

THE FORECASTING OF BOVINE MEAT AND MILK WORLD PRODUCTION

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Statement of the problem. The world food economy is being increasingly driven by the shift of diets and food consumption patterns towards livestock products. In developing countries, where almost all world population increases take place, consumption of meat has grown at an average rate of 5.1 percent p.a. since 1970, that of milk and dairy products at 3.6 percent p.a. [1, p.71]. However, growth rates have been on the decline: meat was growing at 2.9 percent between 1997 and 2007, down from 6.1 percent in the preceding ten years. Aggregate agricultural output is being affected by these trends, not only through the growth of livestock production proper, but also through the linkages of livestock production to the crop sector which supplies the feeding stuffs, mainly cereals and oilseed products.

The strength of the livestock sector as the major driving force of global agriculture can be easily exaggerated. Many developing countries and regions, where the need to increase protein consumption is the greatest, are not participating in the process. There are 23 developing countries having under 10 kg per capita consumption of meat and another 24 with between 10 and 20 kg. This is not to deny that meat and other livestock products are preferred foods in most countries and that demand grows rapidly when incomes increase, at least in most countries. It is just that there is less of a meat revolution than commonly asserted, mainly because of lack of development and income growth in many countries. In addition, cultural and religious factors have also stood in the way of wider diffusion of consumption of meat in general in some countries (India) or of particular meats (beef in India, pork in the Muslim countries). For milk and dairy products, there has also been a mild 'China effect', but only in the last few years as the country's per capita consumption almost quadrupled in the last ten years, though it remains modest at 26 kg. Rapid growth in per capita consumption will continue for some time.

Research results. Bovine meat production in 2015 increased by 0.3 percent, to 68.3 million tonnes – prolonging the trend of modest growth evident for several years (table 1). In North America, the United States stabilized bovine meat production in 2015, as higher slaughter weights and assisted by cheaper feed costs. But output at 11.1 million tonnes, is still the lowest since 1994. The long-term decline in the cattle herd in Canada, evident since 1992, is expected to persist in 2015, although increased slaughter weights should partly offset its effect on output, which is forecast at 1 million tonnes. In Mexico, reduced feed costs led to higher bovine meat production via increased slaughter weight and continued herd reduction.

In Oceania, dry weather, low international milk product prices and strong international demand for bovine meat have led to a surge in production. In Australia, strong international prices fostered an increase in slaughtering, further reducing the national herd in 2015, which may fall to a 20-year low. As a result of the culling, output is forecast to reach 2.6 million tonnes, a 5.3 percent increase over 2014 and a third year of exceptionally high performance. Likewise, production in New Zealand is foreseen to be substantially higher, reaching 670 000 tonnes, or 3.1 percent more than in 2014, due to both drought during the first part of the year and sharply lower milk payouts to farmers which led to curtailment of dairy herd expansion.

In the Russian Federation, bovine meat output is forecast at 1.7 million tonnes, the same level as the previous year. In the EU, production could rise by 1.7 percent in 2015, mainly owing to retention of male dairy calves for fattening and the culling of dairy cows in some countries. Within the EU, the dairy

herd is becoming increasingly important as a source of bovine meat supplies, while the size of the pure beef herd is declining.

Table 1

Bovine meat statistics, thousand tonnes, carcass weight equivalent

	Production		Imports		Exports		Utilization	
	2014	2015	2014	2015	2014	2015	2014	2015
Asia	17972	18069	4617	4516	2185	2069	20413	20554
China	6907	6845	1189	1198	43	45	8074	8008
India	2621	2678	-	1	1933	1798	688	880
Pakistan	1680	1735	5	4	29	33	1656	1707
South America	15706	15517	464	370	2747	2688	13413	13205
Brazil	9723	9 432	71	75	1839	1691	7955	7816
Argentina	2672	2700	-	1	215	254	2458	2447
North America	12161	12077	1507	1756	1562	1510	12169	12318
USA	11078	11055	1224	1460	1218	1146	11133	11365
Canada	1083	1021	280	293	343	364	1033	951
Europe	10453	10553	1267	1213	516	483	11204	11284
EU	7661	7788	327	323	315	302	7674	7809
Russian Federation	1654	1650	833	787	47	43	2440	2394
Ukraine	459	443	3	4	18	19	445	427
Africa	6161	6245	866	909	76	113	6951	7041
Egypt	870	880	402	445	2	5	1270	1320
South Africa	860	862	30	32	45	80	846	813
Oceania	3093	3240	60	63	2209	2468	1014	837
Australia	2423	2550	12	12	1680	1881	825	684
New Zealand	650	670	17	18	526	584	141	104
Central America	2524	2572	382	361	313	328	2593	2605
Mexico	1826	1845	223	200	133	145	1916	1900
WORLD	68070	68273	9161	9188	9607	9659	67757	67844

Source: FAO, Food Outlook, 2015

In South America, inadequate rain has impinged on cattle availabilities for slaughter in many countries. In Brazil, two years of unusually dry weather have affected cattle condition and calf development – causing prices to rise and encouraging producers to retain stock (figure 1). As a consequence, in 2015, bovine meat production fell by 3 percent to 9.4 million tonnes. In Argentina, little growth in production is anticipated, as adverse weather conditions have weighed on the calf crop, while government export restrictions limit the extent to which sales abroad can be increased. In neighbouring Paraguay and Uruguay, production grew supported by productivity increases and spurred by international demand and attractive cattle prices.

In Asia, India continues to see its industry grow, stimulated by government programs to utilize male buffalo calves from the country's expanding dairy herd, although it is not clear how a projected slowdown in exports, the main destination for meat produced, may eventually affect production. Output is forecast to drop in the Republic of Korea, where improved prices have encouraged herd rebuilding and some smallscale producers have left the industry. Production in Japan also fell, due to continued herd reduction,

especially dairy cattle, although high prices for Wagyu beef have fostered some additional retention of stock. In China, a reduction in the size of the national herd resulted in a fall in output. Competition from imports – both live cattle and carcasses – and limited availability of land and fodder supplies, combined with poor profitability in the dairy industry, have prompted a number of smaller scale producers in China to exit livestock production.

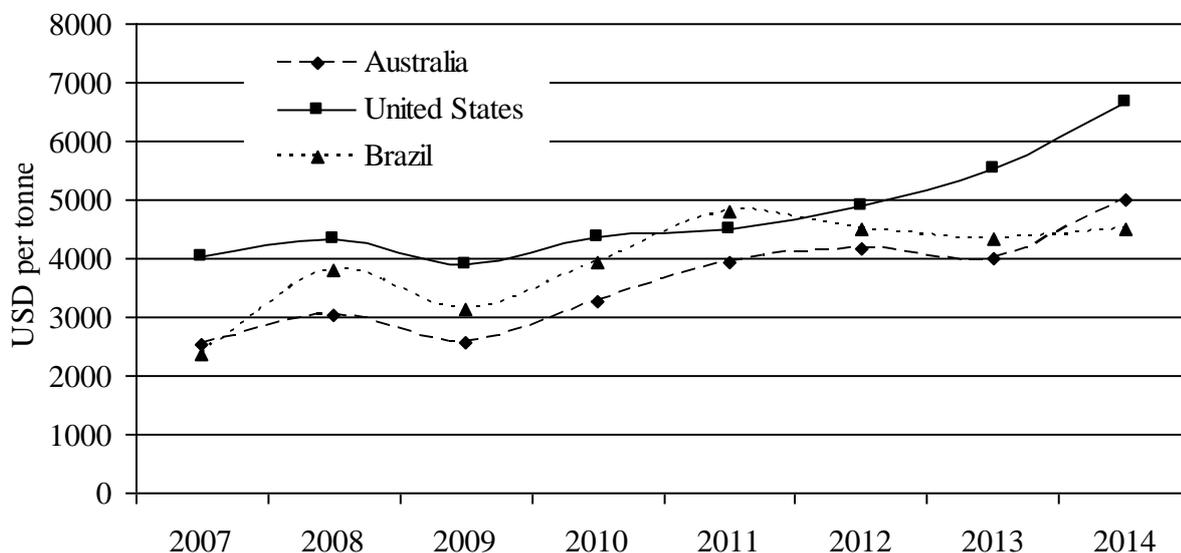


Figure 1. Selected international bovine meat prices, USD per tonnes

Source: FAO, *Food Outlook*, 2015

Most parts of Africa received adequate rainfall during the first part of the year, which led to satisfactory pasture conditions and laid the basis for an anticipated moderate increase in bovine meat production in a number of countries, including Morocco and Nigeria. In Egypt, increased output is also forecast, supported by government programmes to control foot-and-mouth disease (FMD) and other policies aimed at bolstering red meat production. Meanwhile, some areas of eastern and southern Africa experienced intermittent seasonal rains during the first part of the year, affecting pastures and feed availability. As a consequence, growth may be constrained in those two subregions. Furthermore, outbreaks of foot-and-mouth disease in eastern and central Africa, including Kenya, Uganda and Rwanda, may depress yields.

World milk production is forecast to grow by 1.5 percent to 801 million tonnes in 2015 (table 2). Output is set to expand in all regions except Oceania. In North America, output in the United States is forecast to register a second year of growth and rise by 1.3 percent to 94.7 million tonnes – assisted by lower feed costs and strong domestic demand. Deliveries in Canada are set to remain at 8.5 million tonnes, within the limits established by its milk quota system. In Europe, EU milk production is projected to grow by 0.9 percent to 161.4 million tonnes. Reduced farm-gate prices in many member countries have acted as a brake on production, even though feed costs have been reduced and forage has been in good supply. Low prices – both domestically and internationally – dampened the effect of the abolition of the milk quota system at the end of March 2015, although in the longer term several EU Member States, particularly Ireland, the Netherlands and Germany, are expected to boost production. As a result of limited growth in milk output and rising productivity, EU dairy cow numbers are anticipated to move lower. Milk production in the Russian Federation is predicted to fall in 2015, as poor profitability has caused a contraction in the dairy herd, in particular in the small farm sector. In neighbouring Belarus, production is on an upward trend, stimulated by increased sales to the Russian Federation.

Table 2

Production of milk and milk products, thousand tonnes, milk equivalent

	2011-2013 average	2014	2015
Asia	285917	302700	311420
India	131978	141702	147795
China	41707	42513	42266
Pakistan	37830	40000	41000
Turkey	16895	19500	20500
Africa	45089	46198	46547
Sudan	7514	7580	7600
Egypt	5842	5950	6000
Kenya	4943	4950	4900
South Africa	3341	3450	3500
Central America	16485	17088	17412
Mexico	11014	11285	11499
South America	67231	70277	71119
Brazil	33036	35450	36407
Argentina	11414	11371	10962
North America	98838	101822	103196
United States of America	90384	93461	94710
Canada	8453	8360	8485
Europe	212709	218880	219310
European Union	152667	160000	161400
Russian Federation	31304	30540	29494
Ukraine	11317	11510	11470
Belarus	6636	6600	6716
Oceania	29848	32022	31684
New Zealand	20174	21909	21471
Australia	9604	10043	10143
WORLD	756116	788988	800689

Source: FAO, Food Outlook, 2015

Production in India expanded by 4.3 percent, or 6.1 million tonnes, to 147.8 million tonnes. Herd expansion and improved productivity are important engines underpinning production growth in India, where urbanization and rising incomes are fuelling demand. Increased output is also anticipated in Pakistan and Turkey. Elsewhere in Asia, the Islamic Republic of Iran, Japan and Saudi Arabia are anticipated to record levels slightly above last year, while in China, production may decline, as low farm-gate prices for milk have led some smaller scale producers to leave the industry or reduce herd size, in order to stem losses. Similarly, in the Republic of Korea, production fell somewhat, as a result of poor profitability. In Africa, most parts of the continent received adequate rainfall during the first part of the year, which led to satisfactory pasture conditions and laid the basis for an anticipated moderate increase in milk production. For instance, increases are forecast for South Africa, Algeria and Tanzania, while dry weather in Kenya negatively affected pastures as well as fodder and feed supplies, a situation expected to limit growth in production.

Stagnant consumer demand and low international prices, combined with challenging climatic conditions in some areas, are anticipated to curb growth in dairy production in several countries in Latin America and the Caribbean. Countries of the southern cone experienced dry weather at the start of the year, followed by flooding, which impinged on the condition of pastures in many countries. Nevertheless, subregional milk production rised by a modest 1.2 percent to 71 million tonnes. Gains are forecast for

Brazil, Ecuador, Colombia, Venezuela, Chile, Uruguay and Paraguay. In Argentina, constrained domestic demand and reduced returns from exports are expected to cause milk production to fall by 3.6 percent, to 11.0 million tonnes. In Central America, milk output in Mexico, the largest producer in the subregion, is forecast to expand by 1.9 percent, with a moderate increase also anticipated in Costa Rica.

In Oceania, New Zealand's dependency on the export market has made the country particularly affected by the prevailing low prices, which have caused a substantial revision in payments to producers. This situation has acted as a disincentive for farmers to raise output via herd expansion or feeding supplements. New Zealand's production in the current dairy year is anticipated to decrease by 2 percent to 21.5 million tonnes, as farmers cull less-productive cows.

Conclusions. The milk and meat sector is one of the most important in the world agriculture. World meat production recorded in 2015 318.8 million tones, with the largest increasing in the EU, the United States and the Russian Federation. The poultry sector drove the global expansion, followed by pig meat. Only modest gains are foreseen in bovine and ovine meat production. Global meat trade declined slightly in 2015, by 0.6 percent, to 30.5 million tonnes. This represents a marked slowdown from the 3 percent growth recorded last year. Poultry remains the main traded meat product, followed by bovine, pig and ovine meat, respectively.

The forces that shaped the rapid growth of meat demand in the past are expected to weaken considerably in the future. Slower population growth is an important factor. Perhaps more important is the natural deceleration of growth because fairly high consumption levels have already been attained in the few major countries that dominated past increases. As noted, China went from 14 kg/year in the early 1970s to the 52 kg currently, according to its production statistics which form the basis of the Food Balance Sheets [1, p.75]. If it were to continue at the same rate, it would soon surpass the developed countries in per capita consumption of meat, an unreasonable prospect given that China will still be a middle income country with significant parts of its population rural and in the low-income category for some time to come. As another example, Brazil's went from 40 kg to 78 kg over the same period: the scope is rather limited for the rapid increases of the past to continue unabated through the coming decades.

On the negative side, and in association with policy distortions or market failures, there are environmental implications associated with the expansion of livestock production. For example, through the expansion of land for livestock development, livestock sector growth has been a prime force in deforestation in some countries such as Brazil, and in overgrazing in other countries. Intensive livestock operations on industrial scale, mostly in the industrial countries but increasingly in the developing ones, are a major source of environmental problems through the production of point-source pollution such as effluents. In parallel, growth in the ruminant sector contributes to greenhouse gas concentrations in the atmosphere through methane emissions and nitrous oxide from the waste of grazing animals.

References

1. Alexandratos N, Bruinsma J. World Agriculture Towards 2030/2050. ESA Working Papper № 12-03. – Rome : FAO, 2012. – 154 p.
2. Food Outlook / Food and Agriculture Organization of the United Nations. – Rome: FAO, 2015. – 140 p.
3. Kimli A., Lerman Z. Agricultural Transition in Post-Soviet Europe and Central Asia after 25 Years. – Halle : IAMO, 2015. – 332 p.
4. Reducing Food Loss and Waste. Lipinski B, Hanson C., Lomax J. et al. Washington : World Resources Institute, 2013. – 40 p.