Available online at www.sciencedirect.com

ScienceDirect

Procedia Economics and Finance 39 (2016) 39 – 43

Procedia Economics and Finance

www.elsevier.com/locate/procedia

3rd GLOBAL CONFERENCE on BUSINESS, ECONOMICS, MANAGEMENT and TOURISM, 26-28 November 2015, Rome, Italy

Analysis of the milk production and milk price in Latvia

Liga Paura[a]*, Irina Arhipova[a]

[a]*Latvia University of Agriculture, Liela street 2, Jelgava, LV 3001, Latvia*

Abstract

Dairy farming (milk production) is one of the important sectors in agriculture economic in Latvia. After joining the EU the dairy sector in Latvia has changed, small dairy farms could not complete the new technological requirements of milk production and it was the time when in the country the amount of dairy cows was reduced by 9.3% during the two years from 2003 to 2004. During the last ten years farms involved in commercial milk production often had substantial modernization, the farmers are motivated to improve cows keeping and feeding. The smaller number of dairy cows is partly offset by the regular growth of their milk yield. Thereby average milk yield per cow during the ten years has increased by 42% and has reached 6993 kg in 2014. Milk price is depending on the economic and political situation in the world, it is also influenced by the geographic location, seasonality, and raw materials (feed, electricity, fuel) prices. During the last 10 years the average milk price in Latvia has increased by 60% with variation during the seasons therefore the purpose of this paper is to analysis the milk supply and demand to its price, using the forecasting models.

Peer-review under responsibility of the Organizing Committee of BEMTUR- 2015

Keywords: milk suplly, decomposing model, forecasting model;

1. Introduction

Dairy farming (milk production) is of great importance to the European Union (EU) and is one of the important sectors in agriculture economic in Latvia. Total EU-28 milk production is estimated around 154 million tons in 2014 year. According the European Commission data (2015) the EU's main producers are Germany, France, the United Kingdom, the Netherlands, Italy and Poland which together account for more than 70% of the EU milk production. Latvia accounted for 0.6% of total EU-28 milk production or around 0.9 million tons in 2014. Milk production in

* Liga Paura. Tel.: +371-630-05705; fax: +371-630-05705;
E-mail address: liga.paura@llu.lv

Peer-review under responsibility of the Organizing Committee of BEMTUR- 2015
doi:10.1016/S2212-5671(16)30238-6

Latvia has continued to increase after joining the EU and in 2014 cover 133 % of the self-sufficiency of milk and about 60% of produced milk Latvia is exported.

After joining the EU the dairy sector in Latvia has changed, small dairy farms could have not completed the new technological requirements of milk production and it was the time when in the country the amount of dairy cows was reduced by 9.3% during the two years from 2003 to 2004. Therefore in 2009 the numbers of dairy cows have decreased till 120.8 thousand, but during the last five years have increased and in 2014 reached 130.7 thousand cows.

During the last ten years farms involved in commercial milk production often had substantial modernization of existing farm and construction of new dairy farms. The farmers are motivated to improve cows keeping and feeding. Technological solutions are being implemented: loose handling of cows, automatic milking systems, total mixed ration or usage of precise feeding technology (Salins et al., 2012). In 2011 about 200 farms were subsidized for this purpose. The smaller number of dairy cows in Latvia is partly offset by the regular growth of their milk yield. Thereby average milk yield per cow during the ten years has increased by 42% and has reached 6993 kg in 2014.

Within the framework of milk supply quota 804.4 thousand tons of milk was supplied in 2014, which is 9.3% more than in 2013. The average purchased milk price decreased from EUR 305 per ton in 2013 to EUR 291 per ton in 2014 or was reduced by 4.6% (Lazda-Lazdina, 2015). Therefore, the goal of this article is to analyze the trends in milk supply using the forecasting models and to analysis the milk supply relation to its price in different years in Latvia.

2. Analysis of milk production

The analysis has been conducted using the milk supply and milk price data of Central Statistical Bureau of Latvia (2015). The total monthly milk supply in Latvia from 2002 – 2014 is reviewed. Between 2002 and 2014 milk production is increased by 47.9% or from 384871.4 to 804274.1 ton. Latvia farmers produce more milk in the summer than in the winter. The higher produced milk amount are in July or August, when in November the milk amount fall in average more than 30% of summer month production. For example, in 2014 summer milk production (June, July and August) was 29% and winter milk production (December, January and February) was only 14% of total annual milk production.

For climatic reasons most of the EU country have seasonal milk production. As a result by Shalloo at al. (2008) over the past 30 years milk supplies in Irish were depending on the season. Peak month (May) accounts for 14% to 15% of the total, while the through month (January/December) accounts for 2 to 3%. In the study by Wyss et al. (2011) was found in Switzerland are the seasonality of milk production in pasture based farms compare to indoors farms with higher milk production in April and May and lower in December and January. In the indoors farms over the whole year milk production was more balanced.

According to the linear model analysis (Tab.1) the milk supply were influenced significantly at the 1% level by factors of time trend and month as seasonal effect. Milk supply in Latvia was analyzed by seasonal time series decomposing model. Seasonal milk production with peak every summer and trough every winter, the seasonal and random fluctuations constant in size over time can be described using an additive decomposing model. The time trend, seasonal and irregular decomposing model components of milk supply production were described using an additive model.

Table 1. Analysis of month and time trend factors influence to milk supply.

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	25016102740.5	12	2084675228.3	214.6	.000
Intercept	42593442411.1	1	42593442411.1	4385.0	.000
Month	10282728947.8	11	934793540.7	96.2	.000
Time trend	14090408700.2	1	14090408700.2	1450.6	.000
Error	1389020267.4	143	9713428.4		
Total	414795607047.1	156			
Corrected Total	26405123008.0	155	R Squared = 0.947		