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New challenges for Hungarian agriculture

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Abstract

This paper discusses Hungarian agriculture's future perspectives up to the year 2013, which marks the end of the EU financial period 2007-2013. It presents results of the authors' modelling work, and provides a brief analysis of quantitative changes in principal macro-indicators and qualitative changes in key agricultural policy areas. The authors' goal is to energize the lacklustre agricultural sector by offering guidelines to policy decision makers.

Key words

Hungarian agriculture, EU integration, development perspectives, impact analysis

Introduction

Agricultural production and land use are facing growing global dilemmas. These dilemmas are essentially how to satisfy the rapidly rising and often contradictory demands of society and politics with limited natural resource availability.

Like in many other European countries, Hungarian agriculture is facing new pressures to adapt. The global need for food, feed, and bio-energy is rocketing while the EU's security of production is likely to lessen due to climate change, liberalized international trade in agricultural and food products, and unnecessarily high and strict standards. Other factors are the upcoming Health Check on the Common Agricultural Policy and the implementation of a Single Payment Scheme (SPS) in Hungary.

Will Hungarian agriculture be able to cope with the new challenges? Can it adapt? What measures are needed to help the adaptation process? These are the principal questions we will try to answer.

1. Failure to adapt during recent years

The Hungarian agriculture and food industry had no marketing problems prior to the political and economic transition. Hungarian products could easily be sold to COMECON countries; moreover, half of Hungarian exports were even competitive in Western Europe (Juhász *et al.*, 2002). In an essentially demand driven market, small and large farms, traditional and 'industrial' agriculture, processors and retailers, plus local and international organisations operated smoothly together.

When EU accession arrived, half of agricultural land was being used by about 40 thousand farms (including 321 joint stock companies and approximately 1.5 thousand cooperatives having an average of 500 to 600 hectares of land) while the other half was cultivated by over 700 thousand individual farms and households. Of the latter, 100 to 110 thousand were commercial farms, whereas the rest were mainly producing for personal consumption, occasionally selling their surplus at local

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markets. Tiny farms and households produced abundant livestock and orchard products without any market coordination. However, privatisation meant an increasingly dispersed production structure, and the subsequent rapid decline in domestic food processing and retailing, coupled with the advent and influence of multinational companies, created almost unsurmountable adjustment challenges. Between 2004 and 2006, over 200 thousand livestock farmers abandoned production.

In addition to losing its East European markets, Hungarian agriculture also encountered serious losses in the domestic market. The country became a net importer of dairy products, fruit, and pork. The agricultural and food trade balance has fallen from almost €1.6 billion in 2001 to below €1 billion in 2006².

The selection process was harsh and mostly unexpected, but loss in market share was also partially due to lack of cooperation between agriculture stakeholders and farmers' inability to adapt. But there were other reasons too. For example, Common Agricultural Policy (CAP) support schemes and market regulations also had an impact as they differed sharply from the national system which was in place until 1 May, 2004. Thus, accession's impact strongly varied among agricultural sectors and farm businesses (Udovecz and Potori, 2005).

Undoubtedly livestock production suffered the most, but the performance of the fruit and vegetable sector was also disappointing. However, offsetting this are major achievements such as better environmental management, increased EU funding, higher incomes for crop producers, and greater cooperation between farmers. But in the medium term this is still insufficient to stop the erosion of the agricultural and food trade balance (not counting potential bio-fuel exports) and allow stakeholders to better exploit ecological conditions and natural resources in a economical and environmentally sustainable way.

2. Emerging challenges

In the EU single market already visible trends will undoubtedly prevail and become stronger. The globalisation process will accelerate and inevitably concentrate both supply and demand. Across Europe distribution networks will further concentrate food processing. Commercial agriculture will need to respond by increasing the economies of scale or by intensifying cooperation and integration along the food chain. The WTO negotiations will eventually conclude with an agreement that will strengthen international competition. The EU will most certainly have to reduce import duties and cut subsidies.

While new CAP reform is unlikely before 2013, the *Health Check* will eliminate some of the internal market constraints such as the dairy quota, compulsory set-aside, cereal intervention, etc.³ In 2009, Hungary will introduce the Single Payment Scheme. New payment entitlements will be created and allotted and this will test landowners and land users' ability to cooperate.

Profound changes will occur and new phenomena may bring about unexpected events. In various densely populated regions of the world (e.g. China or India), economies are expanding at a faster pace than food production, which is due to a lack of land and water. In these countries, the number of people who can afford a higher standard of living and higher quality food products is rapidly growing. The global demand for cereals, feedstuffs, and meat is accelerating. Most of the excess demand can only be satisfied by imports.

² However, in 2007, it increased to €1.6 billion due to the huge export volume of maize from intervention stocks.

³ See Agra Facts 44-08 (20/05/08).

Developed countries and regions consider the security of food and energy supply as equally important strategic objectives. Therefore the demand for agricultural raw materials for producing food and energy will continue unabated. The partial (5 to 10 %) replacement of fossil fuels with bio-fuels requires significant land area, and absorbs considerable quantities of cereals, oilseeds and sugar from food markets.

Despite some scepticism, it is now widely accepted that, other than the long-term negative impact, climate change will soon create increasingly extreme weather conditions. This will undermine food security and increase the chances of unpredictable natural disasters. In the Carpathian Basin, it is necessary to prepare for hotter and drier vegetation seasons. According to the Meteorological Service, in Hungary between 1901 and 2004, the annual mean temperature increased by 0.76 degrees Celsius while precipitation declined by 11%. These worrisome trends need to be considered. Luckily, the country has the capacity to act as huge amounts of water flow through it.

3. The road until 2013: catching up or lagging behind?

To illustrate Hungary's future prior to 2013, we relied on a broad range of information and expertise. The framework for this prediction was based on the mathematical economic models developed by the Research Institute for Agricultural Economics (AKI):

- the HUSIM, which is a national and regional partial equilibrium econometric simulation model (Mészáros et al., 1999; Potori and Udovecz, 2004);
- the FARM-T, which is an agent-based partial equilibrium simulation model used for the more in-depth investigation of output changes for certain agricultural sectors and the underlying structural progress (Himics and Potori, 2007; Potori et al., 2007; Himics, 2008);
- the MICROSIM, which is a deterministic simulation model for examining the reactions of the different farm categories as well as individual enterprises included in the Farm Accountancy Data Network (Törzsök et al., 2006).

Data have been utilised from a number of sources. These include the Hungarian FADN and projections by the European Commission (2007), the OECD and FAO (2007), the USDA (2007) and FAPRI (2007). Also included in the modelling process are a number of events either previously known or likely to occur and influence international and domestic market developments. The results reflect the joint effects of numerous factors. Among these are the implementation of the Convergence Program, and the competitiveness of Hungarian agricultural, and factors related to food products with particular attention paid to prices. Other related factors are logistic opportunities, and transport distances and costs. Combined with the previously listed are biological limits, price and income flexibilities, changes in regulations, SPS introduction, etc. Based on these and various expert opinions, two medium-term development scenarios are outlined.

The baseline scenario (A) is viewed as the probable outcome of current trends in which Hungarian agriculture lags behind countries and regions with more dynamic and commercially successful agriculture. This scenario is characterised by little innovation and cooperation, and a slow adjustment process. In the medium term the growth potential of agricultural output would remain limited with real wages almost stagnant or even in decline despite increasing financial support. Rural areas will continue to lose jobs at a fast pace.

Obviously, this future can and should be avoided. A more favourable constellation composed of external factors toward faster economic growth and above all a more innovative and cooperative attitude among agriculture’s stakeholders offer the foundation for a more optimistic adjustment: **scenario (B)**, offering expansion and higher income potential, and getting Hungarian agriculture closer to where it wants to be. The following performance indicators better quantify the stakes and the potential outcome stemming from the agri-economic adjustment process.

During 2006-2013 the value of agricultural production (including direct support) is projected to increase by 17% following the baseline scenario, with crop production and livestock farming accounting for 25% and 4% growth respectively. If the adjustment process proves more successful and external conditions more favourable, the value of production could increase by 35%, with crop production and livestock farming accounting for 50% and 9% growth respectively. Quantities, prices, and subsidies would all contribute to this increment.

Agricultural output is projected to increase by at least 6% following the baseline scenario and up to 25% under scenario B. Even then, the conditions for restoring the balance between the two principal branches will continue to be far from ‘congenial’. Under the baseline scenario, crop and livestock production may increase by only 8% and 1% respectively. Whereas if Hungarian agriculture actually manages to make up ground, their output is expected to grow by 32% and 12% respectively (see Figure 1).

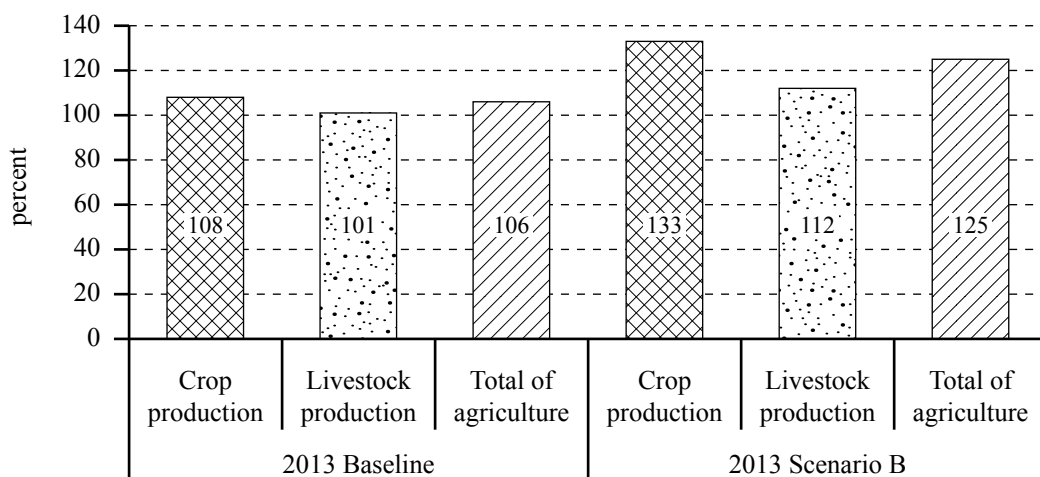


Figure 1: Projected changes in agricultural output in Hungary (2006 versus 2013, 2006 = 100%)

Source: KSH and results of modeling work at the Agricultural Policy Research Department, AKI

In the next few years the position of crop producers’ (and perhaps some ruminant farmers) will usually oppose those in grain fed livestock such as pig and poultry farmers (see Table 1). Livestock farmers with little land are going to face cumulative risks.

Table 1

Projected bankruptcy rate of Hungarian farms in percentage by 2010

Profile	A scenario			B scenario		
	Individual	Enterprise	Total	Individual	Enterprise	Total
Arable	0.48	5.72	0.88	0.44	5.41	0.81
Ruminants	2.20	10.43	2.91	2.20	1.34	2.13
Grain fed livestock	3.58	32.79	8.57	2.88	20.02	5.81
Permanent crops	0.72	9.61	1.39	0.71	8.00	1.25
Horticulture	0.93	0.00	0.90	0.93	0.00	0.90
Miscellaneous	0.10	4.52	0.21	0.08	3.79	0.17
<i>Total</i>	<i>0.65</i>	<i>9.55</i>	<i>1.20</i>	<i>0.60</i>	<i>6.87</i>	<i>0.99</i>

Source: results of modeling work at the Farm Business Analysis Department, AKI

Under scenario B, positive changes are predicted for farming incomes. The nominal profit before tax may almost double, whereas its real value may increase by 50%. The bad news is that if current trends continue, the real value of entrepreneurial income will at best remain at its present level. The bulk of the potential income surplus will mostly come from crop production (see Figures 2 and 3).

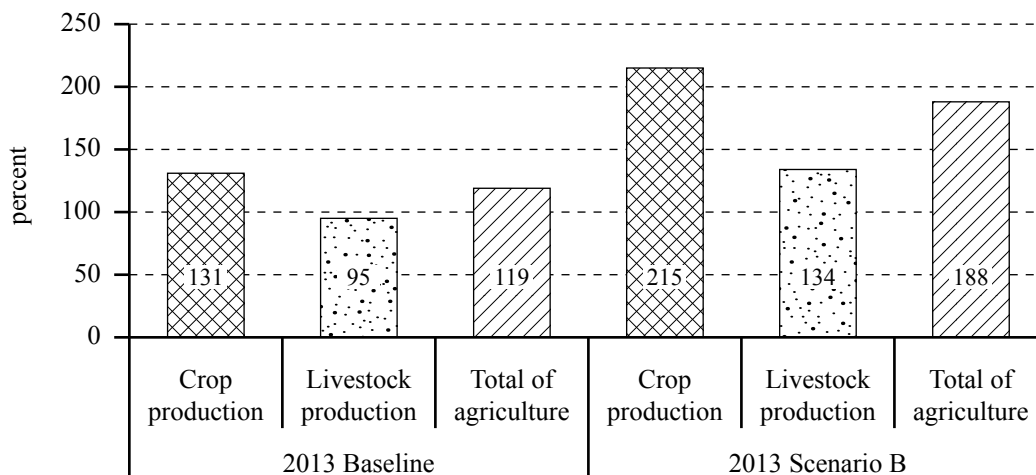


Figure 2: Projected changes in Hungarian agricultural income at current prices (2006 versus 2013, 2006 = 100%)

Source: KSH and results of modeling work at the Agricultural Policy Research Department, AKI

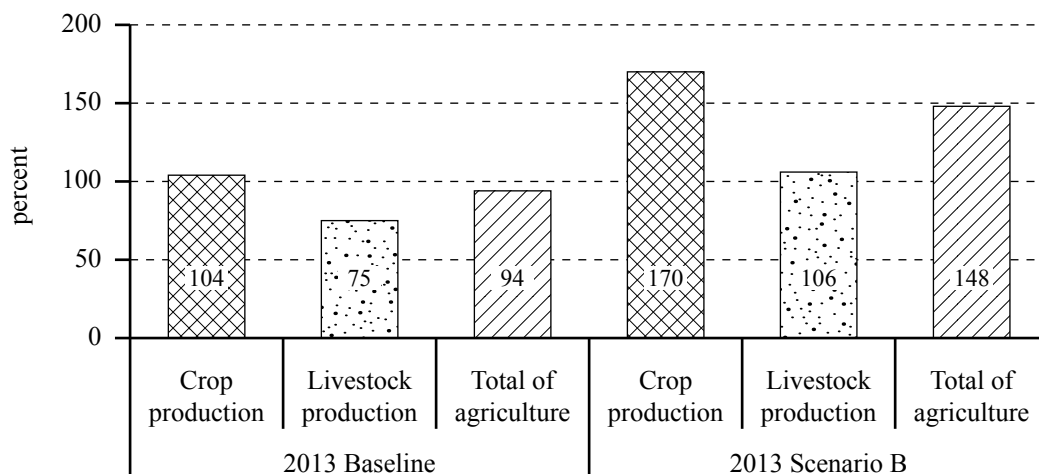


Figure 3: Projected changes of real agricultural income in Hungary (2006 versus 2013, 2006 = 100%)

Source: KSH and results of modeling work at the Agricultural Policy Research Department, AKI

These differences in the agricultural economy's potential performance will be slightly smaller for foreign trade turnover. That is because of a boost in domestic consumption which will occur if Hungarian agriculture manages to make up ground, which will reduce excess stocks. Nonetheless, the difference should not be underestimated. Following the baseline scenario, by 2013 the realistically attainable value of exports could be €4.5 billion, while under scenario B it may exceed €5 billion, which in both cases includes bio-fuels. By a large margin the trade balance will remain positive. Following scenario A, its value may indeed rise to between €1.6 and 1.7 billion or between €2.2 and 2.3 billion under scenario B (see Figure 4). If one excludes bio-fuel trade, by the end of the projection period the balance would fall between €1 and 1.1 or 1.7 and 1.8 million respectively.

If one considers the major sectors following the baseline scenario, in the medium term the area and production of wheat is expected to stabilize between 1 and 1.1 million hectares and 4.3 and 4.6 million tonnes respectively. Domestic consumption is unlikely to exceed 3 million tonnes a year. The expansion of feed use will be constrained by stagnation in the livestock sector and by excess quantities of by-products from the emerging domestic ethanol fuel industry. For the same reason, in the medium term the demand for feed maize is projected to remain around 3.5 million tonnes a year. However, by 2013 ethanol production may boost total maize consumption over 7 million tonnes a year. In the short run, high feed grain prices have already cut excess stocks significantly. While the area devoted to maize is projected to stay between 1.2 and 1.3 million hectares, production may increase gradually beyond 9 million tonnes by 2013. The combined export volume of wheat and maize could reach around 4 million tonnes. Under scenario B, wheat production may exceed 6 million tonnes while maize production may approach 11 million tonnes by 2013 (see Figure 5). From this, exports could reach 2.3 million tonnes of wheat and 3.2 million tonnes of maize.

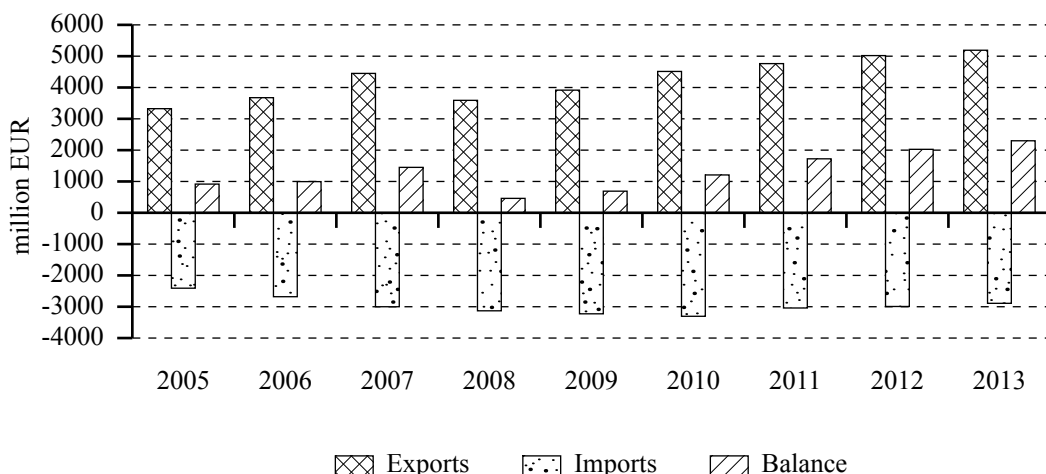


Figure 4: Agricultural and food trade* under scenario B (2005-2007 with projections to 2013)

* Including biofuels.

Source: Agricultural Markets Research Department and results of modeling work at the Agricultural Policy Research Department, AKI

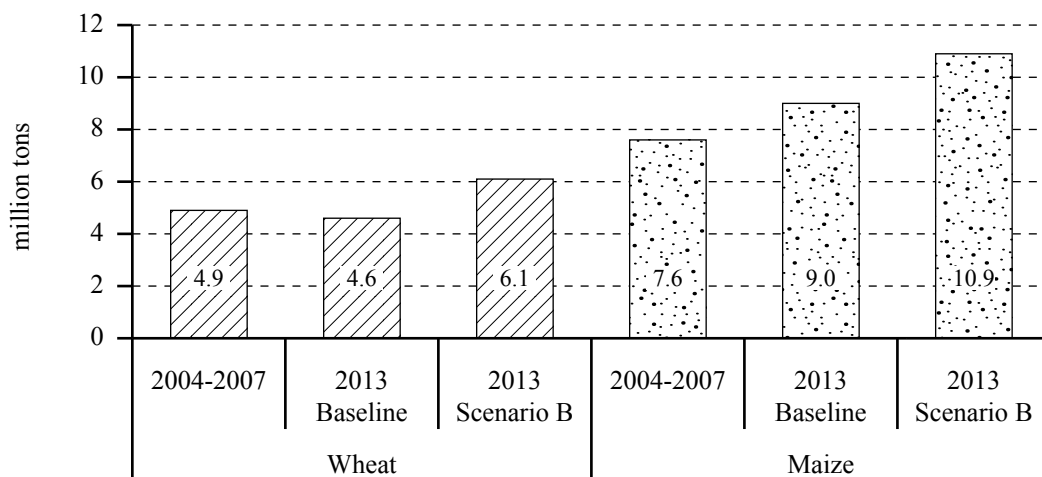


Figure 5: Hungarian production of wheat and maize (2004-2007, with projections to 2013)

Source: KSH and results of modeling work at the Agricultural Policy Research Department, AKI

In terms of area and production volume, sunflower is by far the most important oil crop in Hungary. In 2007, the area devoted to sunflower was slightly over 0.5 million hectares, showing virtually no change from 2006 or 2005. During 2004-2007 the area devoted to rape oilseed increased by over 220%. In 2007, around 0.5 million tonnes of rape oilseed was harvested from an area of over 0.23 million hectares, both these figures record-breaking. In the near and medium future, the phasing in of direct EU support coupled with the demand for edible sunflower seed oil and bio-diesel produced from oilseed rape production will likely remain profitable. Therefore, according to the baseline scenario, only small changes are expected in the output of these crops. However, under

scenario B, oilseed rape production is projected to more than double while by 2013 sunflower seed production may reach 1.3 million tonnes (see Figure 6).

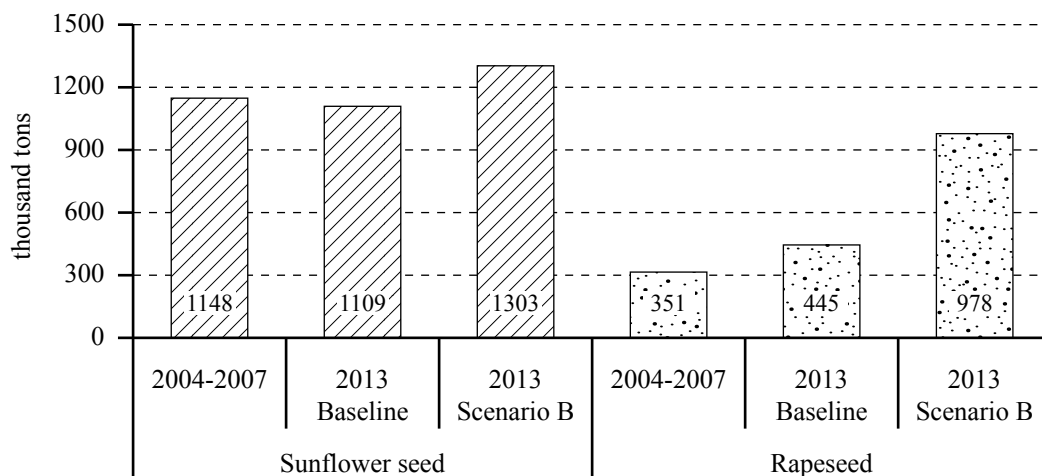


Figure 6: Production of sunflower seed and rapeseed in Hungary (2004-2007, with projections to 2013)

Source: KSH and results of modeling work at the Agricultural Policy Research Department, AKI

In Hungary annual diesel fuel consumption is currently about 2.2-2.3 million tonnes. Assuming this figure remains stable, to comply with the 5.75% 2010 replacement rate set by the EU Bio-fuels Directive for renewable energy resources, the country would need around 180 thousand tonnes of bio-diesel for domestic use which would require processing more rapeseed than the total 2007 output. Naturally, it is also possible to use the average yearly excess sunflower seed stock of 0.5 million tonnes to produce bio-diesel.

In the coming years a slight drop in the total number of cattle is expected; but under scenario B it may in the medium term increase by 3% (see Figure 7). This represents a positive trend given the continual decline which occurred between the start of economic transition and EU accession.

In the future a decline in the number of dairy cows is likely under both scenarios. But because of improving efficiency and increasing yields, by 2013 at the latest milk production may almost fill the national quota. In the medium term, the proportion of milk sales to processor will nudge up, and direct marketing of milk and dairy products will thus remain substantial (about 10%). Milk production's low profitability indicates that the sector may not be able to generate the necessary financial resources for the urgent modernization, *inter alia*, demanded by EU environmental requirements. In the near future anticipated higher producer prices may help improve surviving dairy farms' net incomes.

Following accession direct support for production, plus guarantees provided by the beef intervention system, and the growing demand for fattened bulls bolstered beef production. Partial or full decoupling of support may temporarily discourage producers, but by 2013 a slight increase in the number of suckler cows is projected, while beef production itself is projected to remain stable. However, under scenario B, in the medium term beef production may increase by nearly 12%.

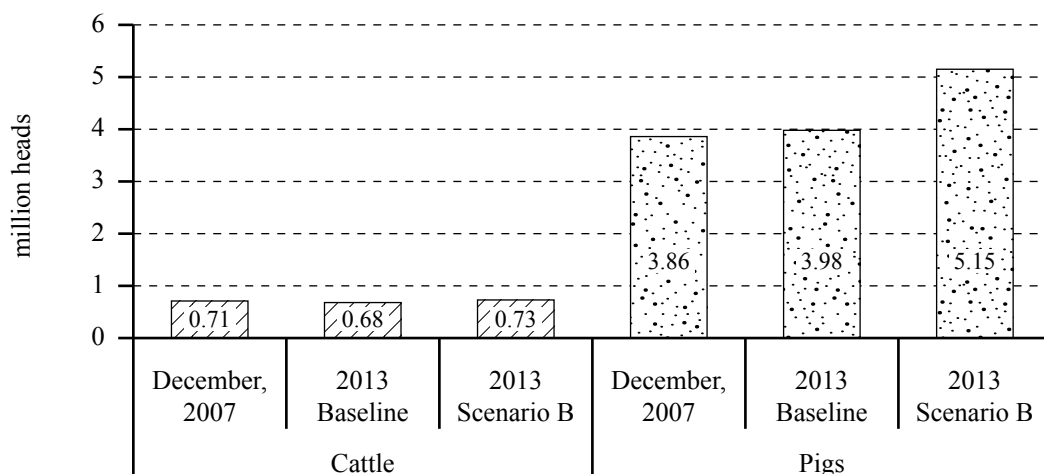


Figure 7: Number of cattle and pigs in Hungary (2004-2007, with projections to 2013)

Source: KSH and results of modeling work at the Agricultural Policy Research Department, AKI

A steady decline in live cattle imports is expected because the complementary national direct payment for fattened bulls will be removed from production. Only a modest increase in beef imports is projected. By 2013 live cattle and beef exports are foreseen to decrease by 20%. However, scenario B portends that beef imports will more than double and exports will increase by 25%. This and an expected increase in beef production by 2013 will be offset by an approximately 10% growth in domestic beef consumption which would nonetheless remain well below both the EU-15 and EU-25 averages. Given that beef prices remain high compared to consumer prices for pork and poultry and that consumption patterns change slowly, Hungary is not going to have a stable beef market to absorb larger quantities. Nonetheless, in the coming years fattening will continue to be profitable and domestic consumption, in the mid and longer term, will continue to represent a stumbling block for the sector.

In December 2007, the number of pigs in Hungary slightly exceeded 3.86 million. The number of breeding sows was 260 thousand, 30 thousand less than in December 2006. Following the baseline scenario, by 2013 the number of pigs would not exceed 4.2 million, even though the number of breeding sows is projected to increase to 315 thousand, meaning moderate expansion. The number of pigs would approach 5.2 million by the end of the projection period (see Figure 7) if a number of conditions could be met. These conditions entail modernisation in order to improve productivity and efficiency and compliance with environmental and animal-health and welfare requirements. Another condition is strengthened vertical coordination in the pork production chain.

It is noteworthy that these changes in livestock numbers actually conceal changes in the underlying production structure; enterprises specialized both in breeding and fattening could lose ground while those specialized solely in fattening could expand. An essential condition for growth is ownership or access to arable land which allows the sector to receive indirect support.

In the medium term exports of live pigs may decline while imports could rise. Due to steady demand in EU member states for Hungarian pork, pork exports may remain stable. On the other hand, domestic processors need to import pork to maintain their production level⁴.

In 2004 broiler sector output exceeded 230 thousand tonnes (live weight), the highest level in the five years preceding accession. After August 2004 there was a decline in producer prices, but despite this the trend toward greater production continued into 2005. In 2006, higher production costs, lower producer prices, and Avian Influenza meant losses for the broiler industry and production began to drop. According to the baseline projections, in 2008 this downward trend may reverse itself, and broiler meat production could, in the medium term, stabilize at around 240 thousand tonnes (live weight). Nevertheless, under scenario B, chicken meat production may exceed 270 thousand tonnes. But this could only be achieved if producers invested more in technology and human resources. But currently, as in most of the livestock sector, production is hindered by a lack of capital and an urgent need for modernization. Another problem is compliance with strict environmental, animal-health and welfare requirements.

Since EU accession Hungary has steadily imported more poultry products and, in the future, the country may become a net importer of chicken meat. Hungarian poultry meat processors cannot compete with Brazilian and Thai products.

4. Future tasks

It is in the Hungarian national interest to get Hungarian agriculture on the scenario B development track by 2013, but a lot remains to be done to achieve this goal. More innovation and more efficient cooperation are definitely needed. Also needed are an agreement on basic agricultural policy objectives, and the alignment of government policies with initiatives taken by farmers. Success requires a minimal level of strategic cooperation among food chain stakeholders. Specific policy measures can be grouped in the following manner:

- Substantial progress is imperative in almost every agricultural sector as well as in the processing industry and agricultural logistics. Other than modernisation of machinery and technology, genetic resources require renewal. Rural development funds are insufficient for that enormous task. To attract Hungarian and foreign capital, conditions must be investor friendly; for example, land market liberalisation is a particularly pressing matter.
- More than lip service needs to be paid to the augmentation of human capital, the review of the secondary and tertiary education system, and the pragmatic development of research and rural extension services. An innovative approach is necessary to tackle issues of climate change adaptation, technological development, irrigation, and water management. It is also necessary regarding the renewal of genetics as well as the authorisation of GMOs. It is increasingly important to replace the ageing professional workforce and farm managers.
- Competitiveness can only be achieved across several product chains, and thus the strengthening of vertical links and organisation is inevitable (here Hungary is clearly at a disadvantage compared to its competitors). Strategic cooperation along the product chains, promoting integration, joint purchasing, and marketing are not only essential conditions for market expansion but also for securing Hungary's current market positions.

⁴ The main export products are pricey meat parts while imports tend to be cheap raw materials replacing higher quality domestic produce.

- In order to ensure fair competition, the terms ‘household’ and ‘holding’ as well as ‘market actors’ and ‘beneficiaries of support’ should be defined, and this also holds true in the area of taxation.

Obviously, Hungary also has dealings in Brussels. The country should go all out to gain time and funding for Hungarian agriculture. During WTO negotiations Hungary needs to back those rejecting complete liberalisation and seek to soften competition for its *sensitive* products. We should join those EU member states who believe that challenges can only be met by renewing the Common Agricultural Policy in a way which rewards the provision of public goods in agriculture, and reduces ‘historical’ differences distorting competition. Solidarity is essential in bearing the costs of natural disasters associated with climate change, and room must be given to lagging individual countries to enact necessary structural changes that will allow them to close the gap, and keep and create rural jobs.

Not much time is left until 2013. Indeed, from 2014 on there will likely be new pressure to adapt, and CAP reform foreshadows just that.

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