Crop production in Ukraine

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LAND RESOURCES OF UKRAINE

Total area – 60.37 million ha

*Agricultural lands* - 41.76 million ha
- ploughed lands - 32.4 million ha or 54%
- pastures – 9%
- hay – 4%

*Water resources* – Azov and Black Seas,
73 thousand of rivers and 20 thousand of lakes
Natural Vegetation

% of forest cover

- 0 - 2.9
- 3 - 9.9
- 10 - 19.9
- 20 - 49.9
- 50 - 80
Polissia (Forest Zone)
Forrest Zone (Polissia)

19% of the area of Ukraine

Characterized by lowlands relief

Continental climate with warm and humid summers and cold winters

Least arable

Forest (30%), hay (10%), pasture (8%)
Polissia (Forest Zone)

CANIFEROUS FORRESTS
Soils of Polissia

**PODZOL SOILS** - sandy, acidic, low organic matter

**Parent Material** – Rock (granite), sand, glacial deposits
Main Zone for Grain production

WINTER RYE

oats

buckwheat
Buckwheat

Planted early June, harvested early August to late September depending on maturity groups.

Demanding to P and K fertilization. N fertilization is minimal.

Temperatures greater than 90°F at blooming negatively affect grain formation and yields.

Grain is very nutritional, containing essential amino acids.

Over the past five years 15% of the world’s production has come from Ukraine.
Winter Rye

Planted in September, harvested in July.

Very easy to grow, even on poor soils. Does not require great inputs of fertilizers, herbicides or fungicides.

Mostly used as a feed for animals, but also for human consumption.
Technical crops

- Flax
- Hop
- Sugar beet
- Potatoes
Flax

Planted early April, and harvested mid July.

Flax has moderate soil fertility needs.

Flux seeds are used for oil production.

Linen fiber from the stems of flax is an important source of fiber for clothes and other products. Linen fiber is more stronger that cotton.

About 70% composed of cellulose, therefore, it does not provoke allergies and adsorbs humidity.
Harvesting of Flax

Plants are ready for harvest when there are still a few flowers in bloom and a few green leaves on the plant. A rule of thumb is to harvest when 90% of the seed capsules are brown.

Flax plants pooled from the ground rather than cut to obtain full length of fiber and prevent discoloration.

After de-seeding, plants undergo a possess of retting: separation bark and straw from the fiber.

It is done by leaving the plants on the field allowing dew, sun, and soil-born pathogens to decompose the bark.
Hops is used as an essential preservative and flavoring in the brewing of beer.

Hop plants are propagated from runners that arise from the crown just below the soil surface.

Many hop growers establish a nursery block where cuttings are planted and grown for one season.

When the young vines are about 2 ft long, two to six vigorously growing vines are selected for each hill and the rest are removed.
Potatoes

Planted late April, early May, harvested late August, early September.

Potatoes grow best in well drain, sandy soils.

High temperatures or insufficient moisture, while the potato tubers are forming, lead to reduction of yield.

About 14% of potatoes in Ukraine are grown on small private gardens.

Potato production is labor intensive. The lack of pesticides and herbicides makes plants very susceptible to pests and diseases.
AGRO-CLIMATIC ZONES OF UKRAINE

FOREST-PRAIRIE ZONE
Forest-prairie zone
Forest-prairie zone

About 33 of the total area

Mainly flat relief

Temperate-continental climate with hot summers and cold winters

Diverse soils: podzols and typical black soils

Agricultural land occupies 70% of the territory
Forest-prairie zone soils

Chernozem Typical

Loess
Forest-prairie zone crops

Winter wheat, 30%

Sugar beet, sunflower, 11%

Corn, 10%

Barley, 8%
Winter Wheat

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.
Sugar Beet

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 mainly to low profitability compared to grains and sunflower seed.

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 1995.
Sunflower

Sunflower is Ukraine's chief oilseed crop.

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, sunflower has become one of the most consistently profitable crops.

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 agronomists which called for planting sunflowers once every seven years in the same field.
Corn

Corn is the third important feed grain in Ukraine.

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.

Planted area has increased despite several impediments: obsolete and inadequate harvesting equipment and high cost of production (specifically post-harvest drying expenses).

Corn is used mainly for poultry and swine feed, and production and consumption have risen since 2000 concurrent with a rebound in poultry inventories.
Barley

Spring barley accounts for over 90% of barley area with the main production region is eastern Ukraine. It is the top feed grain in 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.

Winter barley is the least cold-tolerant of the winter grains, and production is limited to the extreme south.

The increasing demand for barley from the brewing industry has led to a jump in its production and the import of high-quality planting seed from the Czech Republic, Slovakia, Germany, and France.
TYPICAL CROP ROTATIONS

Farms in Ukraine employ a variety of crop-rotation schemes, some including four or more crops, some only two.

1  Barley+Alfalfa
2  Alfalfa
3  Winter Wheat
4  Sugar Beet
5  Corn

1  Peas
2  Winter Wheat
3  Sugar Beet
4  Corn for Silage
PRAIRIE (STEPPE) ZONE
Mainly flat relief

Temperate-continental climate with hot summers and cold winters

Intensively cultivated area: zone of maximum plough for Ukraine
STEPPE (PRAIRIE) ZONE

CHORNOZEM SOUTHERN

LOESS
Main crops

Winter wheat

Sunflower
There are also grown

Corn for silage

Soybeans
A six-year crop rotation will often include two consecutive years of wheat and one season of "clean fallow," during which no crop is sown.

The main 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 are common.

Wheat, which is typically the priority crop, almost always follows fallow to benefit from the reduced weed infestation and moisture.

Some crop rotations include 2 to 4 consecutive years of legumes such as alfalfa.
TYPICAL CROP ROTATIONS

1  Fallow
2  Winter Wheat
3  Winter Wheat
4  Corn
5  Sunflower

1  Peas
2  Winter Wheat
3  Corn
4  Corn for Silage
Crimean Peninsula

Characterized by highland areas

Sub-Mediterranean, mild continental climate with hot dry summers

Shielded from the north winds by the mountains, and as a result usually has mild winters

Developed viticulture and horticulture: grapes, watermelons, melons, tea, essential oil crops, and tobacco
SPECIFICS OF UKRAINIAN AGRICULTURE

Before collapse of Soviet Union, winter wheat was the focus of the intensive technology movement.

Collapse of Soviet Union ended generous government subsidies.

Farms struggled with skyrocketing fertilizer prices.

For example, in 2000 only about 20lb/acre of N was applied to winter wheat, compare to 130lb/acre in 1990.

There is an increasing trend of fertilizer use since 2000.
Thank you