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# Europe's Brazil? How Ukraine could transform Europe's role in global food supply

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## ABSTRACT

Ukraine is an untapped asset. It presents opportunities both nationally and for Europe as an engine of foreign policy in a century troubled by climate change and resources scarcity. Its 32 million ha of arable could easily become 40 million ha which would add 25% of new cropland to the European Union – from 160 million to 200 million ha – making Europe the world's largest agricultural producer. And 65% of Ukraine is Chernozem: the best soil in the world for the arable crops that are crucial to water-short economies in Africa, the Middle East and Asia and, moreover, mainstay of the global corporate food regime. 'Wheat is the currency of currencies'. Although most global breadbaskets are closed or constrained by climate change, Ukraine is an empty country endowed with fertile soil. Clever investment in AI-driven, post-human farming could create a new future: in any case, the minefields and war damage offer no alternative.



## KEYWORDS

Post-human farming; soft power; food-regime theory

## Introduction

Ukraine became globally important as a food exporter in the mid-1990s following independence, privatisation of agriculture, and the involvement of international companies [1]. Cargill, Toepfer, Serna and, post 2007, Ukrainian agro-industrial combines are now part of the country's agribusiness but, even before the Russian invasion, Ukraine was held back by modest yields and inadequate infrastructure. Here, we argue that Ukraine is one of the world's untapped agricultural areas, presenting big opportunities for Europe and global food security.

Ukraine-in-Europe can provide continental society with a potent foreign policy engine in what looks like a challenging 21<sup>st</sup> century, troubled by climate change and resources scarcity. It could be a testbed for the next phase of global value relations, adopting new and emerging AI-driven agricultural technology together with current crop breeding and satellite-and-computer-controlled equipment – tools to counter inherent weaknesses in

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both Ukrainian and global technological transitions, such as lack of agricultural labour, global heating, and increasingly erratic rains. Moreover, Ukraine's ageing population, the probability that Ukrainian refugees will not return to the post-war agricultural economy, and innumerable land mines sown by Russian forces, offer no realistic alternative.

This post-war agricultural development could solve the continual crises of the world food system food regime with the evolution of a technology-driven, artificial intelligence-powered regime that replaces human labour and ensures lesser environmental impact. Given its unique conditions in any post-war scenario, Ukraine could also become a testbed for combining blended finance from public and private investors working to meet the economic and environmental challenge of feeding a global population of 10 billion by the 2050s.

## Demography and agriculture

At independence, in 1991, Ukraine's population was 51.6 million. The last census, in 2001, returned a total of 48.5 million; two-thirds urban, one-third in rural areas. No other official data are available so demographic projections rely on estimates but, according to the UN Population Division, the fertility rate collapsed in the 1990s, from 1.85 at the beginning of the decade to 1.1 in 2000; recovered to 1.5 by 2014, but then fell again to about 1.3 between 2018 and 2023. Further subtraction by emigration brought steady depopulation, even before 2022 when the number of Ukrainian residents dropped from 43.5 million in 2021 to 36.7 million in 2023 in the wake of the Russian invasion. Many Ukrainians are now under occupation after the annexation of Crimea and some of Ukraine's eastern provinces, and more than 6 million have fled the country since 2022. The current population of free Ukraine is estimated at 28 million [2].

About 14 million Ukrainians have left since 1991. UN surveys amongst the refugees suggest that more than half would like to return, but every month of war reduces that likelihood. Thanks to high levels of education, many have found employment in Europe and Ukrainian fighting men may one day join their families across Europe – and Ukraine may become an empty country where, especially, rural populations will not return to their villages and small towns. This will have *profound consequences for the country and for global food security*.

Ukraine is the 45<sup>th</sup> largest country by area but currently ranks tenth by cropland. On a land area of about 60 million ha, 10% bigger than France, 32 million ha are arable. By some estimates [3,4], the pre-war arable of 32million ha could easily turn 42 million – equivalent of two-thirds of Brazil's and 25% of current cropland in the European Union – giving Europe a total of 200 million ha. That would make Europe-with-Ukraine the world's largest agricultural producer by arable area. And Ukraine's arable is of very high quality; 55–65% of the country is fertile Chernozem [4,5], best suited to those arable crops that are crucial for water-short economies in parts of Africa, the Middle East and south Asia and the lubricants of the corporate food regime.

## Food regime theory

Food regime theory [6–9] posits a structuralist-Marxist perspective of food hegemony in the global political economy. The first food regime, dubbed *colonial British*, lasted from

the 1860s until the end of the Second World War and the subsequent independence of former European colonies. The second, described as the American-led, *green revolution*-inspired food regime lasted from the late 1950s until the 1970s, when the Reagan administration delegated food to the private sector [7,10]. We therefore speak now of the *corporate food regime*, reflecting the growing corporatisation of food and, also, food relations. Likewise, analysts of food relations speak of *agribusiness* or *big food* to reflect the corporate power of this hegemony which includes agenda-setting on nutritional values and food policy over trade, especially in developing countries [11,12].

To quote Lenin: ‘wheat is the currency of currencies’ [13]; and Araghi [14] argues that ‘food is strongly associated with global value relations’. That is to say, food reflects current global wage labour trends and capital flows into different technologies and sectors. This has been true for all food regimes. The colonial regime used food as the ultimate tool of white hegemony by importing commodities like sugar, tea, coffee and tropical fruits for little or no return to the colonies. The second food regime embodied American power by using US government-funded technology to counter the spread of communism through the so-called *green revolution*, bringing high-yielding varieties to poor farmers in the Global South [14]. The corporate regime now wields all the power of American technology but, also, the Bretton Woods institutions (International Monetary Fund, the World Bank, and the General Agreement on Tariffs and Trade) that imposed the neoliberal Washington Consensus, allowing Western companies to penetrate global markets and agriculture.

The upshot has been lower wages, deregulation of markets to favour private-sector capital investment [15] and the corporate enclosure of agricultural land at the expense of smallholders, redundant urban-fringe dwellers, and the local environment [6]. All this has pauperised farmers: first in the Global South but, increasingly, also in the Global North. Young people have been driven out of agriculture, leading to rural-urban and transboundary migration in the Global South and ageing, heavily subsidised farming communities in the Global North – generating a global precariat working the land often with inadequate tools and costly seeds whilst being heavily in debt. Tony Allan described it as cheap food for underpaid people [16]; but the system does not deliver cheap food – it delivers under-priced food. The real price is being paid by under-paid labour, the taxpayer, and our ultimate life-support system.

This crisis of global agriculture is exposed by increasing food-import dependencies in the Global South, especially of water-scarce countries in the Middle East and North Africa with food-import dependency ranging from 80% (Egypt) to close to a 100% (Gulf Cooperation Council). These countries have no means to expand their internal agricultural production sustainably to feed growing populations. Imports of strategic crops such as cereals and cooking oil will remain the norm in many resources-scarce countries, underpinned by the export of environmental resilience in key producing areas in both the global north and middle-income countries [17].

### **The corporate food regime and the cracks appearing**

Since the Reagan doctrine sought to free farmers from state regulation [10], global agriculture has increasingly been delegated to the private sector. The Codex Alimentarius, originally launched by the FAO and WHO in 1961, was further refined

to set global standards on food production, safety and labelling to ensure greater flow of traded food. At the same time, Western-dominated food and beverage companies were able to set global nutrition trends leading to more protein-rich, meat and dairy diets that are incompatible with local food systems which, increasingly, suffer from domestic shortages of land and water. In the first two decades of this century, annual agro-food trade has expanded by 7% in real terms [17] to meet the demand for grains and oil seeds for both human and animal consumption as well as for ethanol and bio-diesel.

The increased flow of trade is efficiently handled by agri-business giants such as the Archer-Daniels-Midland Company (ADM), Bunge, Cargill and Louis Dreyfus, who also provide finance to farmers [11]. Corporate food processors like Nestlé and Danone produce and sell branded, highly trusted food (some of it *junk food*). Companies such as Dow Chemicals, Bayer-Monsanto, Syngenta and John Deere supply crop protection, seeds and heavy machinery (with the exception of Chinese-owned Syngenta, all companies are from the Western world). Finally, Western foundations and donors such as Rockefeller, Gates Foundation, USAID, UKAID, the EU and its member states are still amongst the most important donors and funders of agricultural development in developing countries. So, the corporate food regime serves wider Western interests.

Global food relations have also been a cornerstone of geopolitics. During the Cold War, supply of staple commodities like wheat was used by both the West and the Soviet Union to garner political support although importers were able to play the system by switching between blocs. Even today, countries have adapted their geopolitical positioning within the global food system; e.g., Egypt's stance on Ukraine has enabling it to continue importing from both the West (and Ukraine) and Russia, giving it flexibility to switch when Russia attempted to gain economic (rather than political) advantage in 2023. The end of the Cold War brought new opportunities for the corporate food regime to produce commodities cheaply in former Soviet countries; even so, China and India saw the biggest production increases. Global capital investment was channelled into these frontier markets – and more resource-intensive food was made available at cheap prices.

Cracks appeared in the corporate food regime after the terrorist attacks on the World Trade Centre in New York in 2001. During his 2006 State of the Union Address, President George W. Bush declared: 'we are addicted to oil' [18] – with high dependency on Middle Eastern oil imports. Therefore, the GW Bush government set the goal to replace 75% of America's oil imports from the Middle East with ethanol produced from corn or rapeseed and domestic non-conventional oil production. Key economies in the European Union such as Germany or Italy pursued a similar strategy to increase ethanol production. Increasing production of ethanol stoked the first major food crisis in the 21<sup>st</sup> century; the corporate food regime was unable to hold down food prices, which spiked in 2007/8 and again in 2010/11 because of demand for biofuels and associated food price speculation [19]. These food price spikes contributed to political upheavals such as the Arab Spring. The ethanol policy was subsequently reversed, principally because it turned out to be ineffective: instead, the US embarked on fracking and Europe turned to Russia for gas and oil. Yet despite the lower demands on the food system, the crisis continued. Asian land grabs in developing countries to counter the hegemony of the Western-led corporate food regime met with heavy criticism and an entire research industry evolved around land grabs without finding convincing empirical evidence for actual project implementation in Africa [20–22].

Another crisis arose when the COVID-19 pandemic shut down global supply chains in 2020. Initially, global food prices sharply increased and the private sector required emergency subsidies from governments; but food supply chains recovered till February 2022 when Russia invaded Ukraine. There were grave predictions of a ‘coming food catastrophe’ [23] but a trade deal brokered by the United Nations and the Turkish President Erdogan with Russia and the Ukraine avoided a global food crisis [24] and Russia expanded its grain exports by roughly one-third in 2022 compared to 2021, stabilising food supply in import-dependent countries. Those not sanctioning Russia were willing to accept Russian grain displaced by sanctions elsewhere [25]. The food shock was also mitigated by bumper harvests in Europe and Australia. Despite the relative resilience (by design and luck) of the global food system, wheat prices increased from \$US 160/tonne in 2019, peaking at \$440/t in May 2022, falling again to \$80 by mid-2023.

The impacts of the Ukraine conflict have been driven by interplays of independent factors; e.g., India’s attempt to mitigate the crisis on world food markets after the Russian invasion of Ukraine was stymied by a severe drought in the spring of 2022 that forced the Indian government to cancel grain exports. The Ukraine conflict illustrates both the resilience and fragility of the world food system of which the corporate food regime is the key steward. Food bowls in North and South America and Australia are approaching their productivity ceilings and IPCC has stressed that water insecurity in Sub-Sahara Africa, South Asia and Central America will lead to lower yields and increasing food insecurity [26]. At the same time, these regions will see high population growth. The population giants in Asia and Africa will need to import staple crops that are *best grown on scale in world regions with ample agricultural land*.

### Ukraine as Europe’s bargaining chip in the geopolitics of food

The geopolitics of food will be a defining topic of the coming decades. Most global breadbaskets are either closed or afflicted by climate change. Ukraine differs: an empty country endowed with fertile soils amenable to big farming. This presents Europe with the opportunity of the century to invest in Ukraine’s agricultural potential and become an agricultural net-exporter like Brazil. Already, Ukraine is a key exporter of wheat, barley and oilseeds but yields are modest, and not just because of drought. With clever investment, *Ukraine can be a new engine of the world food system* that can buffer climate-change induced variability that threatens other major food producing regions and local food supplies around the world.

In the recent past, food production and trade has been weaponised with questionable success. In the case of the US reduction in exports to the Soviet Union after the Soviet invasion of Afghanistan in 1980, it was ineffective because other food exporters such as Argentina, Australia and France took up the slack, while farmers in the US Midwest lost that market and had to file for bankruptcy [10]. Today the opportunity is more nuanced and global. European investment in Ukraine can be seen as an exercise of soft power: *power through* rather than *power over*, supporting global food security and climate resilience, providing an instrument through which economic, social and political shocks that might be triggered by global food shortages and/or

price spikes, can be minimised and, thereby, promoting global stability and a platform for prosperity.

### ***Bottlenecks for agricultural development in Ukraine***

For Ukraine to play this role, the country needs peace. Peace is not in sight at the time of writing but, in December 2023, the European Council commenced accession negotiations with Kyiv with a prospect of Ukraine joining the European Union in the 2030s provided that key reforms in governance, the rule of law, and economic competitiveness can be delivered. We take an optimistic perspective on both peace and Ukraine joining the European Union, but future *economic development means profound challenges*. One of these will be an ageing, likely war-traumatised society with few young people entering the labour market [2] – agriculture in particular. But Ukraine could become a test bed of another stage of the corporate food regime: an almost entirely automated food regime decoupling itself from human labour through, e.g., artificial intelligence [27].

In fact, Ukraine will have almost no alternative to embracing artificial intelligence that can draw on vast public data, such as weather and soil data, and automatic monitoring systems to apply only the minimum inputs needed for optimum crop production, weed and pest management that are otherwise labour, energy or chemical-intensive; likewise in food packaging and processing. At the same time, artificial intelligence driven systems are already used in Ukraine to demine agricultural areas [28].

High-technology agricultural development will not come cheap. Ukraine will need to attract capital from international financial institutions (IFIs) and/or private capital investors to upscale its agricultural sector accordingly. Political reforms in line with the membership requirements of the European Union will be pivotal to attract such capital. In fact, the world's largest investment company Blackrock and one of the largest investment banks JP Morgan have already held discussions with the Ukrainian government to support the establishment of a reconstruction bank in June 2023 [3] with blended finance from private sector corporations underwritten by IFIs from Europe and North America to the tune of at least US\$400 billion. Ukraine's agricultural sector will also need a functioning infrastructure capable of shipping to the rest of the world. The Russian blockade of the Black Sea ports and unrelenting attacks on their facilities underscored how dependent Ukraine is on external shipping infrastructure and open trade through the Bosphorus, and the desirability of improving rail systems to Baltic and Adriatic ports [29,30].

### **Conclusions**

- Global agriculture is in a state of recurring crises, exacerbated by high population growth in resources-scarce countries in the Global South.
- Few countries offer the agricultural potential of Ukraine together with the financial power of European public and private sector investors.
- Production costs will be significantly lower over time if machines take over production and modernised transport infrastructure ensures smooth trade flows.



- Ukraine's agricultural potential could be a cornerstone of European foreign policy by acting as a key exporter of strategic grains to markets in the Global South, both to stabilise political, economic and social crises resulting from food insecurity and to adjust to climate change and biodiversity loss.

## Disclosure statement

No potential conflict of interest was reported by the author(s).

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