



# AGRICULTURAL OUTLOOK UKRAINE

## 2030 FINANCIAL AID TO CROP PRODUCERS

JUNE 2023

The world market prices for the main Ukrainian agricultural commodities have been declining since early spring 2023. At the same time, Ukrainian exports through the three deep water ports under the Grain Deal slowed amidst the artificial delay of ship inspections provoked by the Russian part of the inspection. The average pace of inspections has been 2-4 vessels per day, whereas for ensuring the complete exportation of the commodities, 10-12 vessels must be inspected per day. Ban of imports of Ukrainian grains and oilseeds by the neighbors on the West, late sowing due to the lack of financial resources and blowing of the Kachovska dam by the Russians have put additional hardships onto the already exhausted agricultural sector of Ukraine.

In this issue of the Outlook we estimate the impact of financial aid to the agricultural crop producers.

### METHODOLOGY AND ASSUMPTIONS

To assess the future perspectives of the Ukrainian agricultural sector and markets, the AGMEMOD model is applied (see [KSE Agrocenter working paper](#)). The table below presents the basic assumptions for the markets:

**Table** Projection basis and assumptions

Assumptions	Values
Level of export	2023 as of today, 2024-2026 – only Odesa and Danube ports, 2027-2030 – all ports are available except of the Azov sea ports
Duration of war	2022-2023
Reduction of grains area due to occupation and active fighting in 2022-2023	-13% from the 2021 grains area harvested in 2021
Reduction of oilseeds area due to occupation and active fighting in 2022-2023	-20% from the 2021 oilseeds area harvested in 2021
<b>Production costs</b>	
Availability of financial resources for variable costs	in 2023-2024 the producers only manage to cover their production costs, not receiving any profits
Increase in fuel expenses compared to 2021	following annual average crude oil price change in 2022-2023 and projection for 2024 based on World Energy Outlook. For further years adjusted to inflation.
Increase in fertilizer expenses compared to 2021	80% increase in 2022 and 30% increase in 2023, further changes is annual inflation adjustment



Decrease in labor availability, and the resulting change in labor costs, due to mobilization, migration and war-related death*	in 2023-2024 30% less, starting from 2025 - gradual return to 2021 level*
Additional area of uncultivated arable land as an effect of increased production costs	-5%
World market prices in 2022–2030	OECD-FAO Outlook 2022
Crops storage assumption	Storage available
GDP projections 2022-2030 <i>IMF, April 2022</i> <i>SSSU projections</i> <i>Growth rate projected by USDA in 2021</i>	2022-2023: - 35% compared to 2021 2024: rebound by 12.5% 2025-2030: +3.1% annually
GDP deflator <i>As of July 2022, according to the National Bank of Ukraine</i> <i>According to the USDA 2021 projections</i>	- 2022: 30 2023–2030: +5% annual growth
UAH/USD currency exchange rate <i>As of July 2022, according to the National Bank of Ukraine</i> <i>According to the USDA 2021 projections</i>	- 2022–2023: 36.6 2024–2030: +0.2% annual growth
Population <i>Assuming 4 mil people left Ukraine considering 2021 USDA projections until 2030</i> <i>Return of all the war refugees, according to 2021 USDA projections until 2030</i>	- 2022-2023: -4 mil from the projected number 2024-2030: according to the former projections

Source Own elaboration

**Note** \*We assume Leontieff production function, and that one worker may extend their working hours by max 1/3 that translates into the daily workload of 10.7 hours

In order to introduce access to ports into the model, we assume the maximum export capacity in 2023-2024 to equal the quantity exported during March 2022-March 2023, which is [54.6 million tonnes](#). The Odesa port is assumed to be able to transport [6.4 million tonnes](#) of agricultural commodities, and Azov ports are assumed to be able to transport up to 2.4 million tonnes of agricultural commodities.

The financial support scenarios analyzed are two. The first one is Var. It implies that only the costs of seeds and planting materials, fertilizers and fuel are covered by the financial aid for the production of wheat, maize, rye, oats, barley, sunflower, rapeseed and soya beans. And the second scenario is All. It implies that all of the production cost categories as specified in the statistical 50-SG forms are covered by the financial aid. All of the rest of indicators are similar between the two scenarios. Moreover, the costs are covered by the financial aid without distinction between the type of crop commodity. The support is assumed to be distributed in 2023-2025, and the labor force is assumed to be available for rebuilding of the damaged facilities and infrastructure.

## GRAINS AND OILSEEDS AREAS

In the graph below we compare the impacts of the Var and All scenarios on the grains (wheat, maize, barley, rye and oats) and oilseeds (sunflower, rapeseed and soya) areas to the Baseline scenario described in the second issue of [these Outlook series](#). Before the RF invasion, areas of grains and oilseeds were, respectively, around 15 and 9 million hectares. In 2022, they dropped to around 11 and 7 million ha. With the war ongoing in the Baseline scenario, further drop in areas is expected: to 10.6 and 6 million ha. Neither covering the seeds, fuel and fertilizer costs, nor covering the total costs will significantly increase the acreage of cereals in 2023. The support covering the total production costs until 2023 however (scenario All), the cereals area will grow to nearly 13 million hectares in 2025, and continue slow growth until 2030. The support analyzed does not seem to impact the oilseeds area. This is because production costs of oilseeds constitute a smaller share of the world market prices (considering their projected development) as compared to the cereals prices.

The development of areas of cereal crops seems to take an interesting turn with decoupled direct support. Scenario All motivates the farmers to forgo significant areas of wheat in favor of corn, while keeping rye, barley and oats relatively stable. The explanation lies in profitability and markets. Rye and oats are domestic market-oriented crops, they are not affected severely by the world market prices. The producers stabilize and even slightly grow their acreages of these two crops, with or without the costs support, supplying the domestic market with the required quantities of these two commodities. Barley area has a slightly increasing trend as well. It is not substituted by corn or by any other crop.



Although it is export oriented commodity, the producers seem to grow it along with wheat and corn as a profitability buffer. Finally, with complete costs support, corn and wheat compete harshly for the area, leaving corn an absolute winner considering growing world demand for corn and the world market prices for it being higher relatively to the prices of wheat. The area of corn recovers to the pre-war level by 2025 already under the Var scenario.

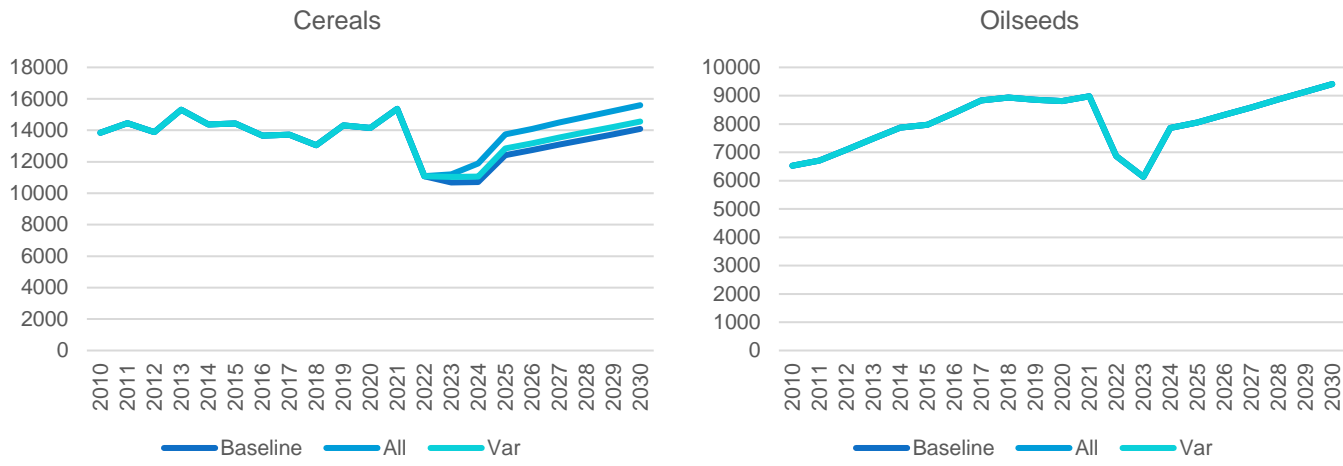


Figure Acreage of cereals and oilseeds in 2010-2030, thsd ha Source SSSU for 2021-2022, own estimation for 2023-2030

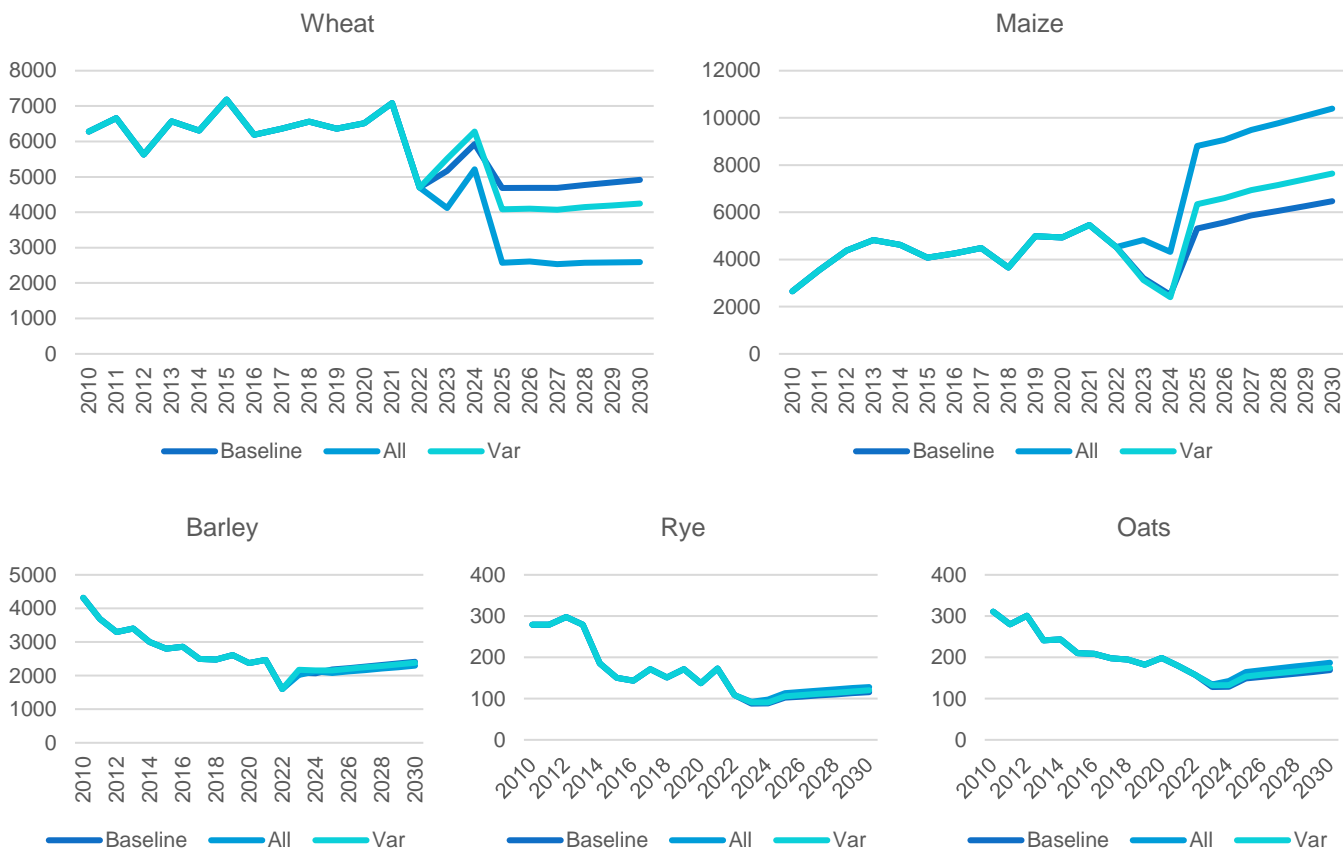


Figure Acreage of wheat, maize, barley, rye and oats in 2010-2030, thsd ha Source SSSU for 2021-2022, own estimation for 2023-2030

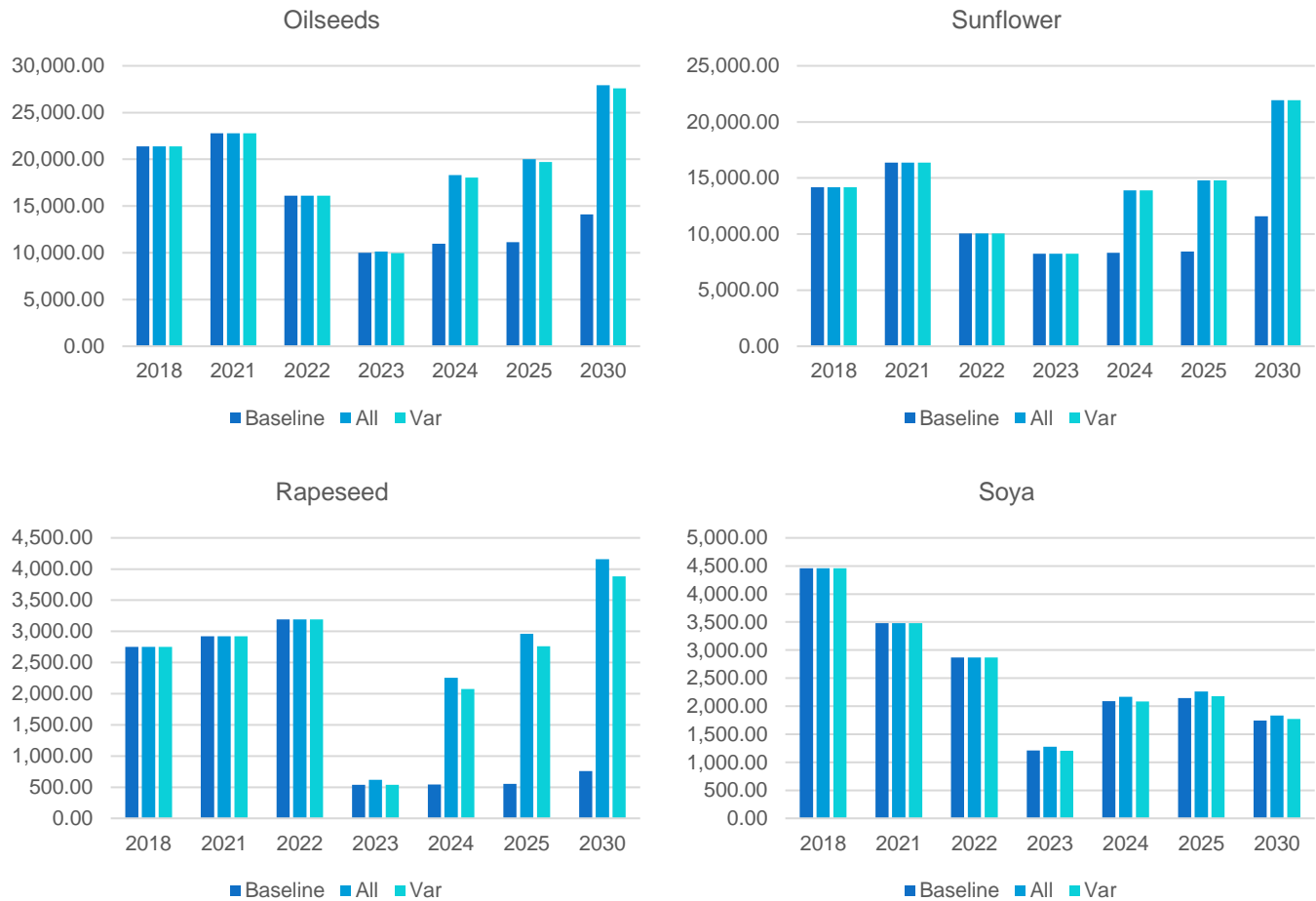


**Conclusions for the cereals and oilseeds areas:**

- area of barley, rye and oats will not be responsive to the direct financial support,
- wheat seems to be substituted by corn already in the Baseline. Decoupled direct financial aid will only re-enforce this substitution,
- corn production will be most responsive to the financial aid, as compared to the other four crops,
- the oilseeds area will react to the financial aid very marginally,
- decoupled financial aid covering only fertilizer, seeds and fuel will allow corn to reach the pre-war areas already in 2025, but total cereals area will remain below the prewar acreages until 2030. The aid covering the total production costs will return the pre-war acreage of cereals by 2028 with the help of corn.

**CROPS PRODUCTION**

During war, in 2022-2023, the production of oilseeds and cereals drops. Under the Baseline, starting from the first post-war year, assumed 2024, the production slowly recovers. With Var and All scenarios, the recovery rate for oilseeds and grains production is much quicker. Total grains production reaches the pre-war level by 2025, and oilseeds by 2027. Whereas the recovery of areas for oilseeds is not affected by compensation of production costs, the recovery of yields are. Therefore, the production Figure demonstrates quick growth, and the area Figure does not. The recovery of oilseeds production, under the Var and All scenarios, comes from increase in sunflower and rapeseed yields. Soya beans yields remain nearly unchanged. Once again, the areas for these crop commodities, as mentioned in the section above are not affected. Sunflower is expected to remain the major oilseed crop under all three scenarios.



**Figure Production of oilseeds in 2018-2030, thsd t Source SSSU for 2000-2022, own elaboration for 2023-2030**



Decoupled support significantly impacts cereals areas, as well as cereals yields, that ends up in significant production changes. Under the Var and All scenarios, corn becomes by far the major crop in Ukraine already in 2025. Barley, rye and oats production grows under all three scenarios, but the growth rate is the highest in the All scenario. The growth comes from the increase in both, the areas and yields, the latter having greater magnitude. This is because the production costs compensation is higher in All than in Var which allows the producers accumulating more resources for reinvestments into yield intensification. In the Baseline and Var scenario wheat production is at around 2022 level until 2030, but under the All scenario it drops significantly. This drop is attributed to reallocation of arable land to corn. Wheat yield in Var and All scenarios grows slightly. The wheat and corn substitution comes from the fact that both crops are export-oriented and the costs compensation allows profiting from the world market prices more. The relative profitability created by the world market prices is significantly higher for corn than for wheat

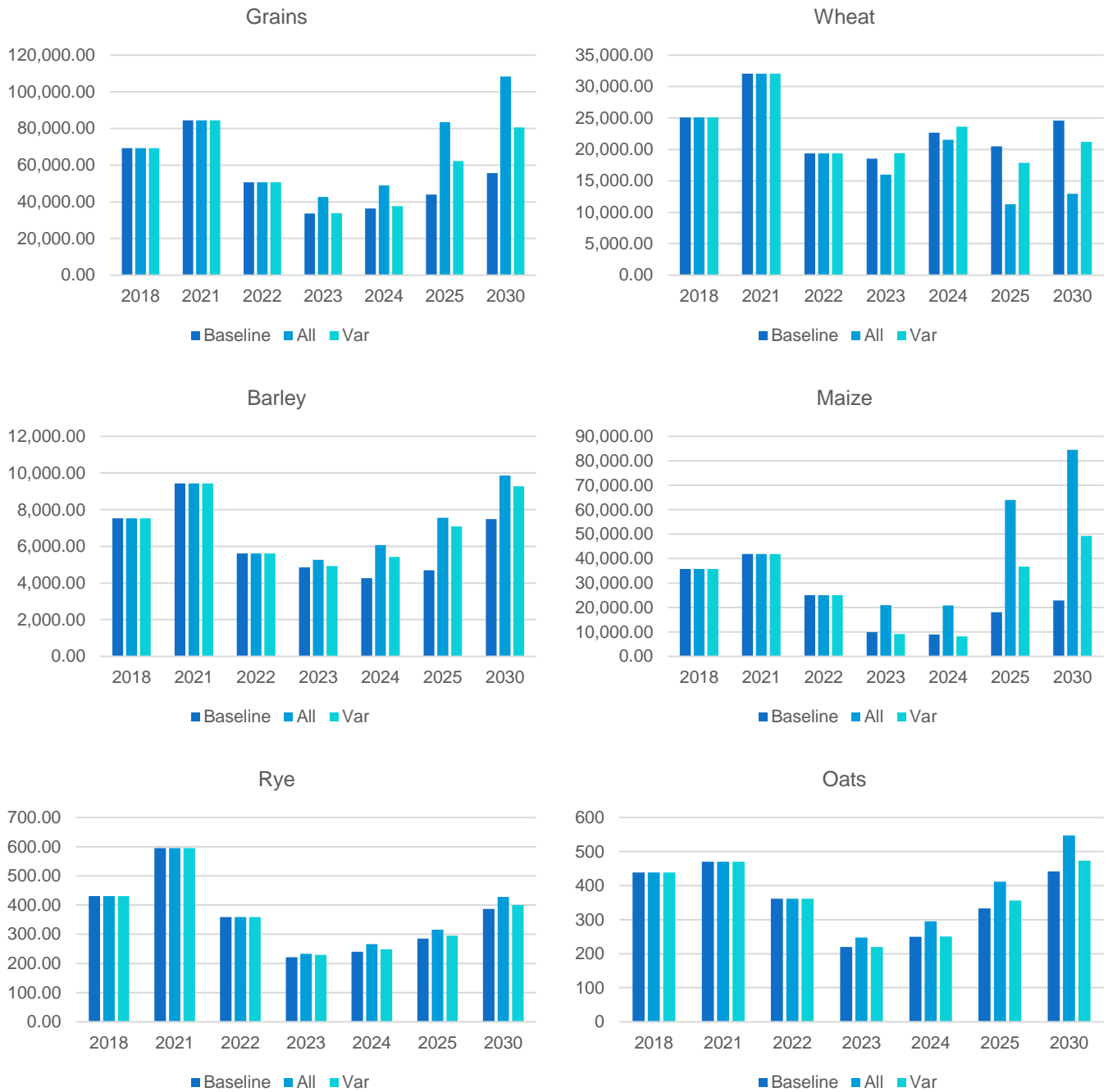


Figure Production of cereals in 2018-2030, thsd t Source SSSU for 2000-2022, own elaboration for 2023-2030



#### Conclusions for the cereals and oilseeds production:

- production of barley, rye and oats is projected to grow steadily with and without the costs compensation,
- wheat production will be substituted by corn. The costs compensation will facilitate this process,
- corn production will be most responsive to the financial aid, as compared to the other crops,
- yields of rapeseed and sunflower will react strongly to the support. This will drive the oilseeds production to a quicker recovery,
- soya beans production will have a very weak reaction to the support.

## CONCLUSIONS

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As the RF's war in Ukraine goes on, the Ukraine's agricultural sector loses the resources for recovery. The decouples financial aid covering production costs, all or in part, will allow to recover the sector rather quickly. The modelling results show that corn, rapeseed and sunflower will be the crops reacting to the support the strongest, meaning that their growth levels in terms of yields or areas harvested or both will be most impressive.

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