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Pre-result estimate of the main agricultural and horticultural¹ crops in 2024

 **2%**

It is estimated that the harvest of total cereals will be around 2% less than last year's and will amount to around 35.3 million tonnes

The results of the preliminary production estimate for the main agricultural and horticultural crops in 2024 are as follows:

- **the harvest of total cereals will amount to around 35.3 million tonnes and will be around 2% less than last year's;**
- production of basic cereals with cereal mixtures is estimated at 25.4 million tonnes, i.e. about 4% less than last year's harvest;
- the harvest of rape and turnip rape is estimated at about 3.3 million tonnes, i.e. about 11% less than last year's harvest;
- potato harvest (including production in kitchen gardens) is estimated at around 5.8 million tonnes, i.e. about 5% more than the harvest obtained last year;
- the sugar beet harvest is estimated at about 18.6 million tonnes, i.e. about 10% more than the harvest obtained in 2023;
- the production of field vegetables is estimated at about 3.8 million tonnes, i.e. at the level similar to previous year;
- it is expected that the harvest of fruit from trees will amount to nearly 3.6 million tonnes, i.e. over 17% less than last year's production;
- the fruit harvest from fruit bushes and berry plantations is estimated at almost 0.5 million tonnes, i.e. about 13% less than the harvest in 2023.

Cereals

The early start of vegetation and the later course of weather conditions with average monthly air temperatures above normal and low rainfall led to faster maturation of cereals. Harvesting of winter barley began in the second decade of June. Harvesting work was generally carried out in the second half of July. In the first decade of August, the harvest of winter and spring cereals was completed throughout the country.

Based on the estimates, it is assessed that the total area of cereal cultivation in 2024 was about 7.1 million ha, including the area of sowing of basic cereals with cereal mixtures - about 5.7 million ha, of which:

- wheat about 2.4 million ha;
- rye about 0.7 million ha;
- barley about 0.7 million ha;
- oats more than 0.5 million ha;
- triticale about 1.2 million ha;
- cereal mixtures about 0.3 million ha.

The production of basic cereals with cereal mixtures is estimated at 25.4 million tonnes, i.e. about 4% less than that obtained in 2023

¹ The information contains the results of a pre-result estimation of yields and harvests of cereals, rape and turnip rape, potatoes, sugar beets, ground vegetables and fruit, as well as of the second swath of meadow grasses, developed on the basis of expert opinions of Statistics Poland's (from the municipal level) carried out in August on the basis of inspections of fields, meadows and orchards.

Table 1. Cereal yields and total rape and turnip rape from 2010-2024

Specification	2010	2015	2019	2020	2021	2022	2023	2024^{a)}	2023 =100
	in decitons per 1 hectare								
basic cereals with cereal mixtures	35.1	36.7	35.2	44.8	42.6	45.9	45.6	44.5	98
winter wheat	45.7	47.6	46.4	54.2	51.8	54.4	54.8	52.6	96
spring wheat	34.3	33.5	32.6	41.7	39.6	42.4	40.4	40.9	101
rye	26.9	27.8	27.2	35.1	33.1	36.0	35.5	35.6	100
winter barley	40.7	41.3	43.0	51.1	47.7	49.6	50.7	46.8	92
spring barley	33.0	33.0	32.1	40.0	37.8	39.5	37.9	38.3	101
oats	26.4	26.5	24.9	33.2	31.4	32.8	30.8	31.7	103
winter triticale	35.2	36.3	35.9	45.0	43.1	45.5	45.4	44.5	98
spring triticale	28.4	28.4	27.5	36.4	33.7	35.6	33.1	34.3	104
winter cereal mixtures	30.9	30.9	30.6	38.1	36.6	37.5	37.3	37.4	100
spring cereal mixtures	30.5	27.2	26.2	34.5	33.7	33.8	31.5	31.9	101
rape and turnip rape	23.6	28.5	27.1	31.9	32.1	33.8	33.9	32.3	95

a) Pre-result yield estimate in 2024

Table 2. Cereal production and total rape and turnip rape from 2010-2024

Specification	2010	2015	2019	2020	2021	2022	2023	2024^{a)}	2023 =100
	In million of tonnes								
basic cereals with cereal mixtures	25.1	24.7	25.1	28.6	27.0	26.9	26.5	25.4	96
winter wheat	8.5	9.9	9.5	12.0	11.3	12.6	12.5	11.7	93
spring wheat	0.9	1.1	1.5	0.6	0.9	0.9	0.7	0.7	105
rye	2.9	2.0	2.5	3.0	2.5	2.4	2.6	2.5	95
winter barley	1.0	1.0	1.0	1.4	1.4	1.5	1.8	1.9	106
spring barley	2.4	2.0	2.4	1.6	1.6	1.3	1.1	1.1	94
oats	1.5	1.2	1.2	1.7	1.7	1.5	1.5	1.7	108
winter triticale	4.2	4.7	4.1	5.9	5.2	5.3	5.2	4.9	94
spring triticale	0.4	0.6	0.5	0.3	0.2	0.2	0.2	0.2	102
winter cereal mixtures	0.3	0.3	0.2	0.4	0.4	0.2	0.2	0.2	95
spring cereal mixtures	3.0	1.9	2.3	1.7	1.9	1.0	0.7	0.7	94
rape and turnip rape	2.2	2.7	2.4	3.1	3.2	3.6	3.7	3.3	89

a) Pre-result production estimate in 2024

It is estimated that total cereal yields (including grain maize, buckwheat, millet and other cereal plants) will amount to approximately 49.3 dt/ha, i.e. 0.6 dt/ha (by 1%) less than last year's yield, and the yields of basic cereals with cereal mixtures will amount to 44.5 dt/ha, i.e. by 1.1 dt/ha (by 2%) less than the previous year's yield.

The yield of winter cereals including winter cereal mixtures was estimated at 47.3 dt/ha, i.e. 1.5 dt/ha (by 3%) less than the previous year's yield.

The yield of spring cereals including spring cereal mixtures was estimated at 34.6 dt/ha, i.e. 0.6 dt/ha (by 2%) more than last year's yield.

The total cereals harvest (including grain maize, buckwheat, millet and other cereal plants) is estimated at about 35.3 million tonnes, i.e. 0.6 million tonnes (2%) less than last year's harvest.

The harvest of basic cereals with cereal mixtures is estimated at 25.4 million tonnes, i.e. 1.1 million tonnes (4%) less compared to last year's harvest.

The winter cereals harvest was estimated at 21.1 million tonnes, i.e. 1.2 million tonnes (5%) less than previous year's harvest.

The spring cereals harvest, including spring mixtures, was estimated at 4.3 million tonnes, i.e. nearly 0.05 million tonnes (1%) more than last year's harvest.

Rape and turnip rape

Rape overwintered without major losses (only about 0.4% of the area sown with winter rape was ploughed), and the condition of the winter rape plantations, which were left for this year's harvest, was assessed similarly to last year. Frosts recorded during the flowering period combined with a shortage of rainfall had an adverse effect on the plants, causing a reduction in the number of pods. The condition of the rape plantations was very diverse. Rape harvest began in the first decade of July (about two weeks earlier) and ended in early August. Rape seeds from this year's harvest are of good quality and have a high degree of oil content (above 40%).

It is estimated that the area under rape and turnip rape this year decreased by about 7% compared to last year and amounted to about 1.0 million ha. The rape and turnip rape harvest was estimated about 3.3 million tonnes, i.e. about 11% less than last year.

Potatoes

Cool weather in spring with a lack of rainfall inhibited plant growth and development. Improved weather conditions from mid-May, and especially in June, caused potatoes on plantations to accelerate their growth. However, due to the significant lack of rainfall in many regions of the country, its uneven distribution combined with high air temperatures, the condition of plantations is different. The yield potential of potatoes will not be fully utilized. Potato yields will be regionally and even locally diverse. It is estimated that the quality of tubers from this year's harvest will be average. It is estimated that there was a slight increase in the area of potato cultivation this year, mainly due to the favorable economic situation on the edible potato market last season (high prices for edible potatoes).

The area under potato cultivation in 2024 is estimated at about 0.2 million ha. It is estimated that potato yields this year will amount to 301 dt/ha and will be about 2% higher than last year's. The potato harvest is estimated at about 5.8 million tonnes, i.e. 5% more than last year's harvest.

Sugar beets

It is estimated that the area of sugar beet cultivation will be larger than last year by approx. 5% and will amount to approx. 0.3 million ha. The course of weather conditions in the period from spring (despite spring cold) to mid-September generally favored sugar beet vegetation. Currently, the condition of the plantations is good and allows for the estimation of quite

The winter cereal harvest including winter cereal mixtures was estimated at 21.1 million tonnes, i.e. 5% less than last year

The harvest of spring cereals including spring cereal mixtures was estimated at 4.3 million tonnes, i.e. 1% more than last year

The rape and turnip rape harvest was estimated at 3.3 million tonnes, about 11% less than last year's

The potato harvest is estimated at about 5.8 million tonnes, i.e. more than last year's harvest by about 5%

The sugar beet harvest is estimated at around 18.6 million tonnes, i.e. 10% more than last year.

high yields. Due to the larger area of cultivation than last year and the expected higher yields, the sugar campaign this year started early, in the third decade of August and is proceeding without disruptions on the planned dates. The amount of sugar beet yields was estimated higher than last year by approx. 5% - at the level of 679 dt/ha. The sugar beet harvest is estimated at approx. 18.6 million tons, i.e. 10% more than the harvest obtained in 2023.

Meadow hay

The vegetation conditions of meadow plants after the first cut were generally good, although they varied regionally due to local water shortages. The water supply to plants in June and July was generally good and favored the growth of meadow plants, hence the yields and harvests of the second cut were quite high. The harvest of the second cut of meadow hay was generally carried out in the second half of July and was completed in the first decade of August. The yields of the second cut of meadow grasses in terms of hay were estimated at about 19.5 dt/ha, while the harvest from permanent meadows (in terms of hay) amounted to about 4.4 million tonnes.

The harvest from permanent meadows of the second cut (converted into hay) amounted to about 4.4 million tonnes, i.e. about 2% more than last year's harvest

Field vegetables

Vegetation conditions in 2024 were generally not favorable for field vegetables. Excessive soil moisture in March resulted in delays in field works, especially in the north-eastern and south-eastern parts of Poland. The emergence of vegetables sown at the end of March and the beginning of April was even, but the lack of rainfall in many parts of the country, recorded in the second half of April, resulted in a slowdown in the growth and development of plants. Frosts occurring at the end of April and the beginning of May led to frost losses, mainly in uncovered plantations. In the second half of May, the shortage of rainfall and local hailstorms had a significant impact on the weakening of the condition of vegetables. As a result of high air temperatures in June, the soil further dried out, which hindered the growth of plants, especially those planted into the ground from seedlings. The moisture content of the topsoil improved in most parts of the country as a result of the July rainfall. At the same time, the pressure from fungal diseases and plant pests has increased. Hot and sunny days in July, August and early September resulted in accelerated ripening of vegetables, but slight daily fluctuations in air temperature contributed to a decline in the quality of the marketable crop. The weather conditions so far have been the least favorable for growing cabbage and root vegetables.

The total production of field vegetables (early and late) was estimated at approximately 3.8 million tonnes, i.e. at a level similar to the previous year. It is estimated that this year's cabbage harvest will amount to approx. 598 thousand tonnes, but the yield of late varieties will have a decisive influence on the final size. Cauliflower production was estimated at 117 thousand tonnes, while the onion harvest may amount to approx. 667 thousand tonnes. Carrot production was estimated at 555 thousand tonnes, parsley for approx. 126 thousand tonnes, and the beetroot harvest is approx. 240 thousand tonnes. Due to the increase in the cultivation area, the production of tomatoes in the ground, despite unfavorable conditions, may amount to approx. 200 thousand tonnes. The cucumber harvest this year is currently estimated at approx. 116 thousand tonnes, root celery per approx. 100 thousand tonnes, and the sweet corn harvest will amount to almost 154 thousand tonnes. The total production of pumpkin, squash and zucchini is estimated at 424 thousand tonnes, while the harvest of other vegetable species will amount to approx. 524 thousand tonnes. However, the final harvest amount will depend on further weather conditions.

The production of ground vegetables is currently estimated at approximately 3.8 million tonnes, i.e. at a level similar to last year

Fruits

The total harvest of fruit from trees, fruit bushes and strawberries in 2024 was estimated at almost 4.1 million tonnes, which is almost 17% less than in 2023. High air temperatures in February and March accelerated the vegetation of plants from 2 to over 3 weeks compared to the long-term average. The earlier than usual flowering of the plants was not accompanied

by intense pollinator activity, which resulted in a reduction in the number of fruit set. Due to frosts at the end of April and early May, significant frost damage to flower buds and already set fruit was recorded in many regions of the country. The hailstorms that occurred in the second half of May, accompanied by strong and gusty winds, also contributed to crop losses. The weather conditions in the following months of the growing season varied. Local rainfall recorded in May, June and July had a positive impact on the condition of the plants. However, the increase in humidity favored the development of fungal diseases and fruit mold. At the same time, in many regions of the country, there was a significant deficit of rain, resulting in smaller fruit and a decline in the quality of the marketable crop. High air temperatures in August and early September, also persistent at night, led to poorer fruit color. It is estimated that due to unfavorable weather conditions in 2024, the suitability of fruit for long storage will be lower than in previous years.

The production of fruit from trees was initially estimated at almost 3.6 million tonnes, i.e. over 17% less compared to the previous year. Apple production was estimated at approx. 3.2 million tonnes, i.e. approx. 17% less than in 2023. The pear harvest in orchards will be over 6% smaller than last year and will amount to 74.1 thousand tonnes. Due to unfavorable weather conditions, plum production will decrease by 23% to 98.0 thousand tonnes. The cherry harvest will be lower by approx. 35% and will amount to about 110.0 thousand tonnes, and cherries will decrease by over 24% to 51.9 thousand tonnes. It is estimated that the total harvest of peaches, apricots and walnuts will be lower than last year by 27% and will amount to 14.4 thousand tonnes. The harvest from other fruit trees (including dogwood, mountain ash, medlar and quince) will amount to approx. 2.3 thousand tonnes and will be approximately 20% lower than in 2023.

The production from fruit bushes and berry plantations in orchards was initially estimated at less than 0.5 million tonnes, i.e. almost 13% less than in the previous year. The raspberry harvest was estimated at approx. 78,0 thousand tonnes, i.e. approx. 19% less than in 2023. The total harvest of currants (black and colored combined) amounted to approx. 100 thousand tonnes, i.e. approx. 23% less compared to the previous year. The production of black currants was estimated at 66.3 thousand tonnes, i.e. over 27% less than last year. The decrease in fruiting was caused by damage to bushes and fruits during spring frosts, and then to plant stress caused by water shortage. The highbush blueberry harvest was estimated at 62.8 thousand tonnes, i.e. over 1% more than in 2023, and chokeberries at 45.2 thousand tonnes, i.e. approx. 16% less than a year earlier. Strawberry production amounted to almost 159.0 thousand tonnes, and was approximately 12% lower than last year. The gooseberry harvest decreased by approximately 20% to 6.7 thousand tonnes. The harvest of other fruit from fruit bushes and berry plantations in orchards was estimated at 33.0 thousand tonnes, i.e. 10% less than in 2023. The decline was recorded especially in the production of haskap berries, which dominate in this group of plants.

Agrometeorological conditions

The course of agrometeorological conditions from autumn 2023 to summer 2024

The July rainfall, also of a stormy nature, occurring throughout the country contributed to the improvement of soil moisture and had a beneficial effect on the condition of sugar beet and potato plantations (especially later varieties and those planted later). During the month, the second cut of meadow grasses and perennial legumes was harvested. In the first decade of July, rape and turnip rape mowing began, followed by individual cereals. Harvest work was generally carried out in the second half of July. In the first decade of August, the harvest of winter and spring cereals was completed throughout the country. Post-harvest treatments were carried out in the fields, subsoiling and pre-sowing ploughing were carried out, and stubble catch crops were sown. A significant deficiency of moisture in the soil made it difficult to carry out these works. The heavy rains recorded at the turn of the second and third decade of August, combined with storms and strong winds, caused temporary excessive

The harvest of fruit from trees in orchards is currently estimated at approx. 3.6 million tonnes, i.e. approx. 17% less than the production in the previous year

The harvest of fruit from fruit bushes in orchards and berry plantations was estimated at less than 0.5 million tons, i.e. almost 13% less than in the previous year

soil moisture in many regions of the country, and locally even flooded the fields. Locally in the second decade of August, and in a large area of Poland in the third decade of August, winter rapeseed sowing began. In the second decade of the month, green corn harvesting began and potato harvesting began. Tobacco leaf harvesting continued in August. During the month, the harvest of another cut of meadow grasses and perennial legumes was carried out throughout the country. The weather created good conditions for drying and harvesting hay.

Table 3. Air temperature and precipitation from autumn 2023 to spring 2024

Specification	National average air temperature		National average rainfall totals	
	°C	deviation from the norm ^{a)}	mm	% norm ^{a)}
AUTUMN ^{b)} 2023				
September	17.7	3.9	22.4	39.0
October	10.9	2.1	75.5	162.0
November	4.2	0.1	70.4	177.0
WINTER ^{b)} 2023/2024				
December	2.0	1.8	59.7	153.0
January	-0.3	0.9	50.8	139.0
February	5.7	5.8	65.2	206.0
SPRING ^{b)} 2024				
March	6.7	3.6	28.4	75.1
April	10.5	1.9	37.8	104.0
May	16.0	2.6	33.9	53.3
SUMMER ^{b)} 2024				
June	18.4	1.6	74.9	109.0
July	20.3	1.5	92.2	105.0
August	20.2	1.7	64.3	97.0

a) From 2021 IMiGW adopts as the average norm from years 1991-2020.

b) Monthly averages /Statistics Poland calculations based on IMiGW data/.

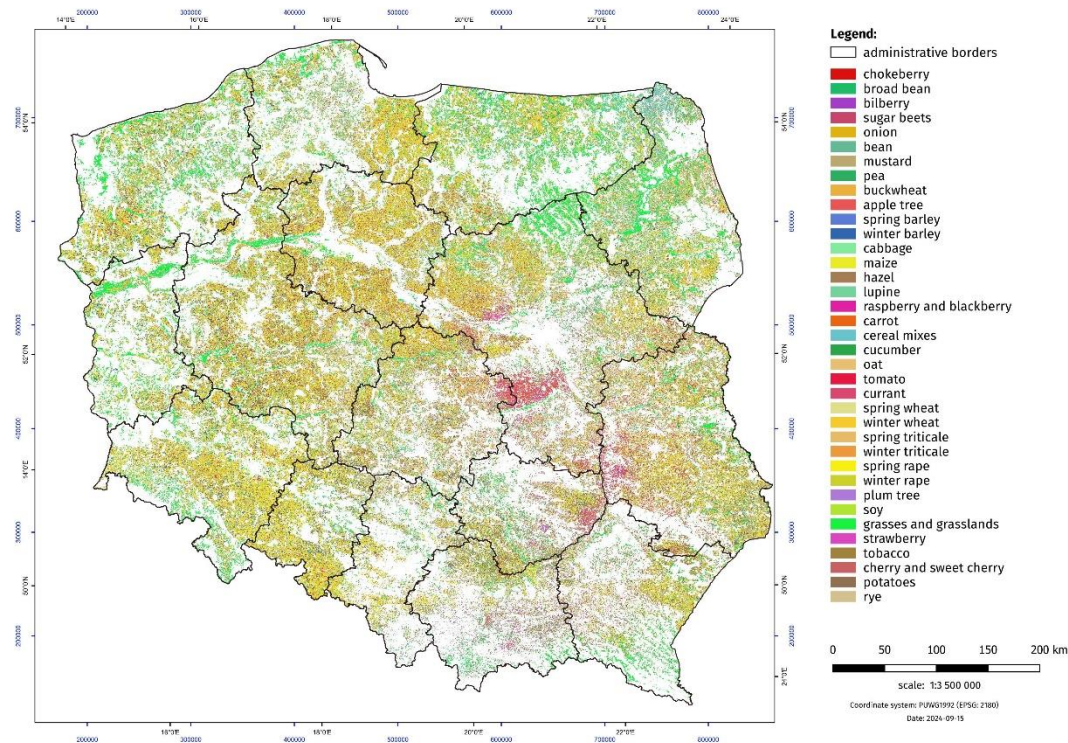
Forecasting the area of agricultural and horticultural crops using satellite remote sensing

In the field of work on the estimation of agricultural and horticultural crops, activities have been carried out for many years to use satellite imagery to forecast the area of agricultural and horticultural crops. The new system for obtaining data on agricultural crops, combined with the possibility of broader use of crop data from ARMA, constitutes the basis for a new methodology of agricultural research.

The resulting estimate of agricultural and horticultural crops was made using satellite remote sensing methods. The basis for its development were Sentinel-1A radar images with a resolution of 13.9x13.9m and Sentinel-2 with a resolution of 10x10m. Satellite data acquisition covered the period from October 11, 2023 to September 11, 2024. Due to the failure of one Sentinel-1 satellite, radar data was available every 12 days (previously ever 6 days). The range of recognized crops included 37 species. A total of 675 SLC (Single Look Complex) radar

satellite scenes with a swath width of 250 km (4,5 TB of data) and Sentinel-2 optical data (circa 3500 satellite scenes, 3.5 TB of data) were used. The estimate was developed based on the segmentation and object classification of the T2 coherence matrix and the polarimetric decomposition parameters H/α using machine learning algorithms (Random Forest). Data from the vector database of payment applications obtained by the Agriculture and Environmental Department of the Statistics Poland from the Agency for Restructuring and Modernization of Agriculture were used to train the system and validate the classification results. In order to increase the precision of mapping the crop area, a mask of agricultural plots was used. The overall classification accuracy was achieved at the level of 69% but the main cereals classified very well at the level of about 80%.

Map 1. Preliminary estimate of the main agricultural and horticultural crops



To develop estimates of agricultural and horticultural crops in Poland, medium-resolution satellite images from Sentinel satellites were used. Limitations resulting from spatial resolution cause difficulties in accurate identification of small plots (usually less than 10 ares), which negatively affects the quality of results. The problem concerns agricultural plots located mainly in the south-eastern part of Poland. More accurate crop estimates will be achieved using higher spatial resolution imagery for selected areas.

At the same time, we would like to inform you that due to the flood, Statistics Poland provides maps on the Geostatistical portal presenting statistical data on the areas affected by the flood (including flooded crop areas):

[Katalog zasobów - Wszystkie - GUS Portal Geostatystyczny](#)

In case of quoting Statistics Poland data, please provide information: “Source of data: Statistics Poland”, and in case of publishing calculations made on data published by Statistics Poland, please include the following disclaimer: “Own study based on figures from Statistics Poland”.

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Related information

[Production of agricultural and horticultural crops in 2023](#)

Data available in databases

[BDL: Sown area](#)

Terms used in official statistics

[BDL: Sown area](#)