Agricuture in Ukraine

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1. Potential of agriculture

Ukraine is blessed with rich farming and forestry resources. According to the Statistical Year Book of Ukraine (1996), about 71 percent of the country's surface (41 million hectares) was used for agricultural activities.

About 80 percent of the agricultural area is arable land, two-thirds of it the agriculturally rich "black soil" (chernozem). The primary food harvest products are barley, maize, potatoes, rice, soybeans, sugar beets, and wheat. The primary meat products are beef and veal, lamb, pork, chicken, horse, and rabbit. In terms of value, the largest agricultural exports in 1998 were refined sugar, raw sugar, beef and veal, sunflower seed, and fish. The total value of agricultural exports in 1998 estimated $1.898 billion. The total value of agricultural imports in 1998 was $999 million. The largest single crop produced in 1999 was potatoes at 15.4 million metric tons. The number-two crop was sugar beets at 13.89 million metric tons, followed by wheat at 13.47 million metric tons. The main livestock product was beef and veal with 786,000 metric tons, followed by swine with 668,000 tons, and chicken with 194,500 tons.

In recent years, agricultural production has declined drastically because of a decrease in the number of tractors and combine harvesters in working order and to the lack of fertilizers and pesticides. According to official data, between 1991 and 1997, the number of tractors in use decreased from 497,300 to 361,000. (In order to operate efficiently, it is estimated that the country would need 515,000 tractors in use.) Similar shortfalls exist for harvesting combines. Between 1990 and 1997, the consumption of pesticides and fertilizers per hectare declined about 78 percent. From 1995 to 1999, crop production declined by an average of almost 10 percent per year, while livestock production declined by an average of 9 percent per year. These shortfalls in agricultural inputs reflect declining investment in agriculture, and feed directly into declining production.

Under communism, agricultural lands were held by the government and worked by the people, who owned no land. Privatization planned to shift most such land into the hands of individuals and farming collectives (jointly held farming cooperatives). By August 1995, the transfer of lands into private hands had begun. Over 8 million hectares of land had been privatized, with plots averaging 5 hectares. By 1996, most of the agricultural land in Ukraine was in collective and private hands, although 40 percent was still owned by the government. Household plots and private farms accounted for about 15 percent of the Ukrainian territory and they filled an important role in the delivery of products to the marketplace.

In general, the agricultural sector is experiencing serious internal difficulties, due to the transitional nature of the economy. A new policy and direction for Ukraine's agricultural sector is necessary. Agriculture poses the greatest challenge to the survival of Ukraine's political leaders, because almost half of the Ukraine's population live in rural areas.

About 57% of the total land area is arable, with another 11% utilized as permanent pasture land. Agriculture accounted for 17% of GDP in 2001. As in other former Soviet republics, total agricultural production has dramatically declined since 1990. Although the rate of decline is slowing, yearly declines still prevail. The average annual decline during 1990–2000 was 5.8%. By 1999, the agricultural sector was only producing 47% as much as it had during 1989–91. Production amounts in 1999 included (in 1,000 tons): sugar beets, 13,890; potatoes, 15,405; wheat, 13,476; dry peas, 510; fruit, 1,594; sunflower seeds, 2,750; cabbage, 1,015; grapes, 270; wine, 73; soybeans, 42; and tobacco, 3.

Ukraine's steppe region in the south is possibly the most fertile region in the world. Ukraine's famous humus-rich black soil accounts for one-third of the world's black soil and holds great potential for agricultural production. However, the soil is rapidly losing its fertility due to improper land and crop management. Ukraine typically produced over half of the sugar beets and one-fifth of all grains grown for the former USSR. In addition, two of the largest vegetable-oil research centers in the world are at Odessa and Zaporizhzhya. Agroindustry accounts for one-third of agricultural employment. To some extent, however, agroindustrial development has been hampered by the deteriorating environment as well as a shortage of investment funds due to the aftermath of the nuclear power plant disaster at Chernobyl. According to estimates, nearly 60,000 hectares (148,250 acres) of arable land in the Chernobyl vicinity are now unavailable for cultivation. Out of 33 million ha (81.5 million acres) of total arable land, more than 17 million ha (42 million acres) are depleted, 10 million ha (24.7 million acres) are eroded, and another 10 million have excessive acidity. Furthermore, 17% of arable land is located in areas where there is risk of drought.

2. Major crops

The climate of Ukraine is roughly similar to that of Kansas: slightly drier and cooler during the summer and colder and wetter during the winter, but close enough for comparison. The weather is suitable for both winter and spring crops. Average annual precipitation in Ukraine is approximately 600 millimeters (24 inches), including roughly 350 millimeters during the growing season (April through October). Amounts are typically higher in western and central Ukraine and lower in the south and east.

Of Ukraine's total land area of 60 million hectares, roughly 42 million is classified as agricultural land, which includes cultivated land (grains, technical crops, forages, potatoes and vegetables, and fallow), gardens, orchards, vineyards, and permanent meadows and pastures. Winter wheat, spring barley, and corn are the country's main grain crops. Sunflowers and sugar beets the main technical, or industrial, crops. Agricultural land use has shifted significantly since Ukraine declared independence from the Soviet Union in 1991. Between 1991 and 2000, sown area dropped by about 5 percent, from 32.0 million hectares to 30.4 million, and area decreased for almost every category of crop except for technical crops (specifically sunflowers). Forage-crop area plunged by nearly 40 percent, concurrent with a steep slide in livestock inventories and feed demand.

Wheat is grown throughout the country, but central and south-central Ukraine are the key production zones. About 95 percent of Ukraine wheat is winter wheat, planted in the fall and harvested during July and August of the following year. On the average, approximately 15 percent of fall-planted crops fail to survive the winter. The amount of winterkill varies widely from year to year, from 2 percent in 1990 to a staggering 65 percent in 2003, when a persistent ice crust smothered the crop. Wheat yield declined during the 1990's following the breakup of the Soviet Union and the loss of heavy State subsidies for agriculture. Farms struggled with cash shortages, and the use of fertilizer and plant-protection chemicals plummeted. Due to a combination of favorable weather and a modest but steady improvement in the financial condition of many farms, wheat production has rebounded in recent years (except for the disastrous 2003/04 crop which fell victim to unusually severe winter weather). Ukraine produces chiefly hard red winter wheat (bread wheat), and in a typical year roughly 80 percent of domestic wheat output is considered milling quality, by Ukrainian standards. Feed consumption of wheat dropped sharply during the 1990's, from over 12 million tons to less than 5 million. Meanwhile, food consumption has remained steady at around 10 million tons.

Barley has been the top feed grain in Ukraine for most of the past ten years in terms of consumption, surpassing wheat in the early 1990's. Spring barley accounts for over 90 percent of barley area, and the main production region is eastern Ukraine. Spring barley is typically planted in April and harvested in August, and is the crop most frequently used for spring reseeding of damaged or destroyed winter-grain fields. Area is inversely related, to some degree, to winter wheat area. Winter barley is the least cold-tolerant of the winter grains, and production is limited to the extreme south. The increasing demand for malt from the brewing industry has led to a jump in malting barley production and the import of high-quality planting seed from the Czech Republic, Slovakia, Germany, and France. Consumption of barley for malting purposes has surpassed 300,000 tons, but still accounts for only 5 percent of total barley consumption.

Increased production -- specifically, three bumper harvests since 2001 -- and diminishing domestic demand for feed grains have contributed to a jump in Ukrainian wheat and barley exports. The boom in exports was fueled also by relatively low production costs and the reduction or elimination of price controls and export restrictions in 1994. Most exports go to the Middle East, North Africa, and Europe. (See attaché reports: Grain and Feed Annual, April 2004, and How is Ukrainian Grain Competitive?, August 2002.)

Corn is the third important feed grain in Ukraine. Planted area has increased despite several impediments: obsolete and inadequate harvesting equipment, high cost of production (specifically post-harvest drying expenses), and pilferage. The main production region is eastern and southern Ukraine, although precipitation amounts in some oblasts in the extreme south are too low to support corn production. Corn is typically planted in late April or early May. Harvest begins in late September and is usually nearing completion by early November. Only 25 to 50 percent of total corn area is harvested for grain; the rest is cut for silage, usually in August. (The USDA corn estimates refer to corn for grain only.) Corn is used chiefly for poultry and swine feed, and production and consumption have risen since 2000 concurrent with a rebound in poultry inventories. Russia and Belarus are the chief destinations for Ukrainian corn exports.

Sunflowerseed is Ukraine's chief oilseed crop. Production is concentrated in the southern and eastern oblasts. Sunflowers are typically planted in April and harvested from mid-September to mid-October. Because of a combination of high price, relatively low cost of production, and traditionally high demand, sunflowerseed has become one of the most consistently profitable crops. (See Sunflowerseed Production in Russia and Ukraine, June 2004.) Its high profitability fueled a significant expansion in planted area beginning in the late 1990's. Many farmers in Ukraine abandoned the traditional crop-rotation practices recommended by agricultural officials which called for planting sunflowers no more than once every seven years in the same field. The aim of the 1-in-7 rotation is to prevent soil-borne fungal diseases and reduce the depletion of soil moisture and fertility. (Because of their deep rooting system, sunflowers reportedly extract higher amounts of water and nutrients from the soil than do other crops in the rotation.)

Sugar beets are grown primarily in central and western Ukraine. Beets are planted in late April and early May and harvested from mid-September through the end of October. Production has been on the decline since the early 1990's due chiefly to low profitability compared to grains and sunflowerseed. Between 1994 and 2003, planted area declined by 50 percent to less than 0.8 million hectares, and production from 28.1 to 13.4 million tons. Large farms are sometimes encouraged by the local administrators to plant sugar beets not so much to make money but rather to provide a social safety net or to supplement to pensioners or farm workers. A family may be responsible for weeding a specific section of a field and the workers in turn receive 20 percent of the sugar processed from the beets harvested from its section. Sugar also frequently serves as part of farm workers’ salaries.

On private household plots, meanwhile, sugar beet area has increased. Sugar beet production requires a significant amount of hand labor and remains a viable option for small household farms with limited access to agricultural machinery. Household plots now account for approximately 25 percent of Ukrainian sugar beet output compared to only 3 percent in 2005.

Farms in Ukraine employ a variety of crop-rotation schemes, some including four or more crops, some only two. A six-year crop rotation in the winter grain region will often include two consecutive years of wheat and one season of "clean fallow," during which no crop is sown. The chief reason for including fallow in the rotation is to replenish soil-moisture reserves, and it is more widely used in southern eastern Ukraine where drought is not uncommon. A typical crop sequence might be: fallow, winter wheat, winter wheat, sunflowers, spring barley, and corn. Wheat almost always follows fallow. According to farm directors, this enables the wheat -- which is typically the priority crop -- to benefit from the reduced weed infestation. (Fields are cultivated several times during the fallow season.). Some crop rotations include several consecutive years of a forage crop. An example of such a rotation would be: fallow, two years of winter wheat, and four years of perennial forage. The perennial forage is usually alfalfa; farmers will get three to four cuttings per year, five if the crop is irrigated. In southern Ukraine, clean fallow is frequently omitted and a crop rotation will likely include sugar beets and/or sunflower, the region's chief industrial crops. A typical seven-year rotation might be: winter wheat, winter barley, sugar beets, winter wheat, winter barley, sunflowers, and corn. The vast majority of field crops, including grains, sunflowers, and sugar beets, are not irrigated. Traditionally, irrigation is used only on forage crops and vegetables. Roughly 5 percent of grains and 10 percent of potatoes, vegetables, and forage crops are irrigated.

3. Agriculture machinery

According to various resources, an immediate demand to replenish the physically depreciated farm and processing equipment in Ukraine is estimated at $5-10 billion, with an annual supply of $1-2 billion worth of farm equipment.

Experts estimate the current level of physical depreciation of agricultural machinery and equipment at 70-80 percent, compared to 55-60 percent in 1999. Approximately 40 percent of tractors are 15-25 years old. The need to replace basic farm machinery is becoming critical.

There are about 40 manufacturers of agricultural machinery in Ukraine, which still supply a significant part of Ukraine agricultural machinery, in particular, ploughs, harrows, cultivators, seeders and sprayers. Production facilities at most agricultural machinery plants are currently being utilized at levels ranging from 15 to 30 percent. The price of domestically produced agricultural machinery is not cheap, because of inefficient and outdated manufacturing technologies. All this makes local machinery less attractive for agricultural companies.

Western European firms actively operate in the Ukrainian market. They understand that despite the obstacles to doing business in Ukraine, the potential for hard currency agribusiness exports is great. U.S. agricultural machinery has a good reputation in Ukraine. The list of U.S. manufacturers includes AGCO Corporation, Massey Ferguson, John Deere, Caterpillar, and Case/New Holland. They offer a full range of equipment and parts, including spare parts, for cultivating, growing, harvesting and transporting, as well as equipment for livestock production. While U.S. machinery is well represented in Ukraine, there are still good opportunities for U.S. companies to enter the Ukrainian agricultural machinery market. Existing critical demand for reconditioned (used) machinery is worth mentioning as well.

4. Problems of this sector of economy

The production of grain and oilseed crops is dominated by large agricultural enterprises that were established when Ukraine’s agricultural sector was restructured in April, 2000. (In contrast, nearly 90 percent of the country's vegetables and virtually all of the potatoes are grown on private household plots.) State and collective farms were dismantled and farm property was divided among the farm workers in the form of land shares. Most new shareholders leased their land back to newly-formed private agricultural associations, under the leadership of a director who was frequently, but not always, the manager of the former State farm. Consolidation of small farms into larger and more viable enterprises has been the prevailing trend, similar to what took place in Russia several years earlier. (For a brief discussion of Ukraine’s agricultural restructuring, see June 2001 report.) The conversion to a more market-oriented environment has progressed relatively well according to most observers. Many farms are succeeding, under shrewd leadership, in spite of fluctuating grain prices and constraints on the availability of credit. The transition of Ukraine's agricultural sector from a command economy to a more market-oriented system has introduced the element of fiscal responsibility, and farm managers are striving to make their enterprises as efficient as possible. Decisions on crop selection, fertilizer application, harvest method, grain storage, and all other aspects of farm management are made with an eye toward boosting farm profit. Ukraine agriculture is going through a winnowing process whereby unprofitable, usually smaller farms will either collapse or join more successful farms.

Most farms are able to receive credit, but interest rates and collateral demands are high. Since many farms are already heavily in debt to banks or suppliers of fertilizer and plant-protection chemicals, and since agricultural loans are not guaranteed by the government, banks are largely unwilling to make long-term loans. Most credit is extended in the form of seasonal loans (six to ten months) used almost exclusively for the purchase of fertilizer and plant protection chemicals. Commercial interest rates typically range from 25 to 30 percent. The State provides assistance to farms by paying 50 percent of the interest on agricultural loans. Banks typically require 200 to 300 percent collateral, depending on the farm’s credit history and the risk level. Future crop usually serves as collateral, but collateral can also be offered in the form of livestock, farm machinery, or the personal property of the farm director. Under current legislation, land cannot be used as collateral. Farms' difficulty in obtaining anything other than short-term, high-interest loans places severe constraints on their ability to invest in long-term capital improvements, such as agricultural machinery or storage facilities. Using land as collateral would enable farms to receive longer-term loans, but many farm directors remain leery of the Ukrainian banking system – which is not yet as stable as in Russia – and are reluctant to risk losing their land in default. Furthermore, many agricultural enterprises are comprised of hundreds of shareholders, whose permission would need to be obtained before the farm director could use the land as collateral.

In many cases, the best option is for a farm to attract an investor who can provide market expertise, operating capital, and collateral to enable the farm to secure loans. The potential “down side” of investor arrangements, from the farmer's perspective, is that farm directors to some extent lose control of farm operations. Often the investment company, or “holding company,” insists on maintaining control over every aspect of production and essentially takes over the farm, equipment, and land. Farms are forced to enter into extended leases of five to ten years, sometimes longer, because they depend heavily on cash from the holding company.

The consensus of most observers is that already-successful farms will continue to expand as shareholders pull out of failing farms and lease their plots to stronger ones. Clearly, many farms will not survive the transition to a market economy, and high-risk farms with few liquid assets, heavy debt, bad credit history, and poor management will collapse.

The loss of State subsidies following the collapse of the Soviet Union in 1991 increased feed and production costs and reduced profitability for livestock enterprises. As prices for meat products increased, consumer demand declined, thus establishing a downward spiral that continued throughout the decade. Livestock inventories, and demand for forage, continued to shrink. The increasing inability of large agricultural enterprises (i.e., former State and collective farms) to maintain livestock operations, due largely to inefficient management and farms' inability to ensure sufficient feed supplied, resulted in increased dependence on private producers and household farms to satisfy demand for beef and pork. Furthermore, the involvement of investor groups (holding companies) in agricultural production has had an impact on livestock numbers. Many farms who entered agreements with investment firms killed off their herds because livestock is not quickly profitable and not as attractive to investors. Although the freefall in livestock inventories has slowed since 2000, a rapid recovery in beef production is unlikely. Cattle inventories are increasing on private household farms, which typically have two to three head of cattle per farm, but large industrial farms are shifting away from cattle and toward crop production and total cattle inventories continue to decrease.

5. Investment in agriculture

Investment in agriculture land in Ukraine is conducted under farmland lease agreements. Lease contracts are closed directly with pai-holders for different periods averaging at 10 years and going up to 49 years. Farmland pai lease contracts enable contractors to consolidate large fields of 50-200 hectares located close to each other for the ease of crop rotation planning, cultivation and harvesting.

Ukraine’s agricultural land cannot be purchased, but lease agreements for agricultural land enable as much freedom for performing farming operations as ownership while also providing a primary right of purchase in case of the agricultural land sale moratorium lift and given that pai holders would be willing to sell off their property.

Cost of investment in Ukraine’s farmlands is the lowest in Europe while it provides the highest return potential given the high soil fertility and unrealized agri-ecological potential of Ukraine’s soils. The cost of investment is composed of the lease rights acquisition cost, annual lease fees and annual cultivation (actual farming operation) costs.

Land lease rights acquisition cost in 2009 has ranged from USD 120 to USD 300 per hectare depending of the region and soil quality. Lease rights are normally acquired through the transfer of corporate rights from the current lease holding company to the new owners. Lease rights can also be transferred through re-registration of land lease agreements.

Annual land lease fees are legally fixed at a minimum 3% of the land plot value level but may vary from region to region. Lease fees in 2009 have ranged from USD 25 to USD 45 per hectare.

Agricultural land lease agreements carry a legal obligation of land cultivation which inevitably requires a lessee to perform actual farming activities. Since agricultural equipment lease is not very common in Ukraine, most farms invest in tractors, tillage equipment, seeding equipment, harvesters, etc. Capital investment into agricultural equipment in Ukraine may vary from USD 350 (locally produced equipment or mixed) to USD 800 (high-end Western equipment) per hectare.

Calculated per annum with fuel, spare parts, seeds, fertilizers, crop protection, labor costs, etc. included, annual cultivation cost from USD 200 per hectare using organic farming methods up to USD 500 per hectare with conventional/chemical farming. Organic farming, as opposed to intensive conventional farming, provides a better investment opportunity in Ukraine due to high natural fertility level in the soils. In most of the cases, there are no yield losses when growing organically in Ukraine compared to what most of the Western European farms experience during the transition period.

Optimal investment cost in Ukraine’s agricultural land in 2009 is one of the lowest at USD 600-800 per hectare compared to Americas’ (USA and Argentina) USD 4,000+, and Western European level of USD 12,000+. At the same time, the current harvest yields in Ukraine suggest that the agro-ecological potential of 6.2 metric tons per hectare can be easily obtained under proper farm management and with the use of optimal organic technologies. Besides, the land lease price is expected to double in 2010.

Ukraine’s soil quality is subject to bonitet valuation system. Most of Ukraine’s soils boast a bonitet above 40. Chernozem (black soil types) have a bonitet of 70-80 and more. Soil fertility is a complex quality of soils and not limited by bonitet. Land valuation in Ukraine has no standardized system and in most of the cases is based on the yeilds history for particular farms or individual fields.

Soil quality tests are easy to obtain in Ukraine and cost USD 200-450 per measured field (50-200 hectares). Such tests often include detailed recommendations for further soil treatment making it very easy to draw cultivation and fertilization plans per each individual field.

Farm management, on the other hand, is a more complex issue. Many Ukrainian farms lack new equipment or sufficient knowledge of modern farming technologies and sustainable farming methods.

An optimal size of an individual farm in Ukraine is 5,000 to maximum 10,000 hectares. The farm volume is considered optimal when any commercial crop can be harvested and sold at the minimum export volume of 3,000-5,000 metric tons.

Harvest storage is a critical consideration for operational independence and financial stability of a farm not only in UKraine. A capital investment of USD 120-150 per metric ton of storage should be considered to secure long-term performance of a farm.