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Chapter 4

Agribusiness

This chapter provides an in-depth analysis of the agribusiness sector in Ukraine. Examining the demand and supply sides, it explains why agribusiness is promising for private domestic and foreign investors given domestic and global trends. It identifies the role that foreign investors could play along the value chain, including farming, processing and retail. It also presents key issues and policy barriers hindering competitiveness in the sector and proposes a prioritised list of policy recommendations.

Summary

Agribusiness represents a comprehensive value chain that covers all aspects of agricultural production (*e.g.* farming, seed and other agricultural inputs, crop production, post-harvest handling, and animal husbandry), processing, and distribution (*e.g.* wholesaling, retail sales to final consumers) (FAO, 2010; OECD, 2008). World production, consumption and trade of agricultural products are expected to increase sharply over the coming decade. This trend will be driven by non-OECD countries.

On the demand side, strong income growth in emerging economies will boost demand for a wide variety of agricultural products and processed foods. Slow but steady convergence with the food demand patterns of developed countries will require higher attention to quality standards, health, and variety. On the supply side, the main trends are likely to be the concentration of operators at all levels of the value chain (production, processing, distribution), and increased concerns over food security. Emerging economies are forecast to develop their domestic production capacities (OECD/FAO, 2010), both through improved productivity and through better utilisation of available arable land. Increased production capacity will satisfy domestic demand and increase exports of commodities and processed agricultural products.

Ukraine has a significant opportunity to further strengthen its already important role in agribusiness. The country has more arable land (around 32 million hectares) than any other European country. Moreover, Ukraine enjoys an abundance of black soil, which is very fertile and offers potential for high agricultural yield. Climatic conditions are favourable to the production of most agricultural products in different areas of the country. Other sources of competitiveness include the country's long tradition in agriculture and low labour costs. Since the country's independence, agriculture's contribution to total output has been volatile. Its share of GDP increased in the 1990s, while non-agricultural industries contracted, but fell back sharply when non-agricultural sectors recovered. In 2009, the share was still higher than 8% (World Bank, 2011) and agribusiness accounted for 25% of total exports.

The global context and the country's endowments could open a wide range of opportunities for domestic and foreign investors. The expected rise in prices for agricultural products in real terms could also make this sector more attractive to private investors. Foreign agro-food companies investing in emerging economies could play a significant role by improving productivity while implementing the highest food safety and regulatory standards, allowing access to developed country markets such as the European Union.

However, the Ukrainian agribusiness sector still faces a number of challenges. Some of them derive from the general approach of Ukraine to investment policy. For example, the issues of restrictions on land ownership are rooted in an unfinished land reform, and in the moratorium on sales of agricultural land, expected to end in 2012. Similarly, the quotas on grain exports introduced in 2010-11 relate to the more general issue of export-restricting measures during periods of global commodity price increases. Other challenges are more

sector-specific. The productivity level is still low for many agricultural commodities, and the quality of products is still not up to the standards of neighbouring markets, therefore impeding high-quality exports. Quality is certainly affected by the limited availability of funds, which ultimately hampers both operational activities, such as the purchase of seeds and fertilisers, and capital expenditures, for example on storage facilities and modern harvesting equipment. Another aspect which has an impact on quality is the set of knowledge, skills, and abilities in the fields of agronomy and agro-management. At the moment this human capital is only partly aligned with demand from the agribusiness companies.

The government could intervene in a number of policy areas in order to leverage the country's endowments, make the agribusiness sector more competitive, and ultimately attract more investment. Improving access to finance could be a tool to empower the private sector and facilitate the improvement of the quality of output. The private sector will also benefit from a set of reforms in the human capital field aimed at improving the technical skills of the labour force and aligning them with market demand. The proposed recommendations also include improvements in safety and quality standards, the lifting of the present land sale moratorium and the amelioration and upgrading of infrastructure.

In order to focus the government's efforts on specific actions, a prioritisation of agricultural sub-sectors was carried out, based on an analysis of demand and supply. This prioritisation led to the identification of two pilot sub-sectors for reform efforts: the grain and dairy value chains. The next two chapters of this publication offer an in-depth analysis of these sub-sectors, along with specific policy recommendations.

Sector definition and segmentation

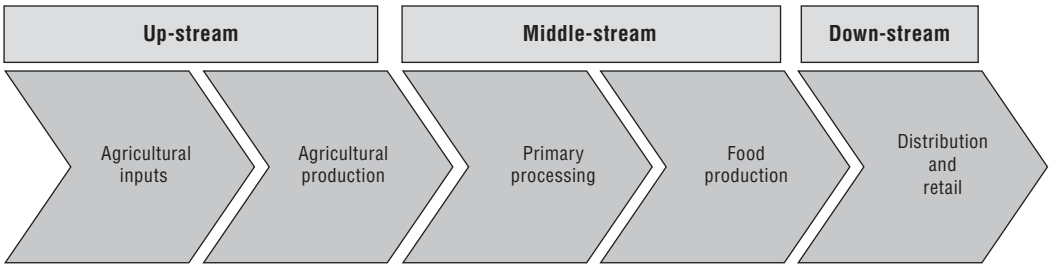
Agribusiness can be defined as a value chain that includes all aspects of agricultural production, processing and distribution and spans a number of industries. The FAO (2010) defines agribusiness as "*collective business activities that are performed from farm to fork*." Agribusiness refers to the supply of agricultural inputs and agricultural production upstream, and downstream business activities such as storage and distribution of agricultural products to final consumers (FAO, 2010; OECD, 2008). Agribusiness refers to the sum total of all operations involved in the production and distribution of food and fibre.

All operations in the agribusiness supply-chain can be grouped into five major segments: agricultural inputs, primary agricultural production, primary processing, food processing and production, and distribution and retail (Figure 4.1).

- The agricultural inputs segment covers producers and suppliers of seeds, fertilisers, agricultural chemicals, tools and agricultural machinery and technologies for crop cultivation and animal breeding.
- The primary agricultural production segment includes activities such as cultivation of food and non-food crops, animal husbandry and includes such sectors as grains, oilseeds, meat, dairy, fish and horticulture.
- Primary processing comprises basic processing of agricultural commodities, such as milling and crushing, as well as handling and delivery of produce that does not require further processing (such as fresh fruits and vegetables) through various distribution channels.
- The food processing and production segment covers companies engaged in deeper processing of agricultural crops and production of food. Products include meat, poultry, bread, snacks, beverages, and frozen food.

Figure 4.1. **The agribusiness supply-chain**

A simplified example of the supply-chain



Source: OECD (2010), *Ukraine Sector Competitiveness Review*, internal working document, OECD, Paris.

- The distribution and retailing segment covers the operations of wholesale, retail and food service companies.

The organisation of the value chain and the links between these segments vary widely between segments of the industry. For example, food processing firms are integrating backward to primary production as well as forward to retail distribution, while a number of large multinational suppliers of seeds, feeds and fertilisers are well diversified in product processing and distribution. However, the scope of co-operation and integration and the nature of relationships differ between the various levels of the agro-industry value chain.

Agribusiness connects agricultural producers and consumers by processing, transporting, marketing and distributing agricultural and food products. Thus, a robust agribusiness sector can stimulate the development of agriculture, and create positive spill-over effects on other sectors such as logistics or the chemicals industry, and ultimately economic development overall (World Bank, 2007).

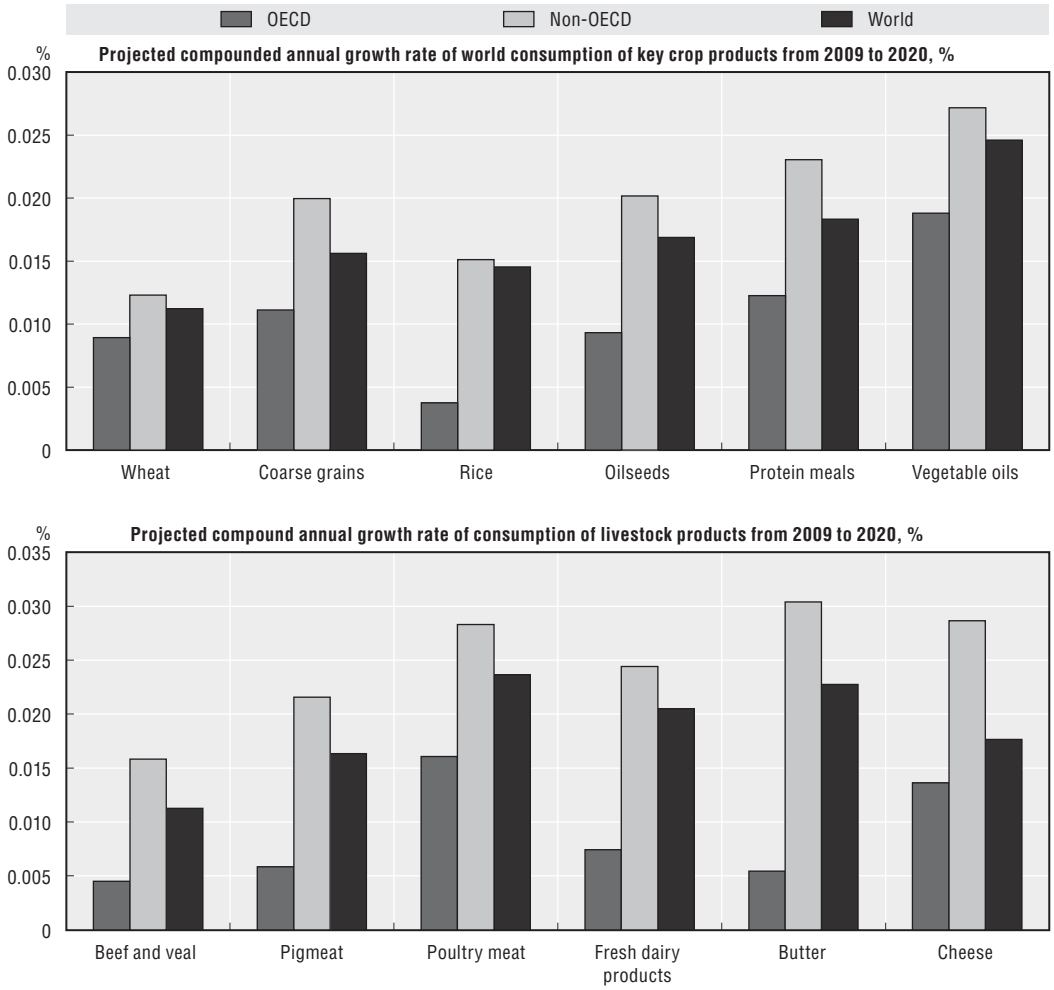
Global trends

World production, consumption and trade of agro food products are all expected to increase sharply over the coming decade and this trend will be driven by non-OECD countries. In emerging economies, strong income growth will boost food demand and imports of a wide variety of agricultural products and processed food. Slow but steady convergence with the food demand patterns of developed countries will increase pressure to develop domestic production capacity further. This will open a wide range of opportunities for domestic and foreign investors. The expected rise in prices for agricultural products in real terms might also make this sector more attractive to private investors. Foreign companies operating in emerging economies could play a key role by implementing the highest food safety and quality standards, thus allowing emerging country products to access developed country markets such as the European Union.

World demand growth will be driven by emerging economies

World consumption and trade of agricultural products will expand rapidly over the coming decade (OECD/FAO, 2011). Emerging economies will lead and stimulate the growth of agricultural consumption and international trade. This faster pace of consumption growth is mainly driven by rising per capita incomes, expanding populations and urbanization (Figure 4.2).

Figure 4.2. **Consumption of crop and livestock products to increase more rapidly in non-OECD countries**



Source: OECD/FAO (2011), *OECD/FAO Agricultural Outlook 2011-2020*, OECD, Paris.

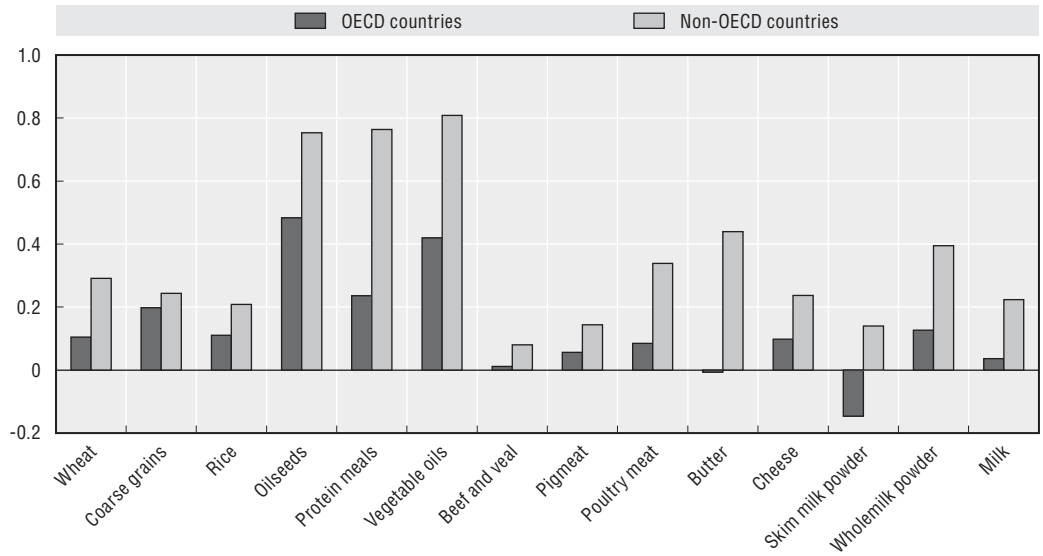
World agricultural production growth should be driven by emerging economies as well

World agricultural production has been growing steadily during the last four decades; for example, over the 2001-10 period, global agricultural production grew at an annual average of 2.6% (OECD/FAO, 2011). This was made possible by advances in technology and policy improvements. In crop growing, for example, increased usage of irrigation and fertilisers as well as improved crop varieties have been the main factors behind rising cereals yields. The average global yield of cereals grew from 1.49 tonnes per hectare in 1964 to 3.51 tonnes per hectare in 2008, an increase of 135%.

Agricultural production in emerging economies has been growing faster on average than in OECD countries. Between 1960 and 2001, the production growth rate averaged 3.4 to 3.8% per annum, which was more than double the average growth rate in developed economies (FAO, 2006). Over the coming decade, emerging economies are expected to increase their production at a faster pace (Figures 4.3 and 4.4).

Figure 4.3. **Agricultural production growth over the last decade was driven by non-OECD countries**

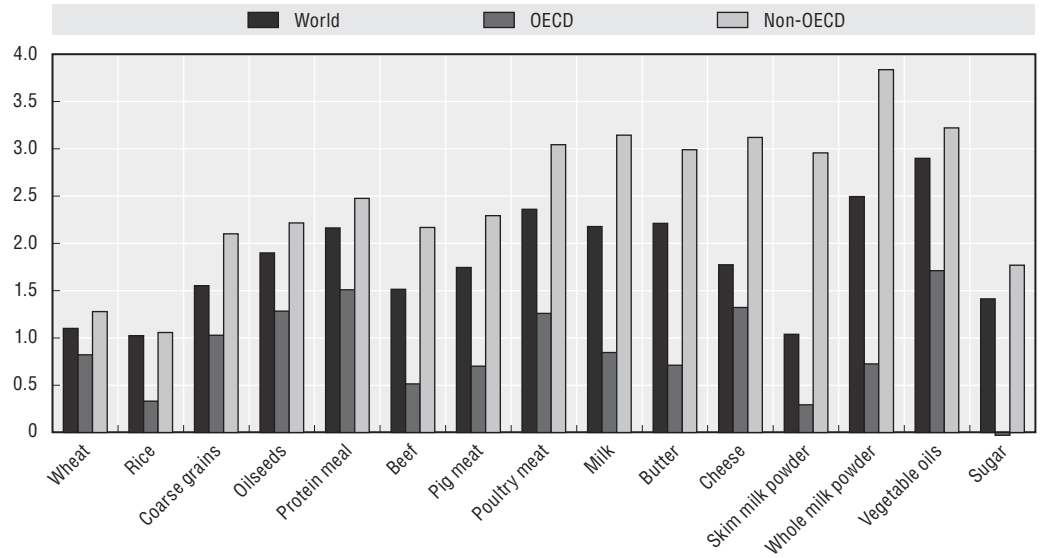
Production growth comparison for key agricultural commodities, 2003-10, in %



Source: OECD/FAO (2011), *OECD/FAO Agricultural Outlook 2011-2020*, OECD, Paris.

Figure 4.4. **Agricultural production in non-OECD countries to grow at a faster pace than OECD countries**

Compound agricultural production growth rate, 2010-19

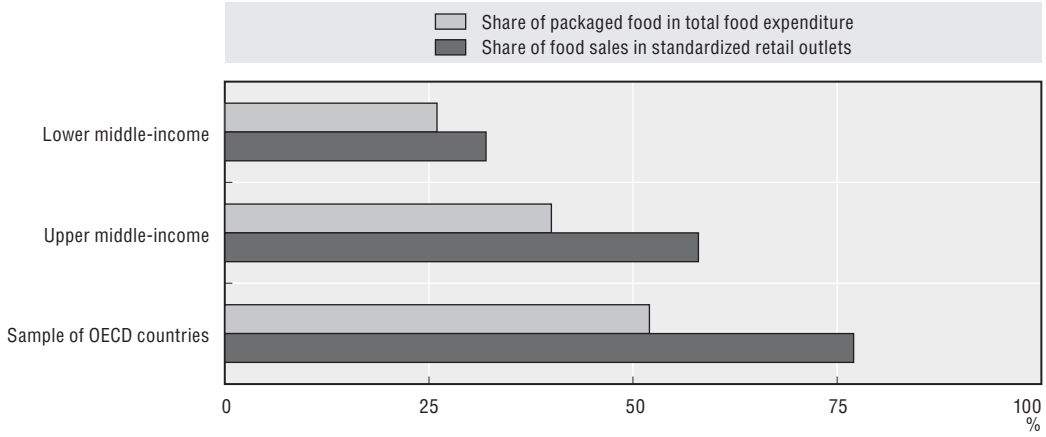


Source: OECD/FAO (2011), *OECD/FAO Agricultural Outlook 2011-2020*, OECD, Paris.

Emerging economies are beginning to resemble OECD countries in their food purchasing patterns

Emerging economies, especially middle-income ones, seem to be following the food purchasing trends associated with OECD countries. A USDA analysis of food expenditures across 47 countries indicates that over the last 20 years, food expenditures for high value-added products and packaged food in developing economies have been converging with those in the developed countries (Figure 4.5). This movement reflects food consumption growth in

Figure 4.5. **Demand for high value added products in modern retail outlets grows as incomes rise**



Note: Sample of OECD countries includes Canada, USA, Australia, Japan, France, UK, Germany, Netherlands, Austria, Belgium, Finland, Greece, Italy, Spain, Sweden, Denmark, Ireland, Portugal; upper middle-income countries include Czech Republic, Hungary, Poland, Chile, Mexico, Malaysia, South Africa; lower middle-income countries include Brazil, Colombia, Peru, China, Indonesia, Philippines, Thailand, Algeria, Egypt, Jordan, Morocco, Tunisia. Algeria is excluded from the survey of packaged foods.

Source: USDA (2008), *Convergence in Global Food Demand and Delivery*, USDA Economic Research Service, Washington, DC.

middle-income countries, primarily driven by income growth (USDA, 2008). Growing incomes allow consumers to shift away from carbohydrate-rich products toward healthier but more expensive foods such as meat and dairy as well as fresh fruits and vegetables.

This convergence trend has important implications for private domestic and foreign agribusiness investors (Box 4.1). The majority of the food basket in middle-income countries still consists of intermediate food products with lower added value, such as cereals, dry

Box 4.1. **Defining "convergence" in food demand patterns**

The term "convergence" implies dynamics, or movement toward some common outcome. Convergence has been defined and examined most often as convergence in income levels. Barro and Sala-i-Martin (1992) defined beta convergence, in which the income growth of lower income regions or countries is faster than the world average and that of high-income regions is slower. The faster growth rates imply that lower income regions will even-tually "catch up" with higher income regions and all regions will reach a "steady state." The concept of convergence has been applied to food expen-ditures to assess, for example, if income dynamics and market integration in the European Union are over-coming historical differences in preferences (Hermann and Röder, 1995; Gil *et al.*, 1995).

In food demand, the dynamics leading to convergence are driven primarily by income growth. It has long been recognised that diets change in predictable ways as incomes rise. For example Bennett's Law states that the share of animal products in calories consumed increases as incomes rise (Bennett, 1941; Delgado *et al.*, 1999). Recent research has highlighted how dietary upgrades in middle- and high-income countries include high-value products, in addition to meat (Regmi and Gehlhar, 2005). Generally, these changes in food consumption patterns include an increased demand for services and quality attributes, and are accompanied by the modernization of the retail sector (Reardon and Berdegué, 2002). Seale *et al.* (2003) demonstrate that lower income consumers make bigger changes in food expenditures as income levels change.

Box 4.1. **Defining "convergence" in food demand patterns** *(cont.)*

For example, an average consumer in the United States is expected to increase meat expenditures by 1% for every 10% increase in income. But, in a middle-income country such as Brazil, a 10% increase in income is likely to translate to a 7% increase in meat expenditures. As income-induced changes occur more rapidly in lower income countries, consumption patterns across countries trend toward convergence. The projected outcome is some universal "saturation" level of demand for food, including demand for higher quality food, which is achieved at high income levels.

Source: USDA (2008), *Convergence in Global Food Demand and Delivery*, USDA Economic Research Service, Washington, DC.

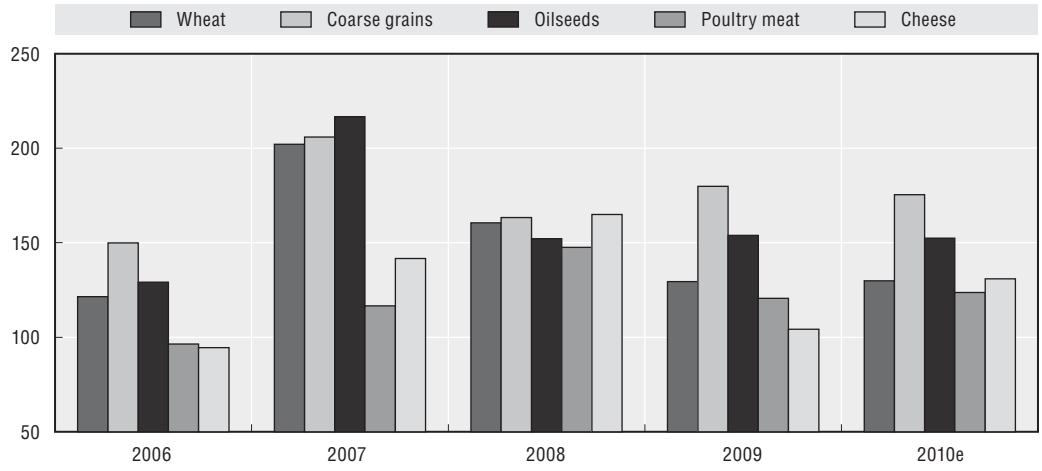
pasta, vegetable oils and other dried products. Rising demand for higher value-added food products will thus generate considerable opportunities for growth along the whole value-chain, including agricultural producers, processors, distributors, and modern retailers.

Higher prices in real terms are expected, strongly influenced by dynamic global food demand

The recent global recession together with high volatility of oil prices had a strong impact on non-oil commodity prices. Commodity prices fell sharply from the pre-recession highs of 2007-08, but they started recovering in 2010 (Figure 4.6). In 2011-20, real prices of all agricultural products are expected to be above their average 2001-10 levels, but below the recent levels of 2008-10 (OECD/FAO, 2011) (Figure 4.7). This is partly due to the fact that energy prices will remain high by historical standards and should increase further with global economic recovery.

Figure 4.6. **Price changes for selected commodities in 2005-10**

Price index, 2005 = 100



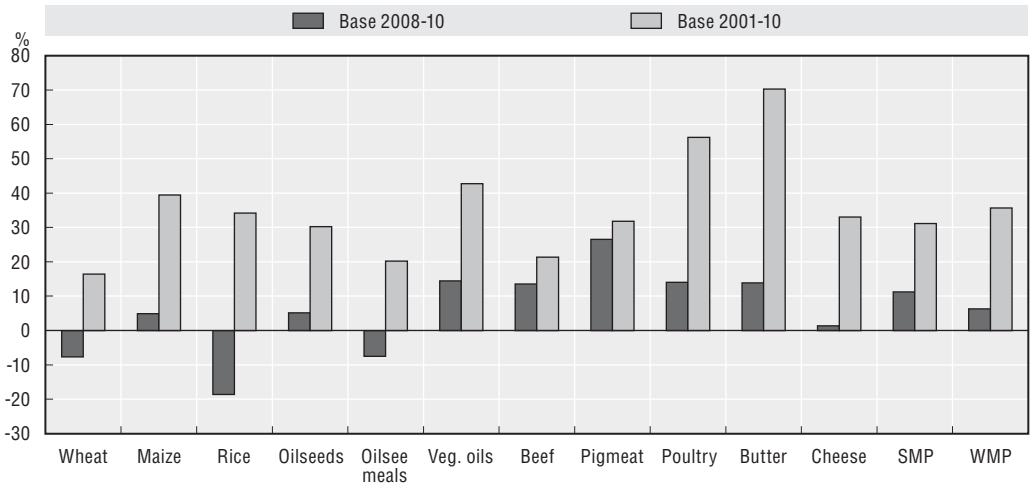
Source: OECD/FAO (2011), *OECD/FAO Agricultural Outlook 2011-2020*, OECD, Paris.

Increasing requirements for food safety and standards to access developed country markets

The role of standards and food safety has been growing over the last 20 years in developed countries. Stricter standards have been introduced by many governments over

Figure 4.7. **Most commodity prices in real terms to remain above the last decade's level**

Changes in % between projected real prices over 2011-20, and: *i)* 2008-10; *ii)* the last decade (2001-10)



Source: OECD/FAO (2011), *OECD/FAO Agricultural Outlook 2011-2020*, OECD, Paris.

the last decade and have placed primary legal responsibility for ensuring food safety on food operators. Private companies responded by implementing stricter public standards as well as developing their own standards. The introduction of various certification schemes for farmers, processors and producers in the entire agro-food value chain is a good example of the growing role of standards.

The increasing role of food safety regulation in developed countries has several implications for developing countries (Box 4.2). First, it influences access to growing markets for agro food exports, particularly high-value fresh and perishable products such as dairy products: when standards are different, this can be an additional barrier for developing country exporters. Second, it has a "push" effect on food safety regulation in developing countries, by creating expectations among developing-country consumers regarding acceptable levels of safety. It can even determine best practice for regulations in developing-country food systems (IFPRI, 2003).

Box 4.2. **Food safety regulation in developed countries has implications for developing countries**

A demand for higher levels of food safety in developed countries

Food safety is affected by the decisions of producers, processors, distributors, food service operators, and consumers, as well as by government regulations. In developed countries, the demand for higher levels of food safety has led to the implementation of regulatory programs that are intended to improve public health by controlling the quality of the domestic food supply and the increasing flow of imported food products from countries around the world.

Countries regulate food safety through the combined use of process, product (performance), or information standards. For example, specifications for acceptable in-plant operations may be backed up with final product testing to monitor and verify the success of safety assurance programs. Labelling that instructs final consumers on proper food handling techniques may further back up these systems.

Box 4.2. **Food safety regulation in developed countries has implications for developing countries** *(cont.)*

A price of entry into developed country markets

Stronger public health and consumer welfare emphasis in decisions by regulatory agencies. This leads to a focus on the food supply chain, on identifying where hazards are introduced into it, and on determining where those hazards can be controlled most cost effectively in the chain. This approach is referred to as "farm to table" or "farm to fork" analysis. When the supply chain extends across international borders, risk analysis may encompass farm or processing practices in developing countries.

Adoption of more stringent safety standards, with a broader scope of standards. These evolving standards create continuing challenges for producers and regulatory agencies in exporting countries.

Adoption of the Hazard Analysis Critical Control Point (HACCP) approach to assuring safety. Under HACCP, companies are responsible for analysing how hazards such as food-borne pathogens may enter the product, establishing effective control points for those hazards, and monitoring and updating the system to assure high levels of food safety. Since HACCP is primarily a process standard for company-level activity, inspection to assure compliance is challenging for imported products coming from plants in other countries.

Increased reliance on certification, including traceability. In developed countries, regulatory systems increasingly require that safety assurance actions be documented internally by the company and externally to government agencies. The system may require documentation tracing a food product back through the supply chain to its source or forward through the chain to the consumer. For example, the European Union is moving forward with mandatory traceability for all food products. The quality control systems required by buyers (such as supermarket chains) have frequently moved faster in the direction of certification and traceability requirements than have government programs.

Export of some regulatory responsibility and burden. HACCP and other certification approaches to food safety assurance are process oriented. Assuring compliance for imported products may require oversight and inspection of farms or plants in other countries. This has resulted in some exporting of regulatory responsibility and burden to other countries as the price of entry into developed country markets.

Source: International Food Policy Research Institute (2003), *Food Safety in Food Security and Food Trade*, Washington, DC.

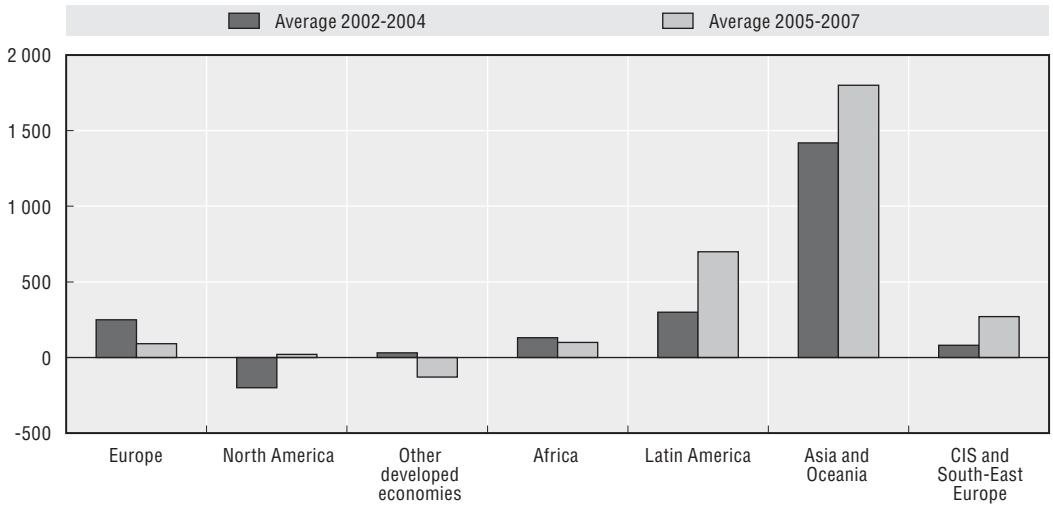
The role of foreign investors along the agribusiness value-chain

Growing demand for food and increasing globalisation of trade opens a wide range of opportunities for multinational companies in developing countries along the whole value chain, including farming, processing and retail.

Inward FDI flows in agriculture were higher in developing countries than in developed countries over 2001-07. This seems to indicate the increasing attractiveness of developing regions and new market opportunities, namely in Asia and Oceania, Latin America and the transition economies of South-East Europe and the CIS (Figure 4.8). In developing countries, MNCs have increasingly focused on other segments of the value-chain, including trading, processing and retailing. Higher average profitability is a key reason. This is reflected in global FDI stocks, with agriculture accounting for a considerably smaller share than food and beverages (UNCTAD, 2009).

Figure 4.8. **FDI stock in agriculture is rising in CIS countries and South-East Europe but it is much smaller than in Latin America and Africa**

Inward FDI stock in agriculture by region, 2001-07, billions of US dollars



Source: UNCTAD (2009), *World Investment Report: Transnational Corporations*, Agricultural Production and Development, United Nations Publications, New York and Geneva.

Along the same lines, food manufacturers are adapting their investment plans. New strategies include geographic expansion in developing countries and a greater emphasis on product category management. This two-fold approach enables food manufacturing companies to become leaders in certain core product lines in different markets, including developed and developing countries. "Therefore, while manufacturer concentration is not evident at the global level for total packaged food sales, firm concentration may exist in specific product lines and regional markets. Firm concentration is particularly evident for those products where the manufacturer's brands are popular, such as in soup, breakfast cereal, and baby food" (USDA, 2009b).

US and European modern retail firms have expanded their presence in developing countries and small retail firms' share has become increasingly smaller. The leading 15 global retail companies account for approximately one-third of world retailers' turnover, which was around USD 4 trillion in 2008 on USDA estimates. Those firms benefit from cost advantages, due to economies of scale and the use of improved technology.

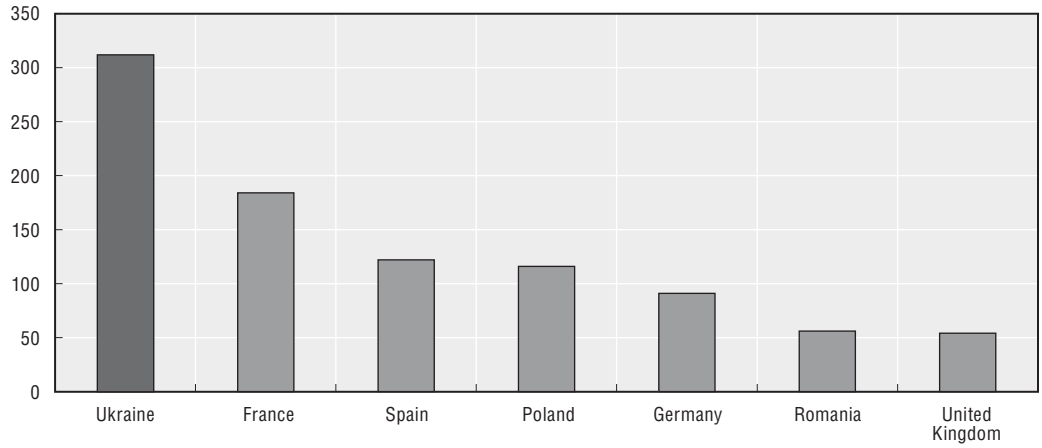
Ukraine agribusiness sector at a glance

Agriculture plays a significant role in the economy

Ukraine's excellent soil and favourable climate allow for large-scale production and export of agricultural products. Ukraine has over 40 million hectares of agricultural land, of which about 80% (around 32 million hectares) is arable (Figure 4.9). The country is home to over 16 million hectares of *chernozem* ("black earth"), a very fertile black-coloured soil with high content of humus and minerals, which produces high agricultural yields.

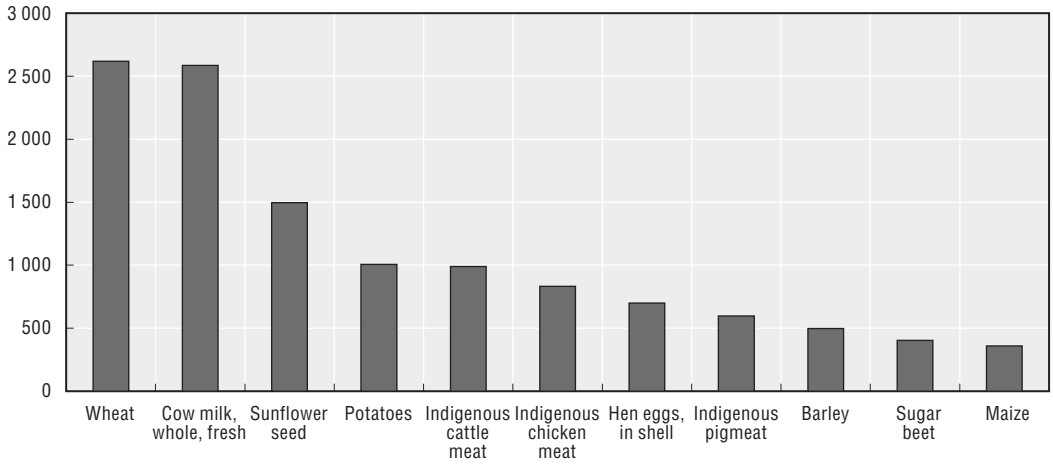
Ukraine's climatic conditions are favourable for growing grains and oilseed crops. Wheat is the most cultivated grain in Ukraine (Figure 4.10). It accounts for nearly half total grain production in volumes in 2008. Barley was the second largest grain produced, with more than 12.6 million tonnes (24% of the total grain crop) harvested over 4.2 million hectares (27% of total land under grains) in 2008. Corn is the third most important grain

Figure 4.9. **Arable land in selected European countries, thousand square kilometres**



Source: State Statistics Service of Ukraine, 2011; Central Intelligence Agency (CIA) (2009), *The World Factbook 2009*, Central Intelligence Agency, Washington, DC.

Figure 4.10. **Production of agricultural commodities in Ukraine, millions of USD, 2008**



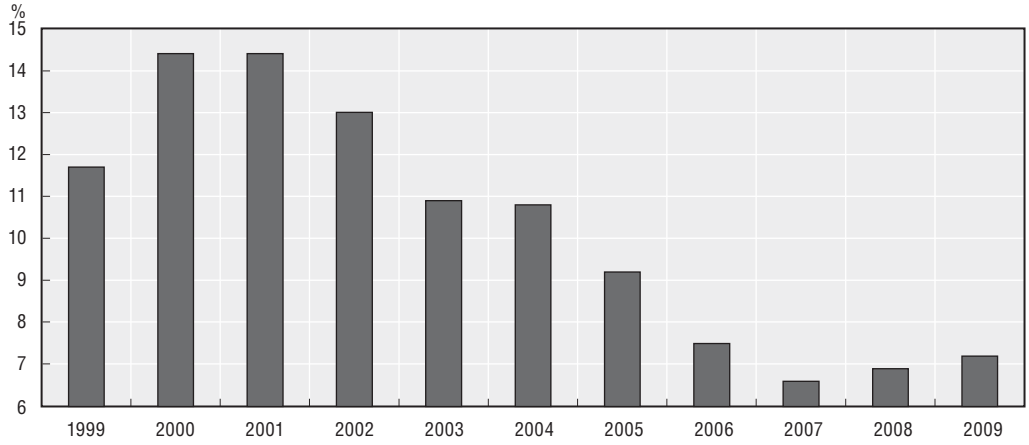
Source: FAOSTAT (2011), *FAO Statistical Databases*, *http://faostat.fao.org*, accessed 15 September 2011.

crop. Ukraine is also a large producer of sunflower oil and rape seed: in 2008, it exported over 1.6 million tonnes of sunflower oil and was the largest exporter globally, ahead of Argentina, the Netherlands and Russia. The red meat and dairy sectors are also an important part of agriculture and agribusiness in Ukraine. Both sectors suffered severe declines during the transition period from the planned economy.

The share of agriculture in the country's GDP has been decreasing for most of the last decade and dropped from 17.1% in 2000 to 8.2% in 2009 according to the World Bank (2011) (Figure 4.11). Although this is a significant drop, it does not necessarily mean that agriculture is declining. Rather, it shows that other sectors are developing faster and that their contribution to GDP is becoming bigger. While Ukraine has an overall trade deficit, agriculture is a net exporting sector (Figure 4.12). In 2008-10, agro-food trade accounted for nearly 14% of the country's external trade turnover (OECD, 2011). Agro-food trade expanded

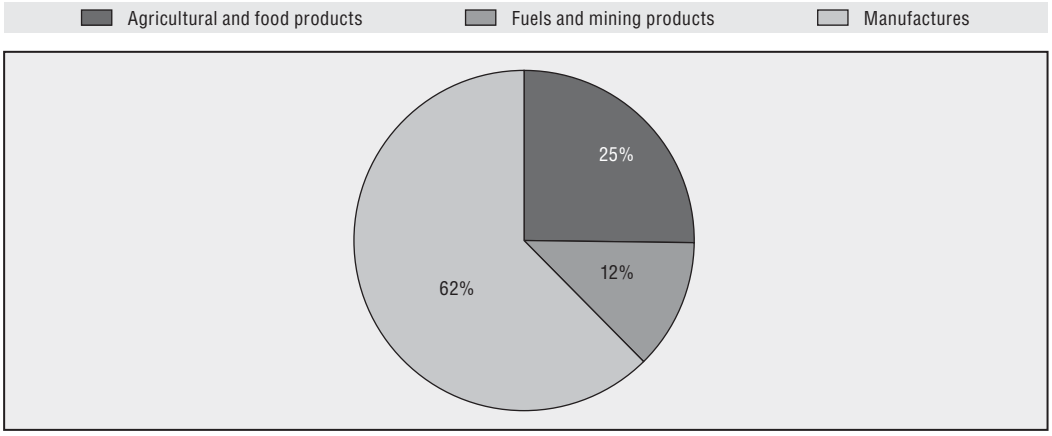
Figure 4.11. **Ukraine: Share of agriculture sector in GDP, 1999-2009**

Agriculture % of GDP



Source: World Bank (2011), *World Bank Development Indicators*, *http://data.worldbank.org*, accessed 15 December 2011.

Figure 4.12. **Export structure of Ukraine, 2008**



Source: WTO, 2011, *International Trade Statistics, Trade Profiles*, *http://stat.wto.org/CountryProfile/WSDBCountryPFView.aspx?Language=E&Country=UA*, accessed 15 March 2011.

particularly rapidly in 2010, driven by the depreciation of the hryvnia and the liberalisation of the border regime after accession to the WTO.

Agriculture is still recovering from the transition years

After declining in the 1990s, agricultural production rebounded and has grown for most of the last decade. Herd size and volumes of milk production declined in the first decade of independence. The cattle headcount has fallen sharply during the last two decades from 24.6 million in 1990 to 4.8 million in 2009. However, during the last five years gross output in the agricultural sector has showed robust growth. In volume terms, total agricultural production in 2009 was 80.7% of the volume in 1991. The horticultural sector has seen strong growth in the last decade, with production levels in 2009 reaching 11.1% above the level of 1991. However, livestock production has not fully recovered and by 2009 had only reached 56.8% of the 1991 level.

The food-processing industry is developing rapidly

The food-processing sector in Ukraine has grown rapidly over the past 5 years with an average growth rate of over 15%, largely driven by population and income growth (USDA, 2010). The food processing industry's share in manufacturing is around 20%. In 2010, the industry's total output was estimated at approximately USD 12 billion. Over 20 000 enterprises operate in the food processing sector. Production growth rates are particularly high in dairy processing, fruit and vegetable processing, edible oils production, pastry and biscuits, and in the production of alcoholic beverages.

The Ukrainian food processing industry is forecast to be driven first of all by domestic demand, through production of dairy products, especially hard cheese and whole milk products. The potential for exports to former CIS countries (Russia, South-Caucasus, Central Asia) is also promising, especially for dairy products and beef.

The growth of the food processing industry is currently impeded by inadequate domestic supply of raw agricultural products and limited export opportunities. A key obstacle is the lack of quality: only a few food manufacturers stick to EU quality and packaging standards (mainly dairy, meat, confectionery, and beverages). As a result, large food processors purchase raw materials and food ingredients directly from foreign exporters.

Key issues and policy barriers to achieving Ukraine's competitive potential requires an improvement in output quality and a rise in productivity. While the country's natural endowments are impressive, the sector is held back by insufficient investment in capital equipment and inputs, low quality of output, gaps in technical and entrepreneurial skills, and frequent *ad hoc* interventions in trade by the government. Enhancing the competitiveness of the agribusiness sector will require aligning its standards to international benchmarks and improving the quality of its output. The experience of OECD countries shows that the government can play a pivotal role in this area, encouraging and monitoring quality. Improving processing and food safety control systems would allow Ukraine to produce and sell competitive high quality products. Foreign direct investment in the processing and retail segments could help to improve the overall level of quality of processed products (World Bank, 2008).

Agricultural productivity needs to be improved and stabilised

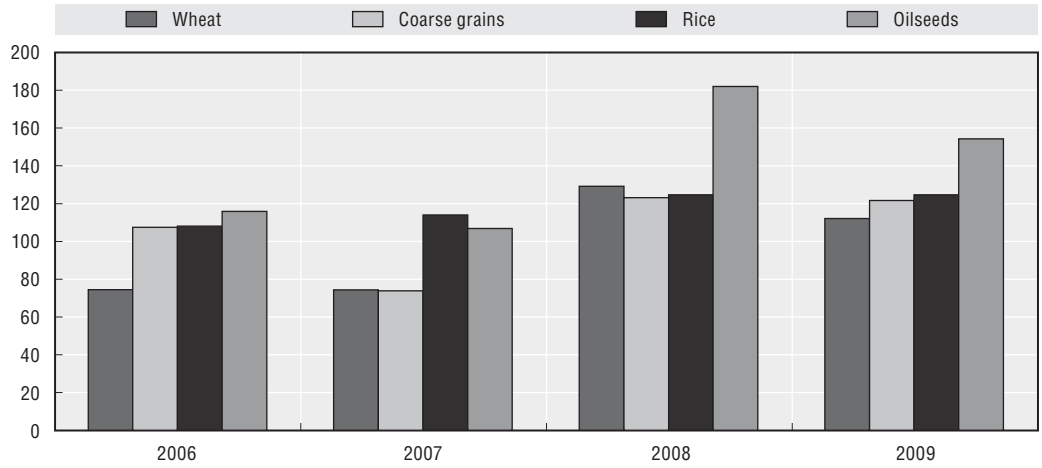
Agricultural productivity in Ukraine as measured by the value added per worker started to recover after a decade of declines in the 1990s and reached USD 1 375 in 2000 and USD 2 461 in 2009. Nevertheless, it is still lower than neighbouring Russia (USD 3 031), Belarus (USD 5 184) or Romania (USD 8 993) (World Bank, 2010).

The performance of Ukrainian agriculture is still unstable, with large annual variations in the production of crops. For example, according to OECD/FAO, annual wheat production can vary by 30% or more (Figure 4.13). Low use of plant protecting products due to limited access to short term finance largely explain these variations.

Dominance of household plots results in a lack of large-scale investment

Lack of investment and slow technological improvements in the sector are partially due to the farm structure of Ukrainian agriculture (OECD, 2009). Commercial large-scale production provides approximately one-third of total agricultural output, while the remaining two-thirds comes from small family-type peasant farms and household plots.

Figure 4.13. **Variation in production of selected commodities in Ukraine, 2006-09, index 100 = 2005**



Source: OECD/FAO (2011), *Agricultural Outlook 2011-2020*, OECD, Paris.

There are three broad types of agricultural production structures in the country: corporate farms, peasant farms, and household plots (Lerman *et al.,* 2007). Corporate farms, which number around 17 500, are the successors to the former collective and state farms. They account for approximately 60% of agricultural land, and 40% of the country's gross agricultural output. Some corporate farms are modern, reaching the productivity levels of developed countries. There are approximately 43 000 peasant farms accounting for 8% of agricultural land and 5-10% of gross agricultural output. Finally, there are roughly 5.3 million household plots, which account for 30% of agricultural land and almost half of agricultural output.

Household plots are largely subsistence-oriented. In a survey conducted in 2005, Lerman *et al.* (2007) determined that the average household plot sold 21% of its output and consumed 48%, with the rest being stored and used as intermediate inputs. The corresponding shares for the corporate farms and peasant farms are 57/64% and 10/9%, respectively (World Bank, 2008).

WTO membership provides an incentive to improve quality

WTO membership has provided an additional incentive to improve quality, strengthen entrepreneurship and improve the regulatory framework. Ukraine became the 152nd member of the WTO in 2008. New import tariffs agreed within the WTO framework implied a significant reduction in protection for specific agricultural goods, including pork, poultry and sugar. Those sectors are now exposed to stronger import competition while domestic agricultural support is expected to be downscaled to respect the country's international commitments.

The regulatory system is currently burdensome (Box 4.3), with an overlapping of rules and complex administrative procedures. There is a need for harmonisation of domestic food safety controls with international standards. The current negotiations concerning a free trade agreement (FTA) with the EU could provide new opportunities for the agricultural sector to address the existing issues, creating additional pressure to be competitive in domestic and international markets.

Box 4.3. **Regulatory system of Ukraine**

Ukraine's food safety system is implemented by various state agencies that often have overlapping functions. The following agencies are involved in assuring the safety of domestically-produced and imported food products, and animal and plant health issues:

- State Epidemiological Service (SES) of the Ministry of Health Care of Ukraine (MHCU) establishes food safety standards and is responsible for all aspects of food safety.
- State Department of Veterinary Medicine (SDVM) of the Ministry of Agricultural Policy of Ukraine (MAPU) is responsible for animal health, safety of meat, seafood and other products of animal origin.
- Main State Phytosanitary Inspection Service (MSPIS) of the MAPU is responsible for plant health issues.
- State Committee of Ukraine on Technical Regulations and Consumer Policy (SCUTRCP) is responsible for compliance of food products with existing quality and safety standards.
- State Ecological Inspection Service (SEIS) of the Ministry of Environment and Natural Resources of Ukraine (MENRU) is responsible for radiological and environmental control.

Source: USDA (2009a), *Global Food Markets: International Consumer and Retail Trends*, USDA Economic Research Service, Washington, DC.

Improvements are needed in the field of land ownership, quality standards, access to finance and human capital

A first area of improvement is the completion of the land reform, which will lift the moratorium on land transactions, implement the unification and digitalization of the cadastre and title system, and design the appropriate institutions to supervise the land market. Asset ownership has played an important role in economic growth at the household level (Blanchflower and Oswald, 1998; Hoff, 1996). Poorly defined land tenure and the lack of ownership rights have restricted foreign investors' involvement in the Ukrainian agribusiness sector. Furthermore, without asset ownership, small and medium-sized farmers lack the collateral needed to secure access to credit.

Secondly, state support has created distortions. An evaluation of support to agriculture suggests that the Producer Support Estimate (PSE was 7% in the period 2008-10).* This is lower than the PSE estimated over the same period in Russia (22%) and the OECD average (20%), however it disguises the taxation of exported commodities and subsidies of imported products (OECD, 2011). There are significant disparities in protection among commodities. The share of the potentially most distorting types of support represented 84% of Ukraine's

* According to the OECD definition (OECD, 2000), "the PSE is an indicator of the annual monetary value of gross transfers from consumers and taxpayers to agricultural producers, measured at the farm gate level, arising from policy measures, regardless of their nature, objectives or impacts on farm production or income. The PSE measures support arising from policies targeted to agriculture relative to a situation without such policies – *i.e.,* when producers are subject only to general policies (including economic, social, environmental and tax policies) of the country. The PSE is a gross notion implying that any costs associated with those policies and incurred by individual producers are not deducted. It is also a nominal assistance notion meaning that increased costs associated with import duties on inputs are not deducted. But it is measured net of producer contributions to help finance the policy measure (*e.g.* producer levies) providing a given transfer to producers. The PSE includes implicit and explicit transfers. The percentage PSE is the ratio of the PSE to the value of total gross farm receipts, measured by the value of total farm production (at farm gate prices), plus budgetary support."

PSE in 2008-10 compared to 73% in 2005-07. In Russia it accounted for 81% of the PSE, while in the European Union it represented less than 30% of the PSE (OECD, 2011; OECD, 2009).

A third important area of improvement is the alignment to international quality standards and the implementation of transparent and efficient quality controls. Tools which could ultimately improve quality are human capital development and access to finance. Although the region has a positive legacy of high attainment rates in tertiary education, there is a skills gap that affects both the public and private sectors. Farmers rarely have critical skills needed in a market economy, in areas such as financial literacy, farm management and organisation, and marketing. Technical professionals such as veterinarians lack training in updated animal health management practices. Government bodies, such as the ministries responsible for designing and implementing policies, often suffer from a lack of analytical capacity. With regard to the educational system, tertiary education does not deliver the technical skills demanded by the private sector. Specific actions would synchronise educational outcomes with the industry's requirements. Also, in rural areas credit may be particularly rationed and access to finance for small and medium-sized enterprises (SMEs) is limited, due to lack of collateral, high interest rates and information asymmetries. Policy measures must support investment and entrepreneurship, mobilising financial resources through instruments such as credit guarantee schemes, supply chain financing and microfinance programmes. SMEs may also benefit from the introduction of leasing schemes, the establishment of futures markets for commodities and the development of insurance products tailored to agribusiness.

Public private consultations and dialogue could accelerate the reform process

During the assessment of policy barriers and the design of reforms, dialogue between the public and private sectors could bring productive interactions, ultimately accelerating the reform process. A free flow of information on policy issues needs to be encouraged, ensuring independent cooperation among the domestic and foreign private sector, the government and academia. Public-private consultations will also ensure that the reform design fits actual needs. However, consultations need to be transparent and to include small and medium-sized entrepreneurs, in order to avoid the reinforcement of vested interests and rent-seeking behaviour (Herzberg and Wright, 2006).

Why focus on the grain and dairy sub-sectors

In order to target the government's resources and efforts, an analysis of agricultural sub-sectors was carried out in order to prioritise the selection strategy. The process was conducted in cooperation with the various stakeholders. The decision-making process included quantitative criteria to trace demand and supply trends in domestic and global markets, with data input from both the government of Ukraine and the OECD Secretariat. More qualitative criteria were also used, based on the inputs collected from the stakeholders and the priorities indicated by the government.

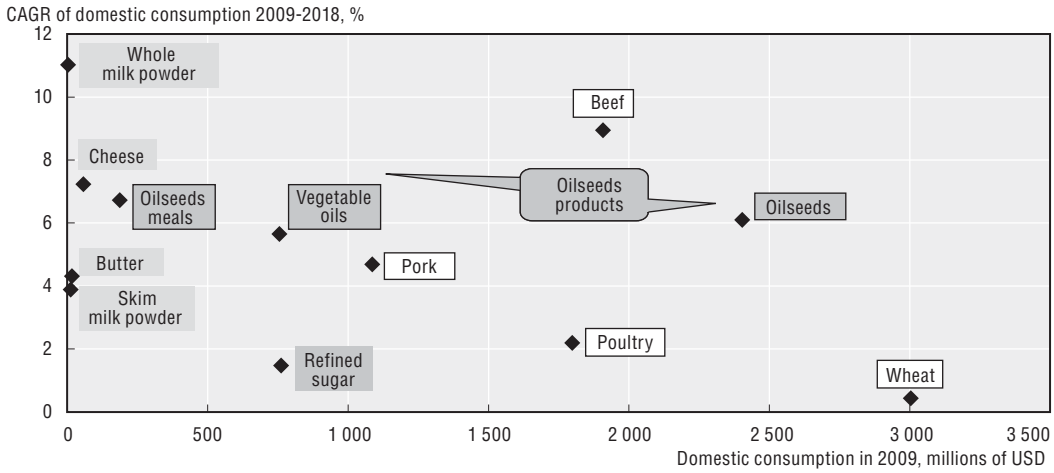
The sub-sectors included in the analysis were grain, dairy products, beef, poultry, oilseeds and sugar beet. The consultation process led to the identification of two pilot sub-sectors for targeted interventions: grain and dairy. Both have strong existing production capabilities and benefit from favourable natural endowments, with favourable demand prospects in domestic and world markets. Also, interventions could upgrade the technological advancement of both sectors and strengthen specialised skills. The beef sub-sector was not identified as a focus for this phase of interventions, as the effort required to meet food and safety quality standards

and to bridge the technical skills gap would be significant. The oil seed sub-sector was not identified as a target, due to concerns raised during the consultation process over the environmental sustainability of this type of cultivation.

Demand and supply overview

According to the OECD/FAO, domestic consumption of oilseed-based commodities, dairy products, and beef products is expected to grow strongly (Figure 4.14). World trade in these products is also expected to grow rapidly, while grain trading volumes are also expected to increase significantly (Figure 4.15). On the supply side, raw milk and grain are Ukraine's most significant agricultural products in value terms,). In 2008, production of both commodities exceeded USD 2.5 bn, as previously indicated (Figure 4.10).

Figure 4.14. **Domestic consumption status and outlook for key agricultural products**



Note: Domestic consumption value in 2009 is based on consumption volumes in 2009 multiplied by international average prices of the commodities in USD in 2009; expected CAGR 2009-18 of the domestic consumption is based on Ukraine consumption volume forecasts multiplied by the international trade prices in USD in years 2009 and 2018.

Source: OECD/FAO (2009), *Agricultural Outlook 2009-2018*, OECD, Paris.

Stakeholder consultations

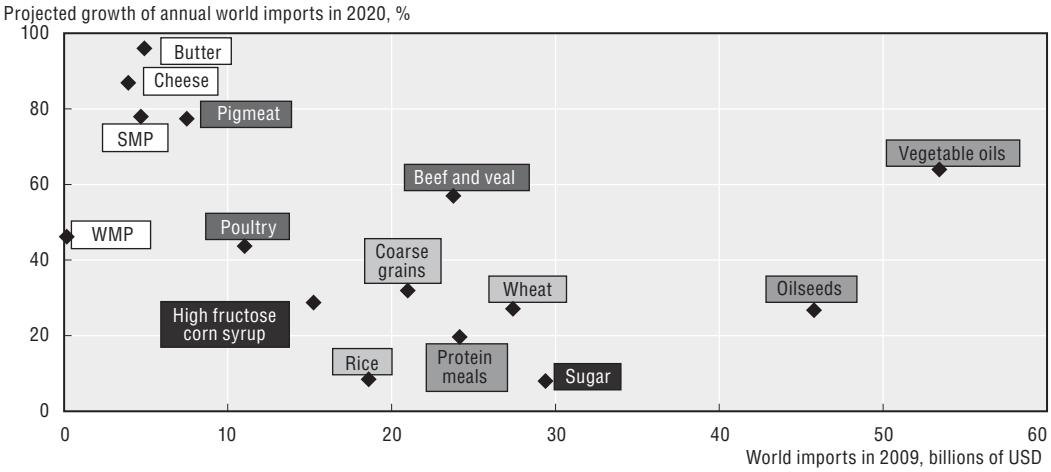
Climatic conditions are exceptional for grain growing

Concerns were raised by stakeholders regarding the sustainability of the oilseeds sector in the short and medium term (Table 4.1). Oilseed crops in Ukraine exceed 30% of arable area, and they are planted every three years on average. Such frequency is close to the accepted agronomic limit for sunflower seed, making further increases in production hard to realise. Future increases in output could possibly be achieved through improved land productivity, but due to the current growing practices of Ukrainian farmers (who use limited amounts of pesticides and fungicides) yield improvement efforts would be undermined by soil exhaustion and soil-borne fungal diseases (EBRD/FAO, 2010).

The grain and dairy sub-sectors both have potential to add value

Stakeholders paid special attention to the potential of the different sub-sectors to expand deep processing. Both grain and dairy sub-sectors present opportunities to add value to primary commodities.

Figure 4.15. **Annual world imports of agricultural products, status in 2009 *vs.* outlook in 2020**



Note: Annual world import values (in 2009 and in 2020) are calculated according to the following methodology: volumes * world prices in USD in nominal terms.

Source: OECD/FAO (2011), *OECD/FAO Agricultural Outlook 2011-2020*, OECD, Paris.

Table 4.1. **How are domestic agro-climatic conditions favourable to more intensive crop growing?**

Key natural endowment feature	Grain-wheat, corn, barley	Sugar beet	Oilseeds
Quality of climate	+	++	+
Quality and availability of soils	++	++	–[1]
Water availability	+	+	+

1. Agronomic and environmental limit is close to be reached under current farmers' practices.

Source: Ministry of Food and Agrarian Policy of Ukraine (2010), internal working document.

In the grain sub-sector a first priority for Ukraine is to become a major producer and supplier of high quality grain for the domestic and global markets. It could then consider the possibility of moving up the value-chain into processed products, such as gluten and starch, for which there is a demand on the domestic market.

In the dairy sub-sector, raw milk is rarely exported while processed dairy products are traded. The country has the opportunity to develop higher value-added products, such as pasteurised and branded milk, cheese and butter or milk powder, which are expected to grow significantly both in the domestic market and on a global scale.

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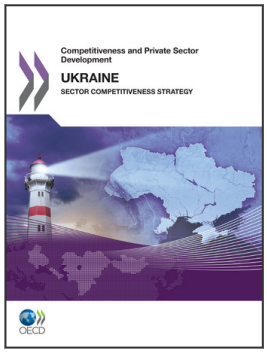

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