THE USE OF BARREN LANDS – SOURCE OF IMPROVING FORAGE BASE IN ORDER TO ENSURE THE OPTIMUM MILK CONSUMPTION

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Abstract

Country's arable land is 8.4 million hectares, of which 1.26 million hectares (15%) are barren. Average recommended consumption of milk is 240 l/year/person, while in developed countries it is between 280 and 440 l/year/person. The objective of this paper is to determine whether cultivating barren lands could bring an increase of production so as to ensure an optimum consumption of milk and dairy products. If the barren lands from the NE area of development would be cultivated with forage crops, it might get a production of about 873 thousand to of fodder. In Neamt county, from the use of barren lands, the optimal consumption for milk and dairy products should be provided (303 l/inh.), counties such as Suceava and Botosani making even surplus yields (740 l/inh., respectively 528 l/inh.). In Iasi, Vaslui and Bacau counties, it could only be realized a minimum or a little over minimum consumption (192 l/inh, 210 l/inh., 207 l/inh.).

Key words: forrage base, milk consumption, barren lands

Country's arable land is 8.4 million hectares, of which 1.26 million hectares (15%) are barren. Arable land has become a geopolitical issue because global security is threatened by famine (Smith 2009). We are ranked 12th in the world vulnerable to hunger among African countries. Dairy cows fed high-quality forage produce more milk with less supplemental concentrate than cows fed lower-quality forage (Radu 2011; Vladu et al. 2007; Weiss et al. 2007). Livestock, their health and productive capacity depends largely on the provision of fodder throughout the year, rich in various chemical constituents (Pop et al. 2002; Stoica 2006; Vaida et. al 2010). Grazing management has a greater effect on the pasture than any other part of the pasture management program. Poor grazing management can lead to the loss of some species in the pasture and the loss of forage yield (Barnes et al. 2007; McDowell 2009; Redecker et al. 2002; Vîntu et al. 2004). Cattle's milk contains more of the essential vitamins and mineral required by the human than any other single food (Patton 2005; Chandan et al. 2008). In our country, the milk and dairy products consumption is quite limited, and the quantity per capita consumption is much lower than in other developed countries. The literature indicates that, to maintain human health, it would be necessary to annually consume 300 liters/capita (by WHO), 240 l/capita (FAO), or at least 0.5 liters per day (180 l/capita), including also butter or cheese.

MATHERIALS AND METHODS

The methodology used in the paper had the specific marketing methods and geo-economic study based on the investigated area, direct observation, agricultural statistics, analysis of comparative economic record, economic experiment, monographic method, simple division method and comparison method, analysis and synthesis.

The study was conducted based on data reported by Romania's Central Technical Secretariat from General Agricultural Census, which took as the reference date 1st of December 2010. Barren lands are agricultural lands that have not been worked in the reference year of the census, were not included in the rotation system and it is not maintained in good agricultural and environmental conditions. The analysis was made on the North-East region of development, which includes the counties Bacau, Botosani, Iasi, Neamt, Suceava and Vaslui.

RESULTS AND DISCUSSIONS

Although Romania is the middle ranking of the largest milk producing country, with a volume of 232 l / capita, ahead of most markets in the region and on a level with England and the Czech Republic, local industry is insignificant in the market milk of European Union. Only 1 in 5 liters of milk reaches the processing industry and 40% are for self-consumption.

According to Eurostat, the whole country, in 2010, fallown land totaling 904,000 hectares. If it

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had cultivated with forage crops could get a yield of about 9040000 to. This production could feed a herd of about 496,703 dairy cows.

Average milk production throughout the country is 3528 l / head, we may appreciate that after cultivation of fallown land, we could get a surplus of milk production of about 17.522 million hl.

Adding the existing surplus production 3.944 million tons, we obtain a value of 39457.5 million hl. This production involves milk consumption of about 183 l / capita, a value much closer to the optimal consumption of milk and dairy products.

In the NE region, the largest area of fallown land is located in Bacau, while in Suceava County there is the lowest area of fallown land (*figure 1*).

In case the barren land would be cultivated with forage crops (*table 1*), the production obtained by each county would have the following values:

Iasi: 7.1 • 9087.38 = 64520.4 to;
Vaslui: 11.2 • 15886.57 = 177929.6 to;
Bacau: 15.9 • 24225.57 = 385186.5 to;
Suceava: 17.2 • 2320.63 = 39914.8 to;
Botosani: 11.3 • 12514.32 = 141411.8 to;
Neamt: 12.1 • 5312.42 = 64280.3 to.

The total development area of forage production derived from barren land cultivation would be 873240.4 to.

Table 1

Data on the current situation of livestock, milk and forage yields and barren land in NE Region of development

County	*Livestock (heads)*	*Average yield (l/head)*	*Barren lands (ha)*	*Average fodder yields (to/ha)*	*Population (inh.)*
Iasi	70676	2143	9087.38	7.1	829973
Vaslui	52890	1509	15886.57	11.2	450269
Bacau	59781	1839	24225.57	15.9	716176
Suceava	147624	3493	2320.63	17.2	706720
Botosani	99958	2200	12514.32	11.3	448423
Neamt	67877	2389	5312.42	12.1	562489
Total	498806	13130	69346.89	-	3714050

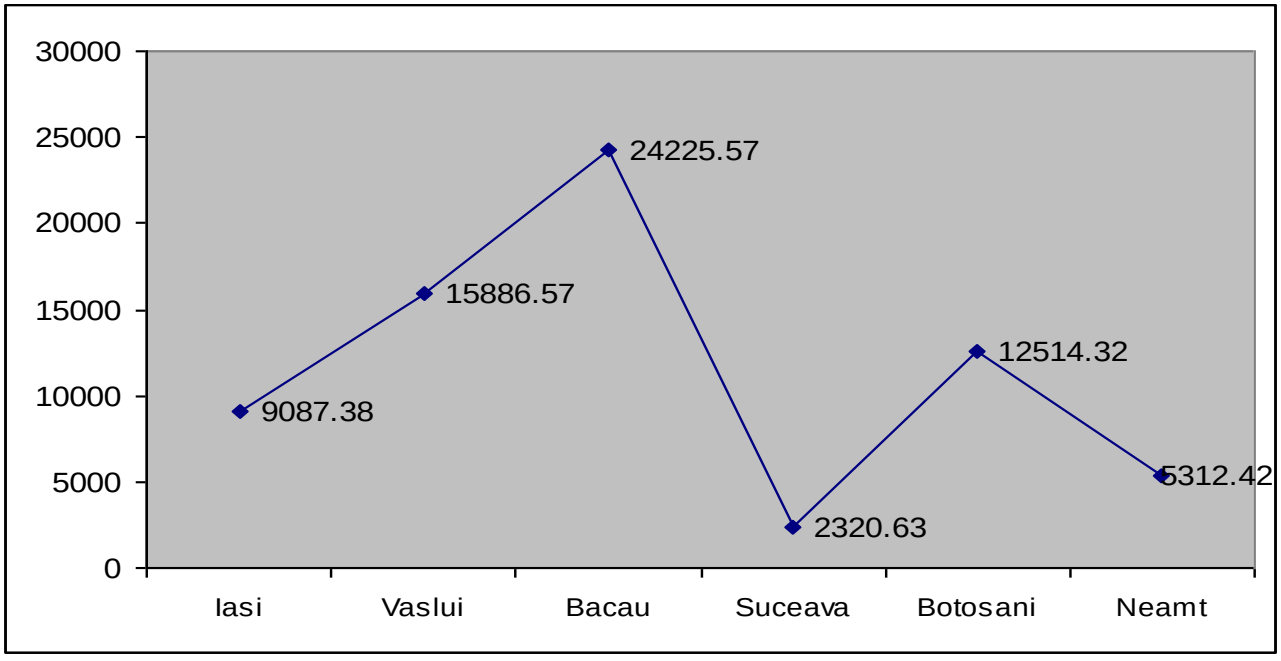

Figure 1 **Situation of fallown land in NE Region (ha)**

Average consumption per fed cattle is 50 kg fodder x 365 days = 18.2 to. In these conditions, the production of feed obtained from cultivation the barren lands can feed a herd of around 48 thousand heads: Iasi: 64520.4 : 18.2 = 3545 heads; Vaslui: 177929.6 : 18.2 = 9776 heads; Bacau: 385186.5 : 18.2 = 21164 heads; Suceava: 39914.8 : 18.2 = 2193 heads; Botosani: 141411.8 : 18.2 = 3532 heads; Neamt: 64280.3 : 18.2 = 3532 heads (*table 2*).

Table 2

Total milk yield obtained from cultivation of barren lands

County	*Present livestock (heads)*	*Present average yield (l/head)*	*Total yield (thou. hl)*	*Suplimentary livestock (heads)*	*Total suplimentary yield (thou. hl)*	*Total feasible yield (thou. hl)*
1	2	3	4	5	6	7
Iasi	70676	2143	1514	3554	76	1590
Vaslui	52890	1509	798	9776	147	945
Bacau	59781	1839	1099	21164	389	1488
Suceava	147624	3493	5156	2193	77	5233
Botosani	99958	2200	2199	7770	171	2370
Neamt	67877	2389	1621	3532	84	1705
Vaslui	498806	13130	12387	47989	944	13331

7= 4+6

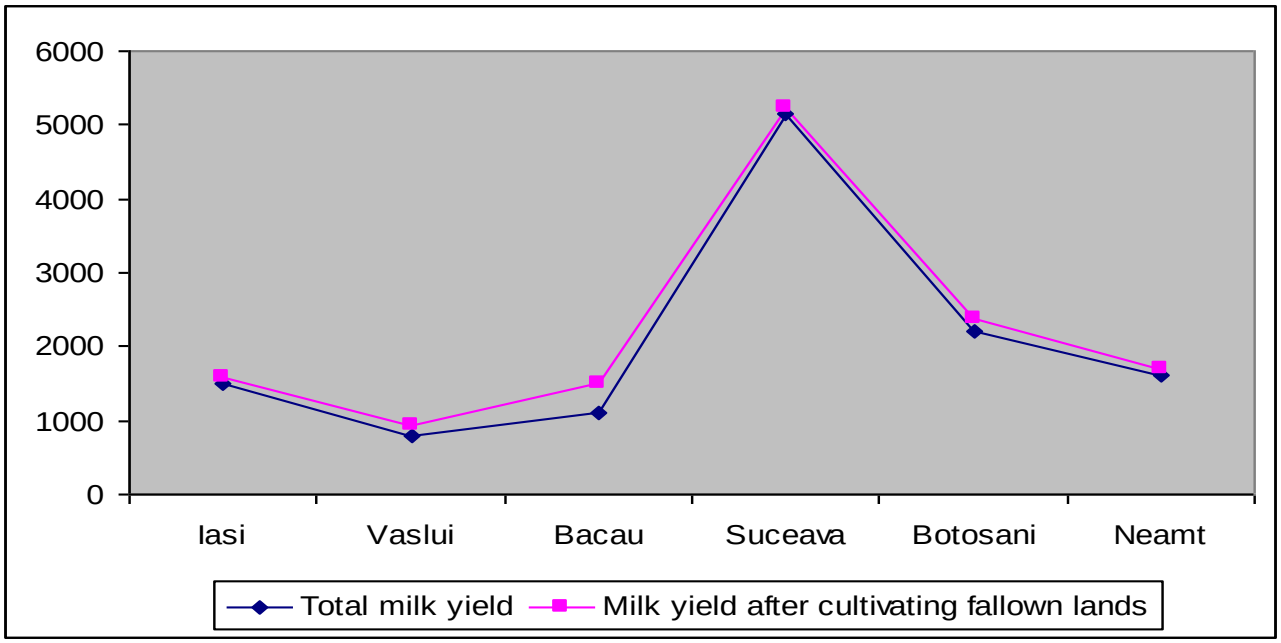

Figure 2 **Evolution of total milk production before and after cultivating fallow land (thou. hl)**

After ensuring an optimum milk consumption of 300 l/inh., in Suceava and Botosani counties can be noticed an excedent of 440 l/inh., respectively 228 l/inh. Meanwhile, milk production in Neamt county could not be excess. In Iasi, Vaslui and Bacau counties, it could only be realized a minimum or a little over minimum consumption (192 l/inh, 210 l/inh, 207 l/inh) (*table 3*).

Table 3

Consumption of milk and dairy products per capita after cultivated barren lands

County	*Milk yield (thou. hl)*	*Population (inh.)*	*Consumption/inh. before cultivating barren land*	*Consumption/inh. after cultivating barren land*
Iasi	1590	829973	182	192
Vaslui	945	450269	177	210
Bacau	1488	716176	153	207
Suceava	5233	706720	729	740
Botosani	2370	448423	490	528
Neamt	1705	562489	288	303

CONCLUSIONS

The total forage yield derived from cultivation of barren lands, per total development area would be 873,240.4 to, production with which dairy herds could increase by about 10 %. Milk production obtained from this livestock would be of 944 thousand hl, which would ensure optimum consumption in the counties of Suceava, Botosani and Neamt and ensure a minimum consumption for

counties Iasi, Vaslui and Bacau. The highest per capita consumption growth is recorded in the county of Bacau, Vaslui county with 35 % and about 19 %, this due to the large surface of barren area.

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