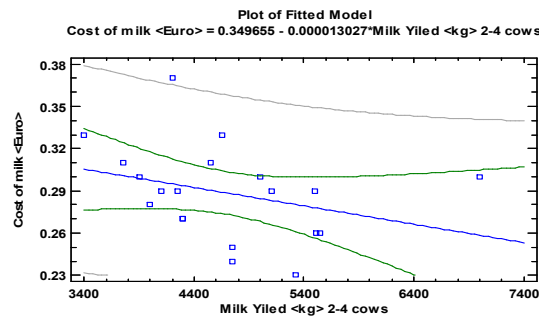


Fig 3. Small farm Milk Cost (cent/Euro) vs. Milk Yield

$$\text{Cost of milk <Euro>} = 0.349655 - 0.000013027 * \text{Milk Yiled <kg> 2-4 cows}$$

Since the P-value in the ANOVA table is greater or equal to 0.05, there is not a statistically significant relationship between Cost of milk <Euro> and Milk Yield <kg> 2-4 cows at the 95.0% or higher confidence level.

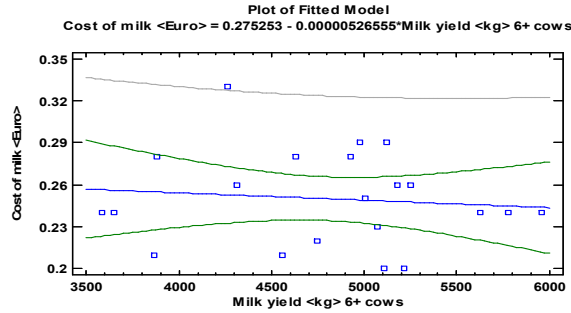


Fig 4: Medium farm Milk Cost (euro) vs. Milk Yield
 Cost of milk <Euro> = 0.275253 - 0.00000526555 * Milk yield <kg> 6+ cows

Since the P-value in the ANOVA table is greater or equal to 0.05, there is not a statistically significant relationship between Cost of milk <Euro> and Milk yield <kg> 6+ cows at the 95.0% or higher confidence level.

The comparisons of IpF for small and medium sized farms are shown in Table 2:

Table 2: Statistics of IpF for the two sized farms

	<i>Income per farm 2-4 co</i>
Count	20
Average	118.215
Standard deviation	142.282
Coeff. of variation	120.359%
Minimum	-117.2
Maximum	427.7
Range	544.9
Std. skewness	0.265922
Std. Kurtosis	-0.116564

Table 3: Statistics of the Milk Yield of the two sized farms.

	<i>Milk yield farms with 2-4 cows</i>	<i>Milk yield Farms with 6+ cows</i>
Count	20	21
Average	4694.5	4795.9
Standard deviation	822.061	671.952
Coeff. of variation	17.5111%	14.011%
Minimum	3400.0	3580.0
Maximum	7000.0	5960.0
Range	3600.0	2380.0
Std. skewness	1.90359	-0.587996
Std. kurtosis	1.73047	-0.527109

The results of table 1 shows that cows of medium farms have produces 101 kg (2,1%) than the cows of small farms.

The Income per Farm in the medium sized farms is 254.4 Euro/year compared with 106.8 Euro/year in the small sized farms or 138% more.

The value of IpF is affected mainly by changes in inventory (increase or decrease in number of animals) and number of kg milk sold on a yearly basis.

The R-Squared statistic indicates that the model as fitted explains 6.57678% of the variability in Income per Farm for the small sized farms and 23.9633% of the variability of IpF for the medium sized farms. The correlation coefficient equals -0.256452 for small sized farms and 0.489523 for the medium sized farms, indicating a relatively weak relationship between the variables.

The average cost of producing a liter of milk for small sized farms was 0,29 Euro/liter and 0,24 Euro/liter for the medium sized farms. Since the P-value in the ANOVA table is greater or equal to 0.05, there is not a statistically significant relationship between Milk Yield and Milk Cost, for both types of farms, at the 95.0% or higher confidence level.

In addition the small sized farms are selling 79,1% of their production and the rest is used for the calves and for the home consumption while the medium sized farms 88,9%.

These preliminary data of our study shows that medium sized farms had better results than the small sized farms for milk yield, production cost and sales.

This is the first study comparing small and medium sized farms and we consider all the preliminary data because the sample that we worked with is considered small and for the future is needed to study it in bigger number of farms. Also, in the next step of the study we will include the calves selling in the farm income.

Conclusion

On the bases on the obtained preliminary data on comparison of small and medium farms in Albania could be concluded:

- The economic results are better for medium sized farms than for small sized farms however in other studies we need to consider the beef performance as farmers are using same components of feed for cows and calves.
- The most important is that medium farms have better financial indicators than the small ones.

References

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