Impact of climate change on food security of Ukraine

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The main theses of the work

- Climate is a system of closely related elements and mechanisms, and an imbalance in one of them will have consequences for others.
- A temperature increase of 2°C alone will endanger the existence of 5% of plant and animal species.
- As a result of climatic transformations, all natural systems are unbalanced, which leads to a change in the regime of precipitation, temperature anomalies and an increase in the frequency of extreme events hurricanes, hailstorms, floods, droughts, soil erosion, etc.
- There is a widespread opinion that the change in weather and climate conditions for Ukraine can have not only a negative, but also a positive impact. After all, a warming of 2–2.5 °C can contribute to an increase in the yield of many agricultural crops (in particular, wheat) in our territory, with some regional differences. Beyond this warming, yields of all crops will decline.
- All pathogens have a latent period of development, during which symptoms of the presence of diseases are not visually observed, but the pathogen is present in the plant and the damage has already been done. The weather conditions this spring were almost perfect for their development.







The pea "shot"

Under such moisture conditions, it formed a sufficiently high potential of 3-3.5 t/ha even on inferior precursors and up to 4.5-5 t/ha on a grain precursor.

However, it was not always possible to collect it qualitatively.

Rehydrated corn

Not everything turned out perfectly for corn either.

The high level of soil moisture definitely had a positive effect on the growth processes of corn, but such weather also brought rather

"unexpected" problems.

In particular, this applies to a high level of crop weediness.

Mistakes with sunflowers

First of all, heavy rains affected the timing of sowing.

Intensive moistening of the first half of the vegetation of plants contributed to the rapid and powerful accumulation of biomass, the plants developed a hypertrophied leaf apparatus. Although we understand that the bigger.

Industri 4.0 in agriculture

- Implementation of automated systems in production processes
- Big date. Collection, processing and analysis of large volumes of data
- Cloud Computing. Data storage and processing in cloud services, which ensures mobility and accessibility to information
- Robotization and automation of processes

What will help adapt crop production to climate change?

- 1. Diversification of crop production taking into account modern agroclimatic zoning of territories.
- 2. Selection of drought-resistant varieties and hybrids of agricultural crops with high productivity.
- 3. Expansion of sown areas for types and varieties of agricultural crops with a short growing season, which will make it possible to obtain two or three harvests of individual crops.
- 4. Increasing the diversity of crops to strengthen the resistance of the agroecosystem to external stresses.
- 5. Implementation and restoration of effective irrigation systems (in particular, drip irrigation).
- 6. Restoration and creation of new field protection forest strips (agroforestry).
- 7. Shifting the sowing dates of spring crops to earlier dates, winter crops to later dates, which will ensure effective use of soil moisture reserves by crops.
- 8. Improvement of the monitoring system for diseases and pests.
- 9. Improvement of the effective insurance system in crop production.
- 10. Forest strip along the fields.