

The background is a vibrant blue with a complex pattern of glowing white and light blue lines, resembling a digital or data network. In the upper center, there is a large, semi-transparent sphere with a bright, multi-pointed starburst or sunburst effect emanating from its center. The overall aesthetic is high-tech and futuristic.

# ***Integrating Data and New Technologies into Agricultural Mechanization for Climate Resilient Agriculture***

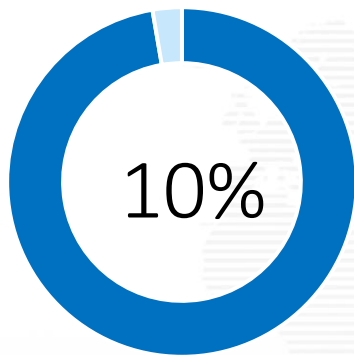
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# Preface

In recent years, the global warming trend has intensified. And historical experience has shown that climate warming is closely related to the probability and severity of natural disasters such as droughts and floods, which posed enormous challenges to agricultural production and food security.

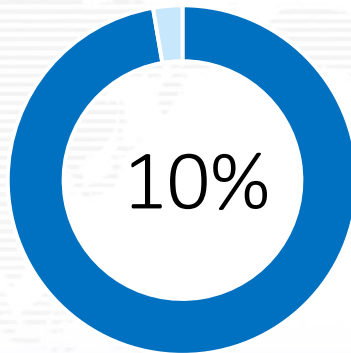


# Preface



China

The annual reduction in grain production due to natural disasters exceeds 50 billion kilograms, accounting for about 10% of total grain production.



Global

In 2020, about 800 million people globally, that is 10% of the total population have faced food as a result of climate change.

**Climate Change**

increases the uncertainty of agricultural production

threatens the lives of vulnerable groups in ecologically fragile and poor areas

**Integrating Data and New Technologies into Agricultural Mechanization**



will help to mitigate this shock and help farmers to adapt to climate change proactively

# Ways and Means



## **Facilitates Advance Organization of Agricultural Production Activities to Prevent Losses from Occurring**

### **A. "Weather monitoring + agricultural mechanization".**

Through real-time morning temperature, humidity, wind and other data in the field, and analyzing meteorological data, the farmers can choose the right type of agricultural machine and arrange production operations such as sowing, plant protection and fertilizer in a timely manner.

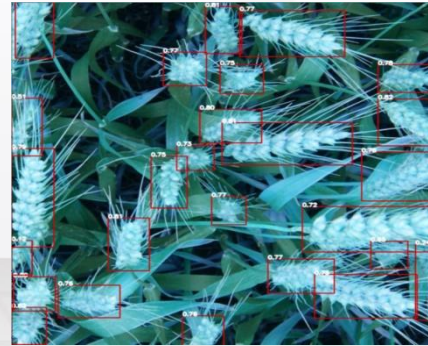


# Ways and Means

## B. "Agricultural monitoring + big data of weather + agricultural mechanization".

Installing sensors to agricultural machinery, to determine crop growth with the help of advanced visual recognition technology, and combined with the analysis of meteorological data on corresponding days in previous years, to schedule mechanized harvesting to avoid sudden shifts in climate.

For example, in some farms, crop maturity can be monitored by satellite remote sensing data. When 95% of the wheat is monitored to be mature, combined with weather conditions, the mechanized harvesting operation can be arranged, avoids high mechanical harvesting loss rate due to premature or delayed harvesting that can affect the yield.





# Ways and Means

## II

**Helps minimize damages in case of disasters**

### **A. "Smart Agricultural Machinery + Multi-Machine Cooperative Operation Technology".**

During the critical seasons of summer grain harvesting and autumn grain planting or emergency pest controlling, by adding GPS navigation and remote sensing devices to agricultural machinery, and using multi-machine cooperative optimization algorithms, the managers can rationally dispatch and allocate agricultural mechanization service teams, so that the harvesting and sowing or plant protection can still be completed efficiently when extreme weather such as continuous rainy weather occurs, thus to avoid or minimize the losses.



For example, in April 2021, affected by high temperature and high humidity, a concentrated outbreak of wheat blast disease was observed in Anhui, China. More than 20,000 drones have completed emergency control of 18 million acres of wheat in batches in less than 20 days by utilizing this technology to ensure yields.

# Ways and Means

## B. "Unmanned" technologies.

With the application of the unmanned agricultural mechanization, personnel injury can be mitigated in the event of heat, snow, ice, epidemics and other disasters.



# Ways and Means

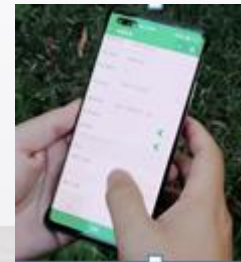


## Assists Smallholders to Avoid Climate Risks

### **“APP + Socialized Service of Agricultural Mechanization”.**

Through the APP, smallholders can directly connect the service providers. Thus, agricultural productions will be done efficiently.

Those apps play a significant role in the summer flood control and drought relief and other important times.





# Ways and Means

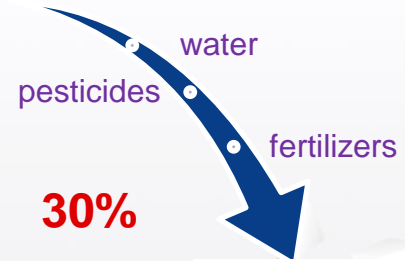


## Contributing to Greening and Climate Resilient Agriculture

**“Smart agricultural machinery + big data + expert decision-making system”.**

With its help, water, medicine and fertilizer can be saved, and the emissions are reduced.

So many research cases showing that the use of big data and new technologies in agricultural mechanization, at least 30% of water, pesticides and fertilizers can be reduced. Thereby to reduce agricultural carbon emissions to mitigate climate impacts.



# Prospect

We hope that, as the new round of technological revolution, in the future, more new technologies and data will be integrated into agricultural mechanization to address the climate change, thus to give strong support for food production.





# THANK YOU FOR WATCHING!

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