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## **THE DEVELOPMENT OF AGRICULTURE IN GERMANY AND ITS IMPACT ON THE AGRICULTURAL SECTOR OF UKRAINE OVER THE PAST CENTURY**

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The Industrial Revolution, which swept the world in the 19th century, unfolded with a delay in the territories of modern Ukraine. The trends in the development of agriculture in Germany directly influenced the development of this sector in Ukraine. Most of the ideas of German agrarians (from the creation of machinery, agricultural tools, technologies) found implementation in Ukrainian lands. Therefore, through a historical overview and the history of Germany, one can assess how the industry developed in Ukraine.

The agriculture in Germany and its economic significance have undergone significant changes in the last century. For example, its share of the overall economic output decreased from 36 percent in 1880 to less than one percent in 2010 [1]. At the same time, the proportion of people working in this sector decreased from almost half of all employed persons to two percent during this period. It is often pointed out in the current discussion about the societal position of agriculture that around 1900, one farmer produced food for four people, whereas in 2016, they provided for approximately 145 individuals. These numbers exemplify the fundamental shift in the relationship between agriculture and society, which gained momentum in the decades following World War II. The term “structural change,” which can be used to describe many changes in post-war society, has become particularly associated with the accelerated and visibly apparent developments in agriculture.

The numbers reflect the overall societal transformation from an agrarian society to an industrial society, which had already begun by the end of the 19th century and gained momentum in the second half of the 20th century. Without the increase in agricultural productivity, which released the majority of the workforce for other economic sectors, such societal development would not have been possible. This was associated with many other developments that continue to shape societal reality today:

cities and industrialized urban areas grew. The rural population underwent fundamental changes, with many people moving away in search of jobs in industry and services, while others transitioned from agriculture to other sectors without leaving their villages, commuting to work and education in the cities [2].

The process of suburbanization, the shift of residential population and businesses from core cities to the surrounding areas, fundamentally changed the appearance and character of villages. As a result, particularly since the 1960s, people from densely populated regions began moving back to rural areas; industrial zones in rural areas provided job opportunities outside of agriculture. In contrast to the first half of the 20th century (and partially beyond), agriculture and farmers no longer dominate most villages – neither socially, economically, nor politically.

If the increase in productivity in agriculture can be seen as one cause of all these developments, it is simultaneously inconceivable without industrialization and societal changes. It was only through the provision of industrially produced inputs, such as artificial fertilizers, machinery, or energy (coal, oil, diesel), and the adoption of industrial methods that the productivity of agriculture could be increased to the extent mentioned above since the late 19th century. Conversely, it was only the departure from self-sufficiency of large parts of the population and the increasing demand for processed agricultural products (e.g., meat, milk, eggs, sugar), which was already observed before World War I and gained rapid momentum from the 1950s onwards, that led to a market demand enabling agriculture to develop into a capital-intensive and highly specialized production.

The increasingly capital-intensive agricultural practices since the 1950s accelerated the trend towards larger farm sizes. To this day, a structural difference can be observed in different parts of Germany, mainly stemming from inherited practices, economic structures, and soil qualities. For instance, agricultural farms in the southwest still tend to be smaller in size, while larger holdings dominate in the northeast and medium-sized holdings prevail in the northwest. In East Germany, this trend was further reinforced by the agricultural policy of the “Landwirtschaftliche Produktionsgenossenschaften” [3]. Operating costs could be reduced when resources were used efficiently, such as fully utilizing machinery or minimizing travel times between different field parcels. The larger a farm and the more specialized its production, the lower the production costs and the higher the profit.

Agricultural policy and agricultural associations also saw the promotion of this agricultural orientation as a solution to a structural problem in agriculture: Food markets have a limited capacity for absorption, and food demand is not infinitely expandable. A growing agricultural production inevitably leads to declining prices with constant demand, while real wages in industrial production during boom periods, such as the 1950s and 1960s, could be increased due to rising sales. The increasing integration of agriculture into transnational economic circuits accelerated this development further. Between 1950 and 1965 alone, the share of expenditure on food in Germany decreased from 40.8 percent to 31.7 percent, and by 1990 it had fallen to 23 percent of household income. Faced with a saturation of the food market reached around 1950, the consequence for agriculture could only be to rationalize production

so that the same or increasing yields could be achieved with less labor input – thus displacing the labor factor with the capital factor [1].

The ecological consequences of this development are evident everywhere: transformation of agricultural landscapes, industrial livestock farming, chemical plant protection, and artificial fertilization have been widely discussed and problematized socially and politically for decades. The alternative of ecological agriculture, which has been developed since the early 20th century, therefore eschews the use of artificial fertilizers and chemical plant protection and operates with smaller livestock populations. By 2019, it had already accounted for approximately 10 percent of the total agricultural land area and around 13 percent of all farms in Germany operated according to these criteria. All these developments are not primarily to be assessed at the national level. Many agricultural policy decisions have been made at the European level since the 1950s. The policy of “Grow or Perish” has been significantly shaped by this level. The increasingly area-based orientation of European agricultural support from the 1990s onwards, which constitutes a significant portion of the EU budget, has had and continues to have direct consequences for the shaping of agriculture, which cannot compete with world market prices without subsidies [4, p. 172–174].

Given the current state of Ukrainian agricultural science, it is undoubtedly necessary to draw on the achievements of neighboring countries; however, appropriate conclusions must also be made. Ongoing strikes in the agricultural sector and dissatisfaction with the agricultural development policy have led to a significant reduction in employment in this field in Germany, specifically to 1–2%. Therefore, we have something to think about.

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## **ІСТОРІЯ ЗАРОДЖЕННЯ ТРАКТОРІВ**

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