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BEEF MEAT IN ROMANIA – REALITIES AND OPPORTUNITIES TO IMPROVE SELF-SUFFICIENCY ON LONG TERM

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Abstract

From the perspective of reaching food security, for Romania, beef meat (accounting for 10% in the total meat consumption structure, in the year 2015) is important both for dietary diversity and for the complex contribution to the valorization of the country's agricultural resources, through the export of live animals inclusively. With a 45% decrease of live weight beef production, after the accession to the EU, with a poor quality of carcasses, as 77.9% of carcasses come from slaughtering adult cattle, out of which 49.5% cows, the beef sector in Romania is not currently in the situation to best use the opportunities provided by the European Single Market. The aim of the paper is to identify new opportunities for relaunching the domestic beef meat production, through investments on the long term, having in view the support to the sector under the NRDP 2014-2020 measures, for the long-term improvement of self-sufficiency to about 90%.

Key words**:** *self-sufficiency in beef, investments, production*

INTRODUCTION

Having in view the 79.6% self-sufficiency in beef in the year 2015, which implies a chronic deficit in the consumption of this product, this paper aims to identify new opportunities for relaunching Romanian consumption in order to reach a self-sufficiency level of 89.6% at the 2038 horizon, from the perspective of cattle raising sector stabilization, in the context of the European market stabilization.

The alternative to raise beef cattle in Romania is considered by experts [9] as an immediate income source for the producers who cannot obtain conform milk, mainly in the context of milk quota removal starting with April 1, 2015. That is why the entrepreneurship spirit must be stimulated, mainly in the young rural people.

Even though the beef and baby beef is not a traditional product in the Romanian consumers' diet (only 10% of the total meat consumed is represented by this meat type), the fact that about 35% of the cattle herds in Romania are of Simmental type – very suitable for beef production – the beef sector seems to have good prospects, as beef has a great growth potential compared to the other meat assortments; yet consumption will grow only gradually, with the increase of people's incomes and level of education on nutrition [13].

Guaranteeing food security does not imply only meeting the consumption needs in quantitative terms, but also refers to ensuring a certain qualitative and assortment structure. Thus, for Romania, the average per capita food consumption requirement, according to FAO, is 2,700 kcal. and minimum 55 g of proteins, out of which about 50 % should be of animal origin, as animal protein has a high biological value. Considering this reference level, we can estimate that in Romania, an average consumption of 40.3 grams/capita/day in 2014 does not ensure a protein intake that is satisfactory in terms of meeting the normal physiological needs of human body. The second qualitative element that must be considered at this indicator refers to the structure of protein consumption, i.e. the share of animal proteins in total daily protein intake[14]. The experts in nutrition consider that the optimum share of animal protein intake in total daily protein intake must be higher than 60%. In Romania's case, in the year 2014, the animal proteins

accounted for 49.7% of total protein consumption, which once again confirms the inadequacy of the Romanians' food consumption to the normal physiological needs.

According to the Food and Agricultural Organization [6], about 870 million people suffer from the lack of basic foodstuffs (out of which 81% are living in southern Asia, Sub-Saharan Asia and eastern Asia), in spite of the fact that sufficient potential exists to feed the entire world population from the world agricultural production. That is why the redistribution of foodstuffs across different continents represents one of the main problems of today's society

At the same time, about two-thirds of the meat animals throughout the world depend on cereals and soybeans [4]. This demand for animal feeding means that people compete against farm animals for food. On the other hand, the increase of food prices in recent years has been determined by the economic growth on long term, in several developing countries, which (a) has put increasing pressure on crude oil and fertilizer prices, due to the intensive nature of their economic growth resources and (b) led to meat demand increase and hence of the demand for animal feed [5].

In this context, food self-sufficiency as part of food security should be understood as the capacity of a country to cover its population's consumption needs from domestic production, avoiding as much as possible imports from other countries [8].

Another author, [7], analyzes food security from the agricultural potential perspective, i.e. the number of persons that can be fed from one hectare of agricultural land. Thus, according to this author, Australia can feed 0.1 people, USA – 0.8 people, France – 2.9 people, Germany – 4.5 people, Japan – 10.5 people. He also advocates that the agricultural potential diversity is given by the different support levels to farmers, under the form of subsidies. Thus, while in Europe, about 50% of the agricultural income comes from direct payments, in other countries such as Japan, this share is around 20%.

Other authors, [11], consider that the calculation modality of self-sufficiency in meat must take into consideration the fact that a part of the meat quantity obtained from domestic production is based on imported feed, and hence the self-sufficiency level must be adjusted by a feed-meat conversion ratio.

A comparison with certain European countries with regard to self-sufficiency in beef reveals different situations. Thus, in the year 2013, while in Poland the self-sufficiency significantly increased to 416% (as against 125% in 2003), in other countries such as the Czech Republic, Hungary and Slovakia self-sufficiency ranges from 106 to 130% [12]. According to the two authors, Poland's situation is a result of the significant decrease of beef consumption, from 7 kg/capita in 2003 to 1.6 kg/capita in 2013 (-77%), under the background of the massive rise of exports and of non-attractive prices on the domestic market, corroborated with a weak domestic supply in quality terms.

MATERIALS AND METHODS

Targets on short term (2020), medium term (2028) and long term (2038) for the production of meat were established, on the basis of an analysis model (of food balance sheets) used by the National Institute of Statistics, in conformity with the FAO and Eurostat methodologies; the main indicator, for which levels corresponding to the three time horizons were proposed, was the utilizable production, from which we can obtain the available supply (by adding imports and deducting imports). The ratio of utilizable production to available supply, expressed in percentage terms, represents the self-supply level (indicator that expresses the self-sufficiency rate for the respective product).

The method used for the development of scenarios on self-sufficiency increase was based on statistical calculations of the yearly average increase rate, rate of increase and the dynamics index of utilizable beef production, beef imports and exports. These were correlated with the trends of the period 1990-2015, calculated on the basis of information from the "Food Balance Sheets" and "Population's Consumption Availabilities"

from the National Institute of Statistics. At the same time, FAO long term forecasts on the evolution of production, demand, import and export were taken into consideration (World Agriculture Towards 2030/2050) and of population 2024 Prospects for EU agricultural markets.

The financial needs for the beef cattle sector, by the three time horizons, were estimated by the analysis of the way in which the NRDP 2007-2013 measures were developed, as well as the evaluation of the impact of future measures funded under NRDP 2014-2020.

RESULTS AND DISCUSSIONS

From Romania's food security perspective, beef (accounting for 10% in the structure of total meat consumption, in the year 2015) is an important product, both for dietary diversification and for the complex contribution to the valorization of the country's agricultural resources, through the export of live animals inclusively.

The comparison of beef consumptions of the different European countries reveals quite significant differences across countries. Thus, Italy ranks first, with 25.4 kg/capita/year, being one of the main European countries with the greatest number of cattle farms and with the largest exports of beef in the region. The consumption of this country is 15 times higher than that of Poland (1.6 kg/capita/year) and about 4 times higher than that of Romania (6.3 kg/capita/year).

The production of beef from cattle slaughtered in slaughtering units (carcass meat), in EU-28, in the year 2014, was 7.3 million tons, the main producers being France (19%), Germany (15%), the United Kingdom (12%) and Italy (10%), all these summing up 56% of total beef production of EU-28 [2]. Romania ranks 20th on this list, with a beef production in carcass of 29.2 thousand tons. The poor quality of carcasses from Romania is given by the fact that 77.9% come from slaughtering adult animals, out of which 49.5% cows, as against the EU average of 30%. Other negative aspects in Romania, as compared to the European Union, refer to the following:

- the share of calves under 8 months old that are slaughtered in slaughtering units is 18-20%, compared to 5% in the European Union;
- the slaughtering weight of calves under 8 months old is extremely low, of only 45 kg/head, compared to 137 kg/head in the European Union;
- Romania massively exports calves of 120-150 kg live weight, mainly to Italy and Croatia, instead of fattening them up until they reach 650 kg, to be exported afterwards.

In this context, the analysis of self-sufficiency in beef in the period 1990-2015 reveals that this had an oscillating evolution throughout the investigated period (Figure 1), with the lowest value in the year 2006 (75%), and the highest in 1993 (106%).

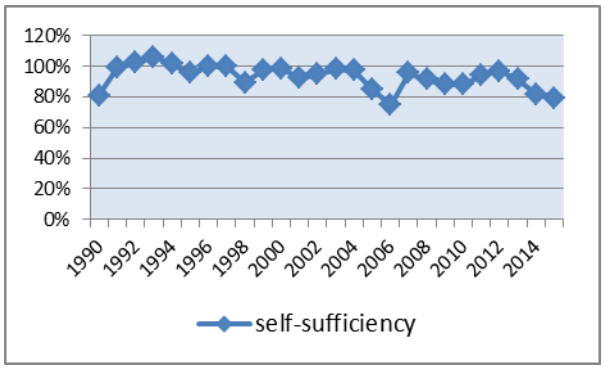

Fig. 1. Evolution of self-sufficiency in beef, 1990-2015 - %
Source: Own calculation.

The situation for the year 2006 can be explained by the fact that in that year, prior to its accession to the European Union, Romania had the highest level of imports from the period 1990-2013 (53.9 thousand tons). This because the average import price of frozen meat was down from 1.68 euro/kg in 2005 to 1.47 euro/kg in 2006 (-12%), with 98.9% of imports coming non-EU countries (Brazil). In the year 1993, the quantitative exports, mainly of live cattle, had the highest volume from the period 1990-2013 (19 thousand tons), as a result of the geographic reorientation of trade flows to the developed countries of the European Union.

Considering a desirable improvement of self-sufficiency in beef to 89.6% towards 2038, Table 1 presents the short, medium and long term targets (for production, imports and exports). In estimating these targets, we took

into consideration the national evolutions (1990-2014) and the European [1] and world [10] forecasts for the period 2015-2026. Thus, the European institutions expect an increasing world demand for beef, due to the evolutions in the developing countries, which favours the increase of EU exports. On the medium term, per total EU, it is estimated that beef production will resume its downward trend, with the production in 2026 slightly under the production obtained in 2014.

Thus, the resulted indicators, as presented in Table 1, reflect the increase of utilizable production in the period 2015-2038 by 23.1 thousand tons (23.4%), of exports by 4.0 thousand tons (46.9%), while imports will decrease by 7.3 thousand tons (-21.5%).

Table 1. Target indicators for beef (in fresh meat equivalent)

	u.m.	Baseline situation (2015)	Short term (2020)	Medium term (2028)	Long term (2038)
Utilizable production	thou. tons	99.0	101.0	111.1	122.1
Import	thou. tons	33.9	31.8	29.3	26.6
Export	thou. tons	8.5	6.7	8.9	12.5
Supply availability	thou. tons	124.4	126.2	131.5	136.3
Self-supply level	percentage	79.2	80.1	84.5	89.6

Source: own calculations

These estimated targets were based on two hypotheses, which mainly refer to the support to the cattle raising sector under the MARD programs, i.e. the *de minimis* aid for purchasing heifers from specialized beef breeds (measure launched in 2014), transitory national aids, coupled support scheme in the beef sector (2015 - 2020), which add to the support under the NRDP 2014-2020 measures for the improvement of the general performance of agricultural holdings (investments on agricultural holdings), improvement of small-sized farm management and market orientation increase (support to the development of small farms), increase of the number of young farmers who start an agricultural activity for the first time as heads of holdings (support to setting up of young farmers).

Estimating the (production, import, export) indicators by the 3 time horizons was based on the following yearly average rates (Table 2).

Table 2. Yearly average rates for beef in fresh meat equivalent (%)

	2015-2020	2020-2028	2028-2038
Production	+0.4	+1.2	+0.95
Import	-1.3	-1.1	-0.95
Export	-3.5	+3.1	+3.4

Source: own calculations

The result of beef production increase will be reflected in the increase of yearly average consumption per capita from 6.3 kg in 2015 to 6.9 kg in 2028 and to 7.3 kg in 2038, under the background of improving the meat quality produced on specialized farms

Starting from the present situation, i.e. a level of supply from domestic beef production of 79.2% (2015), the estimates of the necessary investments for reaching the proposed targets were based on the following hypotheses supporting the long term development of the cattle raising sector:

-Continuation of financial support from EU and national funds

-Continuation of the cattle farm consolidation process

-Speeding up the investment rate in performant technologies, new machinery and equipment, modernization of farm buildings and the genetics of animals (the investments target the increase of the share of commercial farms for young cattle fattening (with more than 36 animal heads) from 13 % in 2014 to 25% in 2020, to 50% in 2028 and to 80% in 2038)

The necessary investments, by the three time horizons, are presented in Table 3.

Table 3. Financial resources necessary to reach the proposed targets - beef (mil. euro)

Investments –mil euro	**Short term 2020**	**Medium term 2028**	**Long term 2038**
on commercial farms, with over 36 cattle heads for fattening (animals, shelters, machinery and equipment, transport means)	85.1	130.8	235.1

Source: own calculations

The investments in performant technological systems for beef cattle raising (feeding and maintenance) can be supported under NRDP

2014-2020, estimating an amount of 85 million euro from public funds for investments in the period 2016-2020; this amount should be increased in the period 2021-2027 (131 million euro) and in 2028-2038 (235 million euro). Part of these amounts could be also covered by the payments to farmers from areas with natural constraints, mainly the cattle raisers from the mountain area.

CONCLUSIONS

The proposed targets can be reached if:
-Productivity per animal increases (large weight gains, feed consumption diminution, improvement of carcass quality and composition, higher slaughter yields)
-This is feasible through investments in the genetics of animals, namely the utilization of specialized cattle breeds for beef production in the crossing with local breeds
-Thus hybrids can be obtained adapted to our country's conditions with great weight gain, with high quality carcasses and a very good conversion of fodders obtained on pastures and meadows
-The economic farm size increases (Standard Output value) increases, having in view that, at present, 82% of the cattle farms have an economic size under 8000 euro, out of which 33% are in the category 2000-3999 euro, which makes them non-eligible for access to EU funds by farmers
-The investments in performant technologies, new machinery and equipment and modernization of farm buildings are intensified.
Reaching the proposed targets for beef is an ambitious objective that could be facilitated both by financial allocations for investments and by the initiation of national programs for the specialization of small farms that own beef cattle, mainly in the hilly and mountain areas, which are ideal areas for raising cattle.
However, the increase of beef production through the increase of herds is not always the most economical solution, as this presupposes additional costs for animal shelters, feeding and care. It would be desirable to obtain high yields by increasing the productivity per animal, i.e. increase of body weight, higher weight gains, diminution of feed consumption and improvement of carcass quality and composition.

REFERENCES

[1]European Commission, 2016, EU Agricultural Outlook, Prospect for the EU agricultural markets and income 2016-2026, https://ec.europa.eu/agriculture/sites/agriculture/files/markets-and-prices/medium-term-outlook/2016/2016-fullrep_en.pdf,
[2]EUROSTAT, 2015, Meat production statistics, http://ec,europa,eu/eurostat/statistics-explained/index,php/Meat_production_statistics#Beef_and_veal_,28bovine_meat,29
[3] Food and Agricultural Organization, 2006, Report on food deprivation towards the achievement of Millennium Development Goal (MDG) on hunger reduction http://www.fao.org/fileadmin/templates/ess/documents/food_security_statistics/working_paper_series/WP008e.pdf,
[4] Food and Agricultural Organization, 2006, What's feeding our food ? The environmental and social impact of the livestock sector, https://www.foe.co.uk/sites/default/files/downloads/livestock_impacts.pdf
[5]Food and Agricultural Organization, 2011, The state of food insecurity in the world, http://www.fao.org/docrep/014/i2330e/i2330e00.htm,
[6]Food and Agricultural Organization, 2012, The State of Food Insecurity in the World, ISBN 978-92-5-107316-2, http://www.fao.org/docrep/016/i3027e/i3027e.pdf
[7] Kazuo, Shii, 2008, For National Cooperation in Increasing Food Self-Sufficiency Rate Symposium for revitalization of agriculture, http://www.japan-press.co.jp/pdf/special_june_2008.pdf,
[8] Minot, N., Pelijor, N., 2010, Food security and food self-sufficiency in Bhutan, International Food Policy Research Institute. http://www.ifpri.org/publication/food-security-and-food-self-sufficiency-bhutan,
[9]Neață Gheorghe, 2012, Vaca de carne este o alternativă profitabilă pentru zootehnia din România "Profitul agricol", http://www.agrinet.ro/content.jsp?page=321,
[10]OECD/FAO, 2015, Agricultural Outlook 2015-2024, http://www.fao.org/3/a-i4738e.pdf
[11] Sheppard, R. L., Benn, N.J., 1980, Japanese Food Policy and self-sufficiency – An analysis with Reference to meat, ISSN 0110-7720, https://researcharchive.lincoln.ac.nz/handle/10182/995
[12] Slaboch, J., Kotyza, P., 2016, Comparison of self-sufficiency of selected types of meat in the Visegrad countries, Journal of Central European Agriculture, 17(3), p.793-814

[13] Şerbănescu Ion, 2014, Dinamică şi concentrare pe piaţa produselor din carne, "Fabrica de carne, Revista specialiştilor din industria cărnii", http://www.fabricadecarne.ro/dinamica-si-concentrare-pe-piata-produselor-din-carne-2
[14]Tezaur, vol XI, p.78, 1991, Institutul Național de Cercetări Economoce, Costin C Kirițescu, Centrul de Informare și Documentare Economică, Bucureşti,