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## **European Agriculture in 1914-1945**

A statistical analysis of crucial indices in European agricultural production in 1914-1945 reveals four distinct periods with different levels of vegetable and animal production as reflecting political events and the world economic situation. The first period spans World War I and two post-war years. Period two is the 1920's, period three embraces the years of the Great Depression and recovery till the late 1930's. The last stage was the time of World War II.

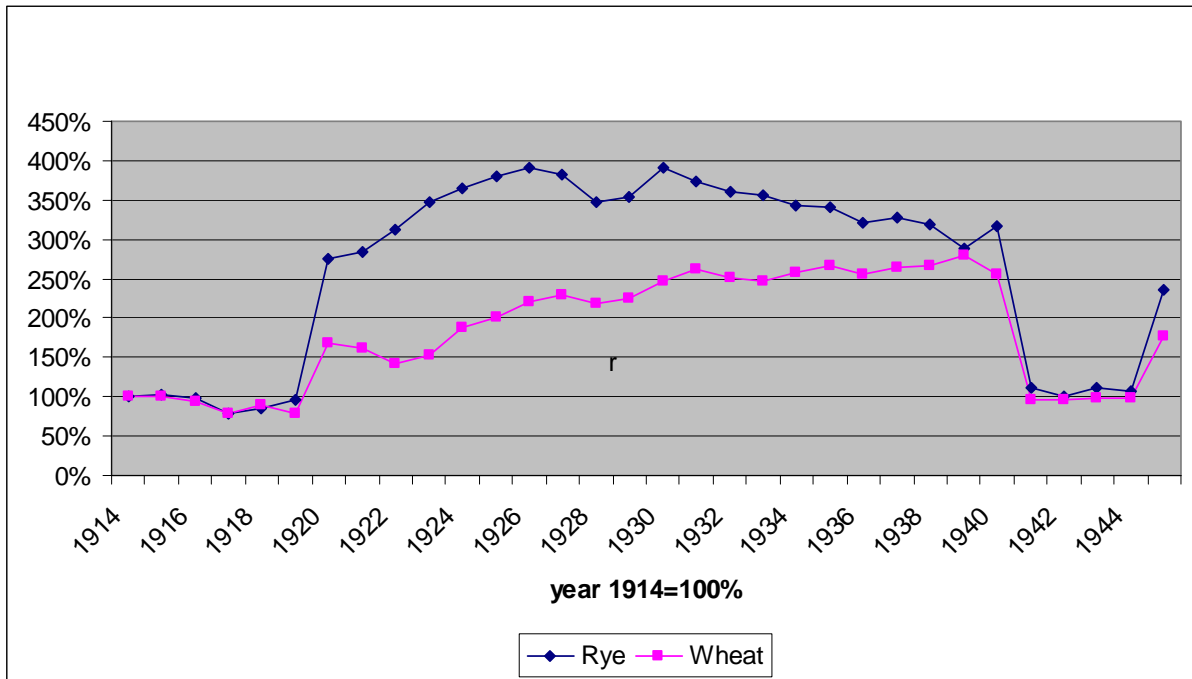
The statistics of the materials here presented call for an explanation of the causes and circumstances of particular processes observed. In an attempt to provide a synthetic picture of European agricultural production, it is hardly acceptable to ignore discernible variations across regions or even countries. In the period in question, a special case was that of the Soviet Union. The present version of the analysis offers as illustrative statistical material only figures concerning land areas and production volumes for wheat and rye. Subsequent versions will also include statistical analysis of other crops (such as other grains, potatoes, sugar beets) and data on animal breeding.

### **World War I**

As the First World War broke out, its nature and scope effected far-reaching changes in European agriculture. Large-scale military mobilizations undercut farming manpower. Requisitioning of farm horses was not compensated for by mechanization as industrial capacities were being diverted to the production of armament. For the same reasons, chemical industries limited the output of artificial fertilizers, which, given reduced animal stocks, could not be sufficiently offset by natural fertilizer. Theater-of-war operations caused widespread destruction in farmland, losses of livestock, and demolition of farm buildings. All these factors resulted in curtailed farm acreage and a drop in crops. As a corollary, farm produce quickly rose in price, which, however, failed to restore a balanced market. Direct warfare brought about an agricultural decline in affected countries.

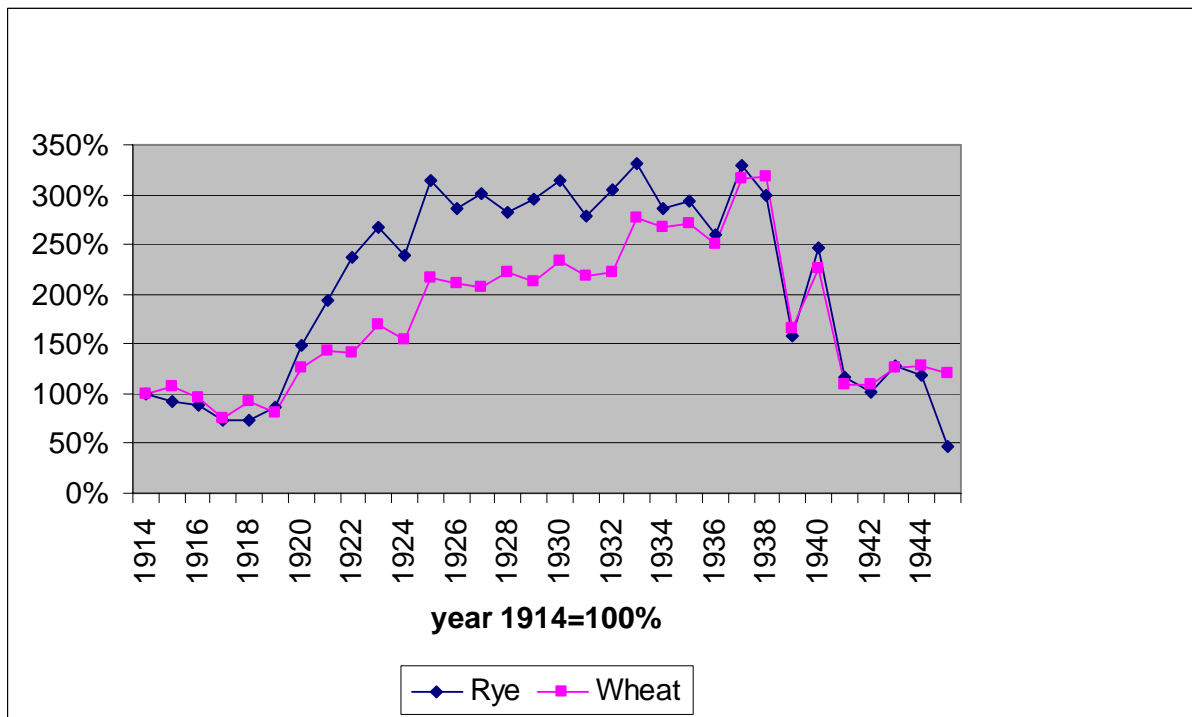
**Fig. 1**

**Rye and wheat areas in Europe in 1914-1945**



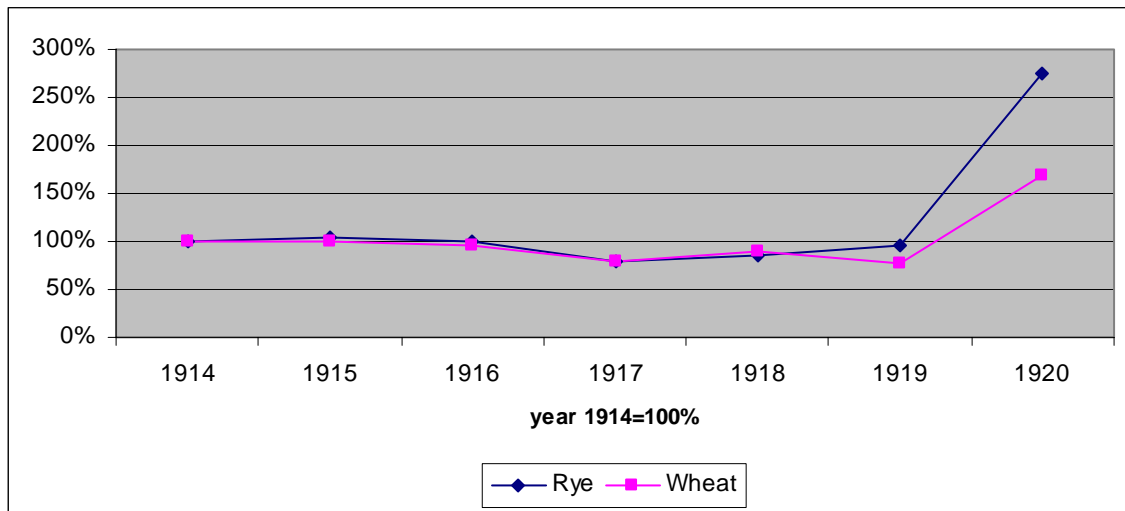
**Fig. 2**

**Rye and wheat production in Europe in 1914-1945**



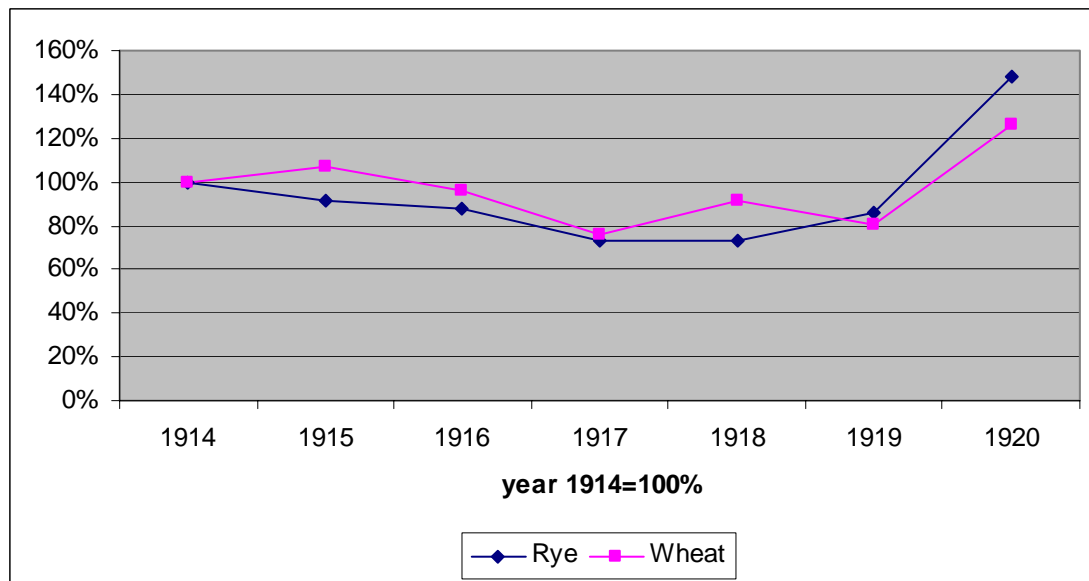
**Fig. 3**

**Rye and wheat areas in Europe in 1914-1920**



**Fig. 4**

**Rye and wheat production in Europe in 1914-1920**



Faced with wartime impossibility to make up for the food deficits with imports, most governments resorted to active interventionist practices. Instruments of agricultural policy, while effective in peacetime, proved a complete failure during war. Consequently, governments tried to use administrative orders to regulate food prices by sales rationing and an introduction of state monopoly. In Germany toward the end of 1914, fixed wholesale prices were introduced for grain; to maintain them, the government resorted to requisitioning. The following year saw the introduction of state monopoly on grains, potatoes, and cattle

fodder. All the while, farmers were being forced to plant scarce crops on fields indicated by the authorities. Faced with continuing shortages on the food market and rising profiteering, governments introduced rationing of commodities, some of them being replaced by substitutes. To some extent, Germany's tight nutritional spot was alleviated by plunder of foodstuffs in conquered territories in the east.

Similarly in France in 1915 and 1916, the government secured a right to control the pricing of agricultural produce, complete with authority to confiscate grain and flour. In 1917, rationing was introduced of cereal products and sugar, and three "meatless" days per week were instituted. Pre-World War I Britain had imported most of its food, but with the German U-boat fleet operating off its shores, supplies suffered grave losses. This forced the British government to stimulate domestic agricultural output by increasing arable land area (such as by converting gardens and orchards to grain-producing fields) and forcing higher land yields. This policy was implemented by state-ordained increase in official prices for produce. In April 1917, a bill was passed guaranteeing minimum prices for agricultural produce and minimum wages in agriculture. Farmers were supported with supplies of artificial fertilizers, machines, and livestock. With these measures in place, the government succeeded in curbing excessive price hikes and profiteering.

Things were much tougher for agriculture in Eastern Europe. With 7.5 million men mobilized in Russia, and given their poor mechanization, farmsteads were badly hit in their productive capacities. German troops capturing a large area of Russia, the country's cropland shrank (from 93.5 million hectares in 1913 to 78 million in 1917), although at the same time more land was made available for crops in Siberia and Kazakhstan. The stocks of cattle and sheep declined, although pig headage grew (from 15.8 million in 1913 to 19.3 million in 1917). Although large amounts of grain were available, it was not properly distributed as transportation facilities were diverted to military haulage.

A food crisis was swelling in Russia from 1915 which came to a head in late 1916. As its result, military commanders were given a right to requisition grain, set farm produce prices, and control foodstuffs shipped out of areas under their authority. From 1915, food rationing started to be implemented and minimum food prices were set. Nor was the situation improved following the February 1917 revolution. The Provisional Government introduced state monopoly on grains, imposing on peasants mandatory delivery quotas. This policy further compounded Russia's agricultural crisis.

## **End of World War I**

After World War I ended, almost all of Europe was engulfed by hunger. All countries suffered from food shortages as needs were huge. With foodstuffs in such high demand, agriculture was stimulated to develop rapidly, especially that food prices kept rising. Unfortunately, rural areas directly affected by warfare were devastated. Buildings lay in ruins, machines in disrepair, fields had been burned, cattle, swine, and horses were short. In large areas, average crops had fallen due to poor cultivation in wartime. European agriculture, therefore, could not fully ride the boom demand.

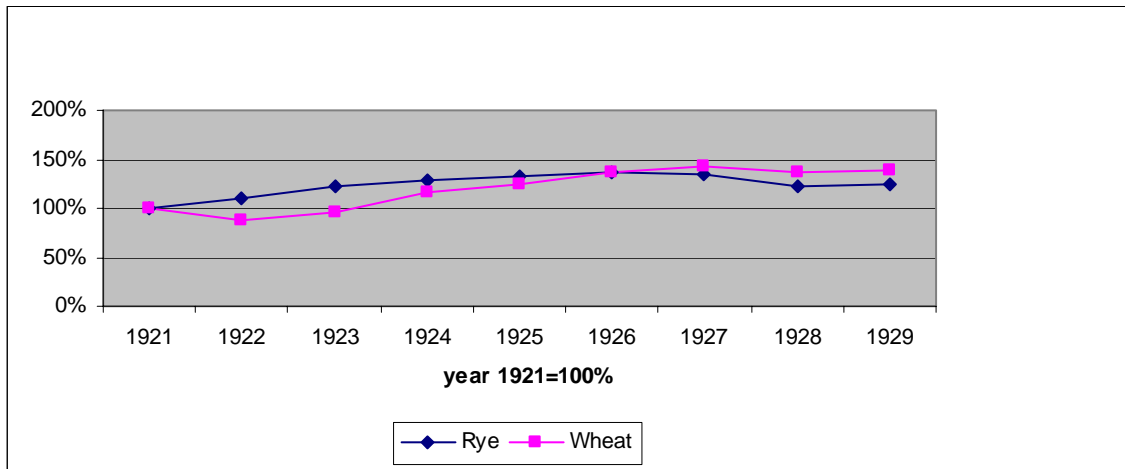
A serious hindrance was the structure of landholding, particularly adverse in Eastern and Southern Europe. With remnants of feudalism still in place there, farmers grew radical in their demands. They demanded an agricultural reform being conducted to alleviate the prevailing disproportionate relations of ownership. Indirectly, such a reform could potentially help increase farm profitability and consequently improve farmers' purchasing power. The essential questions to be addressed by respective governments included the size limit of land to be parceled out and amounts of compensation to be paid to previous owners. Political considerations came into play. Eventually, Latvia and Estonia did not pay any compensation as previous owners were Germans, Poland paid 100% for land being redistributed, Czechoslovakia about 10%, and Romania 6% as it desired to expropriate Germans and Hungarians. In Germany, Finland, and Poland the agricultural reform was implemented gradually, and redistribution applied only to part of land, not entire estates. As a result, most Eastern and Southern European countries did not see the reform fully implemented. In all, about 7 million hectares were parceled out. The impact of such agricultural reforms on production capacities varied greatly across countries. Overall, farmstead profitability rose, thus improving rural buying power for industrial goods and stimulating a country's economic prosperity. The reform had the greatest effect in improving the conditions of farmsteads in Romania, Estonia, and Latvia. In some countries the benefits were limited owing to rural overpopulation (such as in Poland).

## **European agricultural reconstruction (1920's)**

Within years from the end of hostilities, European agriculture was rebuilt.

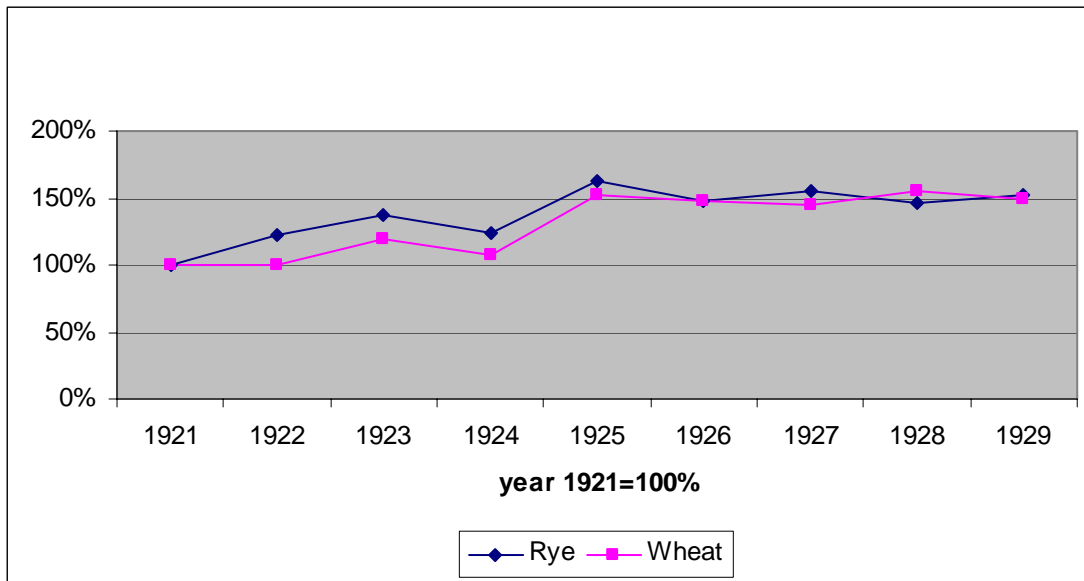
**Fig. 5**

**Rye and wheat areas in Europe in 1921-1929**



**Fig. 6**

**Rye and wheat production Europe in 1921-1929**



What with the shortage of food products in Europe, the significant drop in their prices overseas in 1920-1921 was not so acute in Europe. Moreover, progressing development in world agriculture from 1922 helped rebuild profitability in European food production. Still, the following year did not yet see the production recovering its pre-World War I volume. For rye, its was 25% lower, with figures being 15% lower for wheat, 22% for barley, and 11% for oats. Prewar production levels were not attained until 1923-1924. In subsequent years they

rose further, accompanied until the second half of the 1920's by a similar trend in industry. With that, there was a much more rapid growth in vegetable production for industry than for consumption. This did not apply to wheat production only, which rose greatly. One reason for this was the disappearance from the market of the largest grain exporter which had been prewar Russia. The Americans tried to take advantage of the situation, exporting large amounts of grains to Europe. Also some European countries significantly increased their wheat output (among them Hungary, Romania, Yugoslavia, Bulgaria). At first this contributed to a rise in prices for agricultural produce. Unfortunately, it soon turned out that increased crops much exceeded expected demand. In some societies, especially those wealthier ones, lower demand for grains resulted from a shift in consumption patterns away from cereal products, especially bread. To offset the drop in revenues, producers responded by increasing production and supply. This naturally led to mounting overproduction resulting in the mid-1920's in falling prices. Within two years 1927-29, the drop was 17% in Warsaw, 14% in Berlin, 8% in Paris, and 15% in Liverpool.

Meanwhile, agriculture dropped as a percentage of GDP, a tell-tale factor in European economy of the period. In the UK, the proportion was 6.3% in the first half of the 20's, but later in the decade it fell to 3.6%. In Sweden, in the 10 years after the war, agricultural share shrank from 13 to 11%. Yet in poorly industrialized nations, agriculture continued to be a major share of national product. For example, in the late 20's, the Baltic states derived as much as 80% of their GDP from agriculture, with the figure even higher for the Balkans and Romania.

### **Great Depression**

As the great economic crisis struck, agricultural production suffered a major setback. The slump was more severe and lasted longer than in industry. It was particularly acute in the agricultural countries of Southern and Eastern Europe (Poland, Hungary, Romania, Italy), where the depression continued until 1935.

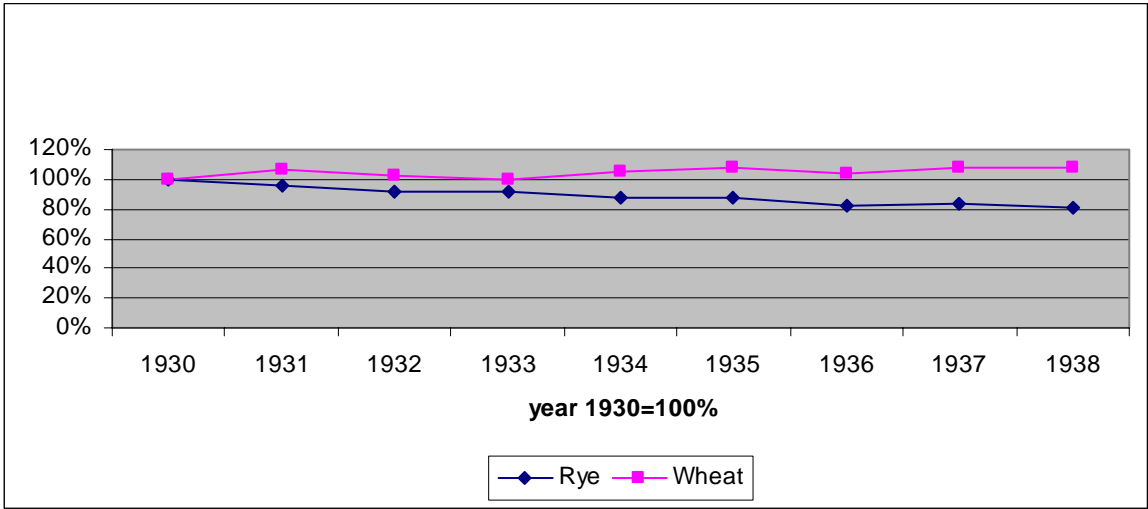
Agriculture at the time was characterized by a steady or even rising output. If the average agricultural production in Europe (other than the USSR) in 1925-1929 is represented as 100, by 1929 it had climbed to 108, by 1930 to 105, by 1931 to 108, by 1932 to 111, by 1933 to 112. Of course figures for respective countries and crops varied. The growth was necessitated by a rapid decrease in produce prices: producers were trying to make up for their rapidly falling standard of living. Yet the rising supply inevitably caused further price drops. As a result, for the same amount of produce sold, a farmer would receive less money

compared to the previous year. One of the most palpable effects of this was to freeze or even set back farming techniques, what with reduced artificial fertilization and replacement of mechanized work by increasingly cheap human labor. The plight of European villages was compounded by farm produce falling in price more rapidly than industrial wares, a process called price scissors opening. To purchase the same amount of industrial goods, pay his taxes, pay back any credit, or pay insurance premiums, a farmer had to sell increasing amounts of produce, even 2-3 times the pre-crisis volume. Within agriculture, the drop came sooner and was steeper for vegetable produce than livestock. For that reason, some farmers switched to breeding. That, in turn, increased supply and caused prices to dwindle.

As a consequence, large capitalist farms became unprofitable, as costs exceeded expected revenues. Crops were left in the fields or destroyed. Smallholdings, which consumed much of what they produced, pursued a course of action called hunger supply. Many farms went bankrupt or passed to creditors. In European agricultural countries this considerably weakened their domestic markets.

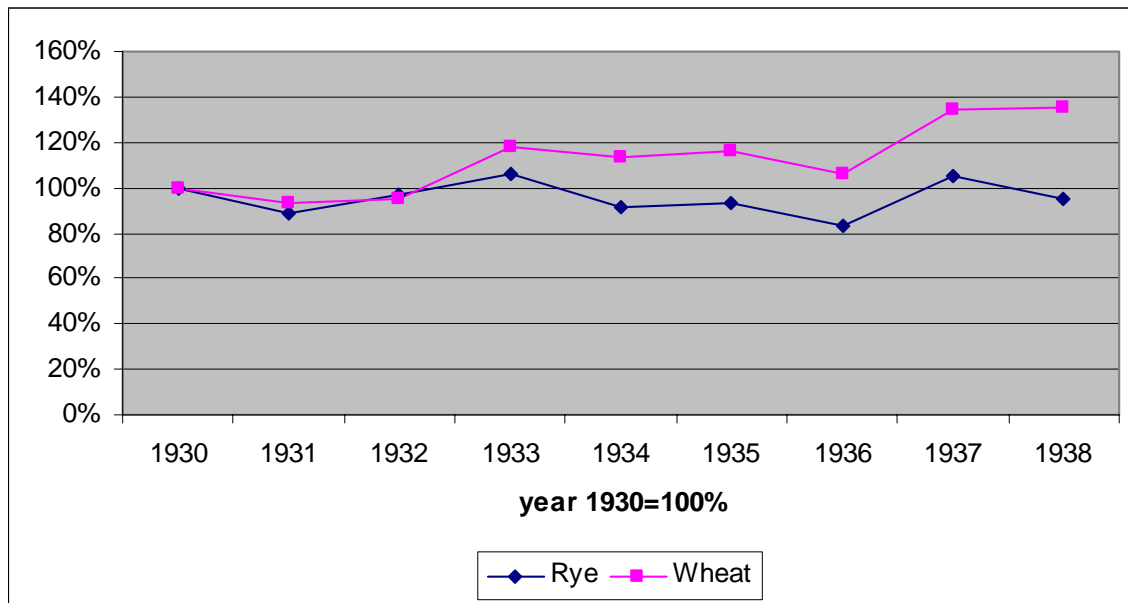
The Great Depression caused a surge in rural unemployed, leading to further impoverishment of farmers. It became obvious that nothing short of structural change in the economy could alleviate rural poverty: the solutions offered included forced industrialization (in Poland, such an attempt was in the creation of the Central Industrial Region).

**Fig. 7**  
**Rye and wheat areas in Europe in 1930-1938**



**Fig. 8**

**Rye and wheat production in Europe in 1930-1938**



**Reconstruction of European agriculture (1930's)**

The situation on world food markets noticeably improved in the latter half of the 1930's. Rural populations enjoyed a rise in purchasing power, but prices of food grew more slowly than those of manufactured goods. In 1934-38, the average annual vegetable production in Europe (minus USSR) was about \$4,600 million, while animal production amounted to more than \$5,600 million. Total average European agricultural output made up approximately 30% of the world's agricultural production. In same period, the Soviet Union produced vegetables worth \$2,850 million and animals for about \$1,200 million.

In Europe, foodstuffs constituted about 98% of total agricultural production. High levels of production were achieved in Western European countries – Denmark, Holland, Belgium, Great Britain, and Germany – where yields reached from 20 to 30 quintals of wheat per hectare. The same countries also used the most artificial fertilizers, with all of Europe responsible for about 63% of their entire world consumption. Western European agriculture stood out for systematic increase in cultivation areas of wheat, sugar beets, and fodder crops needed for the rising animal breeding. Agricultural development was much slower in Central and Eastern Europe. The agricultural reform of the 1920's, although it improved the lot of much of rural population, failed to solve the problem of overpopulation, nor were attempts at industrialization more successful in creating a sufficient increase in the numbers of jobs. In

this region, growth dynamics in agriculture was stronger in less developed economies like Bulgaria, Yugoslavia, and Romania. Still, despite clearly rising trends in agricultural production volumes, Europe remained a heavy importer from overseas of food and agricultural produce for industries.

### **Agriculture in the Soviet Union**

The interwar period was marked by the appearance of an entirely new economic system, including new type agriculture, as exhibited by USSR's communist economy. As the Bolsheviks ascended to power, they proceeded with redistribution of private and church landholdings to smallholding or landless peasantry. Approximately 11% of land was seized by the state and about 3 was assigned to collective farming. In 1918, as civil war continued, poverty intensified to the point of famine, the Bolsheviks cracked down on villages, seizing peasants' land, confiscating food, and creating collective farms. From January 1919, farmers were forced to deliver grain surpluses to the state at fixed prices, an obligation gradually extended to other produce. This policy led to a breakdown in farm production and widespread famine. Acreage sown in 1920 equaled to 75% of the 1913 figure, and sugar beet areas were only 30% of what they had been before the war. Grain crops had crashed to a half of 1913 levels, while animal farming had fallen by 40%. Policies compounded by natural crop failures in 1920 and drought in the following year caused a massive famine affecting 25 million people.

Faced with an economic slump of such proportions, the government introduced a so-called New Economic Policy (NEP) in 1921. Its elements as applicable to agriculture included waiving seizures of the fruits of peasants' labors and introduction of a tax system, first in kind, and from 1924 in cash. Farming communities also received farm machinery and credit support. Almost overnight, this turn in policy resulted in attempts to rebuild Russian agriculture and restore severed links between rural and urban markets.

By the mid 1920's Russian agriculture had almost recovered to pre-World War I production levels (95 percent). Still, surplus agricultural output suffered as famished villages consumed most of what they produced. When it seemed that NEP had paved the way for successful further development, the government launched collectivization, which was bound to curtail agricultural production. The drive was motivated by ideology and politics. Its primary purpose was to undercut landowners in what the communist ideology called "elimination of the capitalist element." From 1926, large state farms were created called *sovkhozes*. By 1934, more than 5,000 *sovkhoz* had been formed, largely from land seized

from large private farmers called “kulaks.” In 1940 sovkhos farms occupied about 10% of Russia's arable land and produced less than 10% of grain. The main thrust in structure and production of Soviet agriculture was to come from kolkhozes, or collective (cooperative) farms.

The Soviet government proceeded with a brisk implementation of general collectivization starting in early 1935. Kolkhoz farms, created mostly against peasants' wishes, were intensely mechanized. Not that it helped intensify production, on the contrary. The fast growth of the NEP period began to slow down. Despite favorable natural conditions such as climate and soil, kolkhozes failed to deliver expected output. Animal breeding suffered a complete collapse. Peasants forced to join kolkhozes slaughtered their herds in bulk. Suffering from declining standard of living, kolkhoz members did not apply themselves to farm work. Joseph Stalin's personality cult and overwhelming Soviet discriminatory policy against the peasantry combined to produce such effects as the Great Famine in the Ukraine in the 1930's.

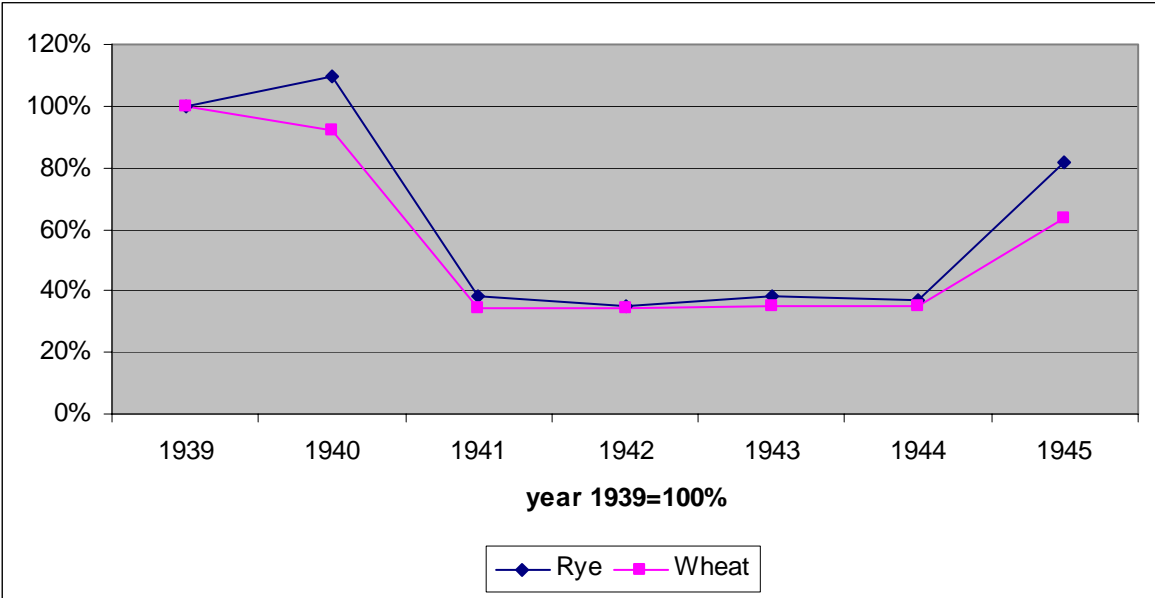
## **World War II**

By spring 1941, almost all of Europe had been overrun by Nazi Germany and its allies. June that year saw the outbreak of German-Soviet war, which gave the Germans domain over vast territories in the east of Europe. As it conquered one country after another, Germany accumulated economic capacities in order to turn them to the needs of the Reich and its armies. In Polish lands incorporated into by Germany, Polish owners were dispossessed of their farms. In the USSR, kolkhoz property was taken over by the invaders, and former sovkhos were turned into German state-owned or private farms. In occupied countries, industry and agriculture alike were included in the German system of management and economic planning.

With a need to feed the army and general population of the Reich, at first the Germans tried to institute conditions conducive to an increase in agricultural production. They aimed at developing the culture of industrial and root crops, even at the expense of grains. They also supported animal breeding. But as demand for food rose sharply, and deliveries of farm machinery and artificial fertilizers could not catch up, in 1942 the Germans began large-scale predatory exploitation in the conquered territories. A ruthless system was instituted of confiscation, obligatory deliveries, and levies. While this policy was especially acute in Eastern Europe, its adverse effects were felt in agriculture all over Europe. The results were best illustrated by a drop in crops. While the average French yield in the second half of the

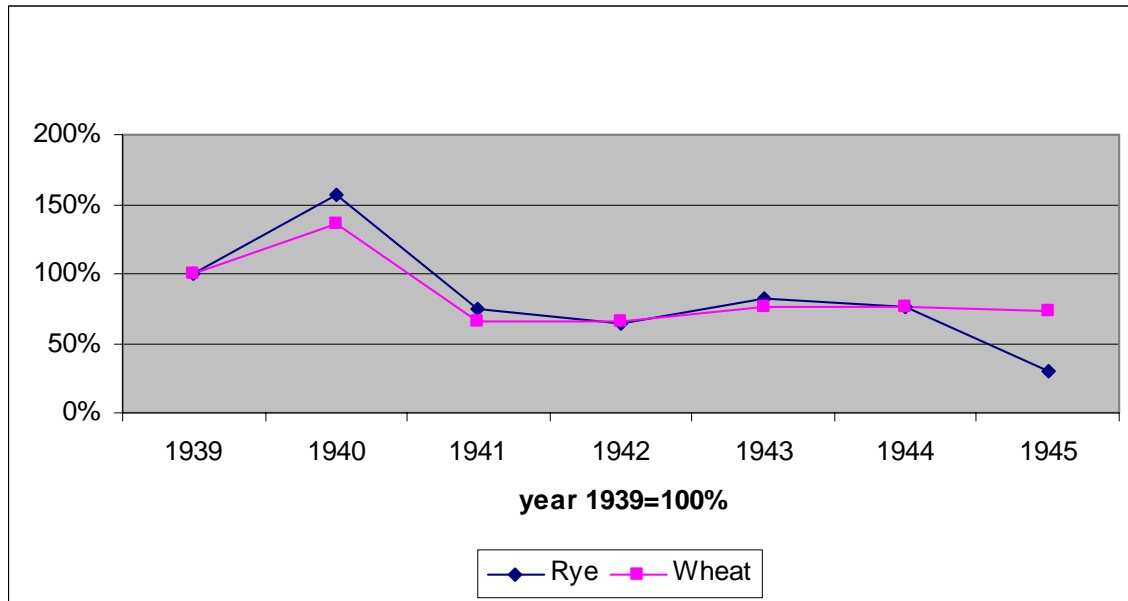
30's was 15.6 quintals of wheat per hectare, in 1944 it was two quintals less. Similarly in Czechoslovakia, the figure fell from 17 to 13.3 quintals per hectare. In Austria at the same time the drop was by 3 quintals. Despite that, with every year more and more produce was shipped from conquered territories to the Reich. It could be done largely by restricting consumption in respective countries though introduction of food rationing, banning free market exchange, and keeping incomes low. While in January 1943 the caloric value of German food rations was 1980 calories, in General Government (part of German-occupied Poland) it was only 855, less than a half of the German rate, in France 1080 calories, in Belgium 1320, and in the Netherlands 1765.

**Fig. 9**  
**Rye and wheat areas in Europe in 1939-1945**



**Fig. 10**

**Rye and wheat production in Europe in 1939-1945**



Different challenges were facing British agriculture. Before World War II broke out, Britain was importing about 9 million tons of grains and large quantities of meat. A wartime drop in grain imports by about 60% forced the British to boost their own farming by extending arable areas and rapid mechanization. Spare field for cultivation were largely reclaimed from pastures. Consequently, potato crops rose by about 80% and grains crops by as much as 90%. Increases were also obtained in fruits and vegetables grown in small gardens. Breeding fared worse, for while cattle headage grew, a shortage of fodder adversely affected the number of pigs. All in all, such policies ensured that potatoes and bread continued to be freely available, and the average consumption did not differ greatly from the prewar levels.

The outbreak of Nazi-Soviet war caused USSR's economy to shift to wartime priorities. This also applied to agriculture, which was especially affected, what with Germany occupying Russia's major breadbaskets (especially the Ukraine) and 14 million men being called up for the armed forces and for industry. Inefficient as it was in peacetime, Soviet agriculture suffered a further disastrous decline as it was low on machinery and horses were becoming desperately short. In 1943, grain crops in sovkhos and kolkhoz farms were below 4 quintals per hectare. Although by 1945 the yield had grown to 5.1 in kolkhozes and 6.7 in sovkhos, that was still only about 60% of prewar levels.

Another drop affected animal breeding. Such low agricultural production could not feed the population and the military. Solutions included administrative control of agriculture. Large areas were assigned to factories so that workers could dabble in food production. Similarly, employees were allotted plots for cultivation. Given the constant shortage of foodstuffs, both solutions significantly helped improve city dwellers' nutritional opportunities.