大田农社

中国农机社会化服务介绍

Introduction to Socialized Services of Agricultural Machinery in China

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Reporter: Golden Field Technology Co., Ltd. - Xiang Dong

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1. 中国土地（耕地）的变化

1. Changes in Chinese Land (Arable Land)

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01

农民土地所有制

Farmer Land Ownership

农民土地所有，基本实现“耕者有其田”。

Farmer land ownership, essentially achieving the principle of "those who work the land own it."

02

公社集体经营制

Communal collective management system

土地所有权与经营权统一归于公社集体，因参与集体劳动而平均分配集体的收获所得。

Unification of land ownership and management rights in the commune, and equal distribution of the collective harvest for participation in collective work.

03

家庭联产承包制

Family Contract System

个体农民拥有土地使用权，一家一户，小农散户进行生产种植。

Individual farmers own land use rights, and small farmers in small households produce and grow crops

04

适度规模化经营

Moderate scale operation

现在推行土地适度规模化生产，集中形式有亲属委托种植、土地流转、大规模托管生产等。

Nowadays, the promotion of land production on an appropriate scale is concentrated in the form of entrusted cultivation by relatives, land transfer, and large-scale hosting production.

2. 中国农业生产形式的变化
Changes in the form of agricultural production in China

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中国农业生产形式的变化
Changes in the form of agricultural production in China

生产作业
production operation

人力+畜力
Manpower + animal power

人+机械化
Human + Mechanization

机械化+信息化
Mechanization + Informatization

田间管理
land management

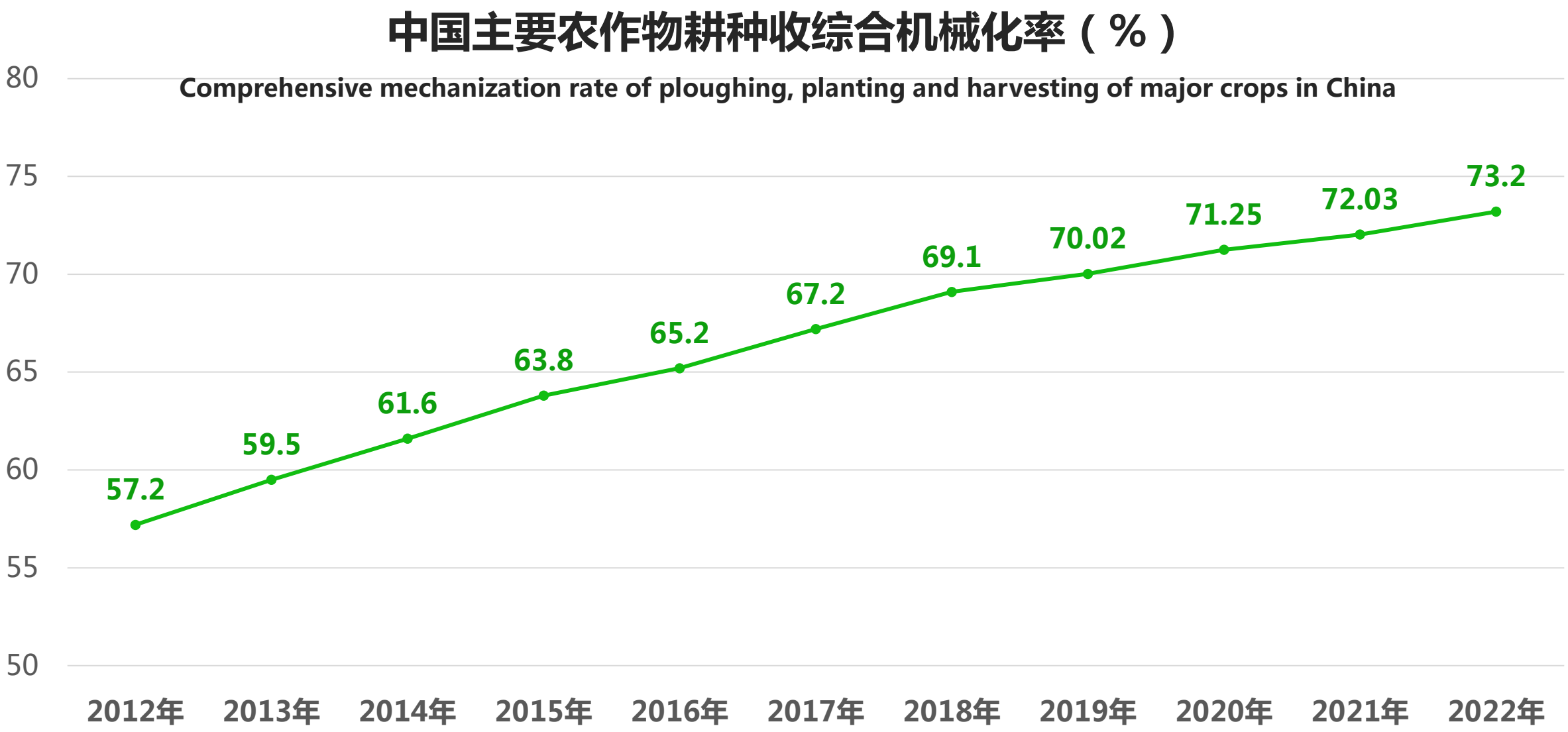
人(老把式)
Human

人+智能设备
Human + Equipment Acquisition

人工智能+智能装备
Artificial Intelligence + Intelligent Equipment

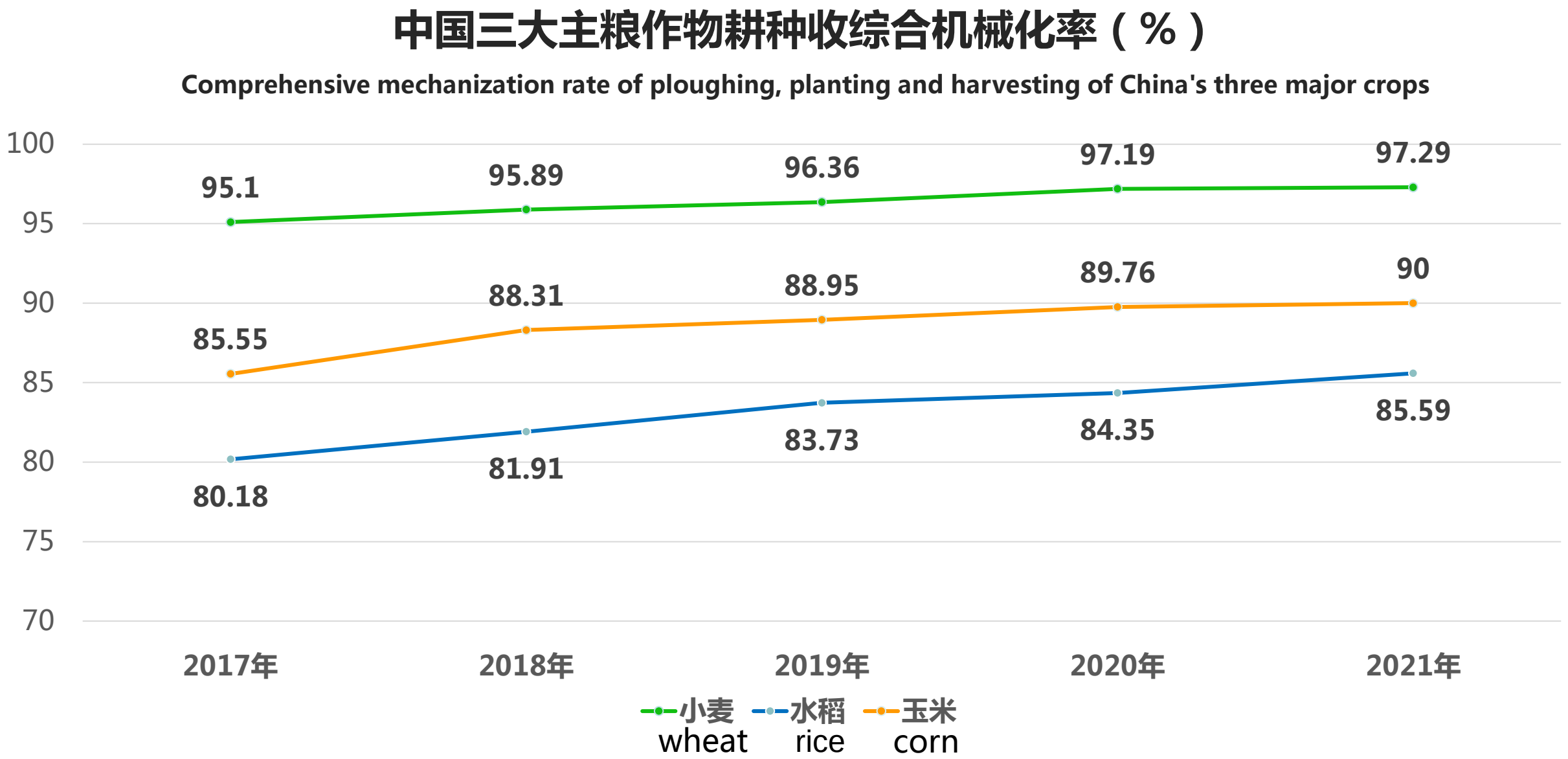
中国主要农作物生产的机械化发展状况

Development of mechanization of major crop production in China



中国主要粮食作物生产的机械化发展状况

Development of mechanization of major grain crop production in China



政策推动：两融合两适应三创新
Policy facilitation: two integrations, two adaptations, and three innovations

通过“两融合两适应三创新”，补短板、强弱项、促协调，推动农业现代化发展。

Through "two integrations, two adaptations, and three innovations", it will make up for shortcomings, strengthen weaknesses, promote coordination, and promote the modernization of agriculture.

两适应Two adaptations

农机服务模式与农业适度规模经营相适应

机械化生产与农田建设相适应

The agricultural machinery service mode is compatible with the moderate-scale operation of agriculture

Mechanized production is compatible with farmland construction

02

两融合Two integration

农机与农艺融合

机械化与信息化融合

Fusion of Agricultural Machinery and Agronomy

Fusion of mechanization and informatization

三创新Three Innovations

科技创新　机制创新

政策创新

Science and Technology Innovation Mechanism Innovation Policy Innovation

3. 中国农业生产服务形式的变化

Changes in the form of agricultural production services in China

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01

Individual

个人

service

服务

个人

Individual

02

Individual + organization

个人+组织

service

服务

个人+组织

Individual + organization

03

Organization+individual

组织+个人

service

服务

组织+个人

Organization + individual

未来

Future

Organization

组织

service

服务

组织

Organization

中国农业生产服务形式的趋势

Trends in the form of agricultural production services in China

"Farmers have farm machinery."
Not suitable for the modernization of our agriculture

“种田者有农机”
不适合我国的农业现代化发展

“农机社会化服务”
更利于推动我国的农业机械化发展

"Socialized services for agricultural machinery"
More conducive to promoting the development of agricultural mechanization in China

中国农业生产服务发展现状（截止2021年）

Current status of development of agricultural production services in China (as of 2021)

农业社会化组织

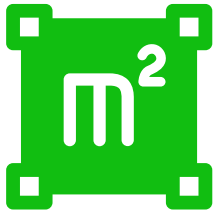
Agricultural socialization organizations

104.1万个

农机专业合作社

Agricultural machinery specialized cooperatives

7.61万个



服务覆盖面积

Service coverage area

18.7亿亩次

带动小农户

Led smallholder farmers

8900万户

农机社会化服务为保障农业生产、减少粮食损失、增加农民收入作出突出贡献，充分发挥了生产主力军作用。

Socialized agricultural machinery services have made outstanding contributions to safeguarding agricultural production, reducing food losses, and increasing farmers' incomes. It has given full play to its role as the mainstay of production.

4. 中国农机社会化服务内容的变化

Changes in the content of China's agricultural machinery socialization services

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The past
过去

单一作业服务

耕、种、管、收

Single-operation services
Tillage, planting, management, harvesting

Nowadays
现在

全程作业服务

耕种管收后处理

Full range of operational services
Tillage, planting, management and post-harvest handling

The future
未来

全链条社会化服务

生产资料服务

农机作业服务

田间管理服务

粮食产后服务

Full-chain socialized services
Agricultural Machinery Operation Service
Field management service
Grain post-production services

5. 中国农业生产组织形式的变化

Changes in the organization of agricultural production in China

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过去
The past

自主决定生产，供需双方无规划

产出农产品：品种多样、规格不一、品质层次不齐

供需矛盾：产销不对称

Self-determination of production, no planning between supply and demand
Output of agricultural products: diverse varieties, different specifications, different levels of quality
The conflict between supply and demand: the asymmetry between production and marketing

未来
The future

耕地集中后，进行订单式规模化生产

产出农产品：按需生产，标准统一，品质有保障

供需矛盾：产销高效对接，解决矛盾

Order-based large-scale production after the concentration of arable land
Output of agricultural products: production according to demand, standardization, and quality assurance.
Conflicts between supply and demand: efficient docking between production and marketing to solve the conflicts.

6.中国农业生产服务的未来

The future of agricultural production services in China

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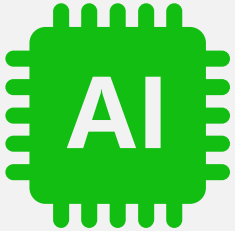
服务主体
数字化

Service Subjects
Digitization

服务内容
全程化

Services
Totalization



生产作业
智能化

Production Operations
Intelligent

田间管理
智慧化

Field Management
Intelligent

中国农业生产服务-服务主体数字化

China's Agricultural Production Services-Digitization of Service Subjects

借助数字化、信息化手段
By means of digitalization and informatization

“软硬兼施”提升服务主体数字化能力
Enhancement of the digitalization capacity of service providers through a combination of "soft and hard" measures

Enhancing the capacity of agricultural machinery for precision work
提升农机精准作业能力

- 北斗+农机管理
  Beidou + Agricultural Machinery Management
- 精准作业
  Precision work

＋

Enhancement of decision-making capacity for field management
提升田间管理决策能力

- 各类数据采集手段
  Various means of data collection
- 生产决策
  production decision

＋

Enhancement of production and operation management capabilities
提升生产运营管理能力

- 管作业 operation
- 管机手 operator
- 管生产 production
- 管生资 income

中国农业生产服务：服务内容全程化

China‘s Agricultural Production Services ：Full-Service Content

提供耕、种、管、收机械化
生产作业服务

Provision of mechanization of cultivation, planting, management and harvesting Production operation services

提供全程农机作业服务
全程农业生产社会化服务
种、肥、药生产资料+耕、种、管、收作业服务+粮食收获后处理服务

Provide a full range of agricultural machinery operation services Socialization service for the whole agricultural production Seed, fertilizer, medicine production materials + tillage, planting, management, harvesting Operational services + post-harvest grain processing services

中国农业生产服务-生产作业智能化

China Agricultural Production Services - Intelligent Production Operations

农业生产作业全过程

The whole process of agricultural production operations

生产动作
production action

耕 | 种 | 管 | 收 | 粮食烘干 | 秸秆还田

逐步实现生产作业少人化、无人化
Progressive realization production operations Less humanization, Unmanned

耕地作业
Farmland operation

插秧作业
Transplanting operation

田间管理
field management

收获作业
Harvest work

粮食烘干
Grain drying

秸秆还田
Straw returned to the field

中国农业生产服务-田间管理智慧化
China Agricultural Production Service-Field Management Intelligence

农业种植管理全过程的少人化
Miniaturization of the whole process of agricultural cultivation management

- 摄像头
- 传感器-农机
- 农情监测站
- 土壤监测设备
- 长势监测设备
- 虫情监测设备
- 流量传感器
- 无人机
- 卫星遥感

数据获取
Data Acquisition

Camera
Sensor Farming
Agricultural monitoring stations
Soil monitoring equipment
Growth monitoring equipment
Pest monitoring equipment
Flow Sensor
Drones
Satellite Remote Sensing

农业生产数字大脑
Digital brain for agricultural production

诊断
diagnosis

Diseases and insect pests
Growth
Grasses
Moisture content

- 病虫害
- 长势
- 草害
- 墒情

决策

Medicate
Fertilizing
Irrigation
Weeding

- 打药
- 施肥
- 灌溉
- 除草

7.中国农业生产服务主体的升级模式
Upgrading Model of Chinese Agricultural Production Service Main Body

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Technology Application
Competence Enhancement
Problem-Solving

技术应用

能力提升

问题解决

科技赋能-软硬结合
Technology Enablement

采用北斗技术进行生产作业

Adoption of Beidou technology for production operations

提升精准作业能力

采用数字科技进行田间管理

Adopting digital technology for field management

提升田间管理能力

采用数字化进行运营管理

Digitalization Operation Management

提升经营管理能力

农机作业质量从有到优

田间管理水平从弱到强

生产规模一大就亏

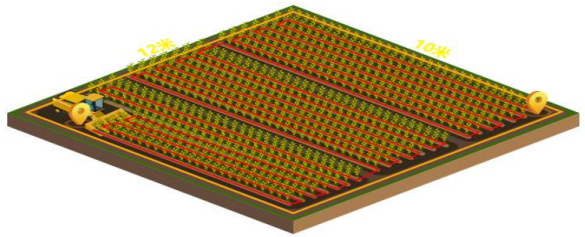
Agricultural machinery operation quality from there to excellent. Field management level from weak to strong. A large scale of production is a loss

“北斗+农机” 当前应用现状

"Beidou+Agricultural Machinery" Current Application Situation

北斗终端-外挂式

BeiDou terminal-external



各类北斗外挂终端

实现生产信息化管理

Various types of Beidou external terminals
Realize production information management

自动驾驶-嵌入式

Automated Driving - Embedded

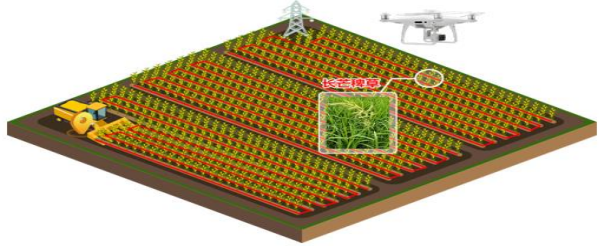
北斗导航辅助驾驶系统

实现精准作业和质量管理

Beidou Navigation Assisted Driving System
Realize precise operation and quality management

无人农机-融合式

Unmanned Agricultural Machines - Fusion



北斗导航无人驾驶系统

实现无人智慧农场作业管理

Beidou Navigation Unmanned System
Realization of unmanned intelligent farm operation management

“北斗+农机” 当前应用现状
"Beidou+Agricultural Machinery" Current Application Situation

外挂式：北斗定位终端 External: Beidou positioning terminal




北斗定位终端

Beidou positioning terminal

采集

定位终端

- 农机位置
- 作业轨迹
- 作业面积

Position, Trajectory, Area

输出

Application Scenarios

应用场景

Agricultural Machinery Purchase Subsidies
Regulation of machinery

- 农机购置补贴
  机具监管
- 农机应用补贴
  作业面积依据

Agricultural Machinery Application Subsic
Operating area basis

“北斗+农机” 当前应用现状
"Beidou+Agricultural Machinery" Current Application Situation

外挂式：北斗工况终端 External: Beidou working condition terminal




Beidou working condition terminal

北斗工况终端

采集

工况终端

- 位置
- 柴油机工况
- 轨迹
- 面积
- 排放标准

Position, Working condition, Trajectory, Area, Emission standards

输出

Application Scenarios
应用场景

- 环保部国四柴油机排放监测 Diesel engine emission monitoring
- 农机企业产品运维远程监测 Agribusiness Products Operation & Maintenance Remc Monitoring

“北斗+农机” 当前应用现状
"Beidou+Agricultural Machinery" Current Application Situation

外挂式：北斗作业终端 External: Beidou Operational Terminal

作业监控终端

采集

作业终端三要件

作业面积：北斗定位>作业轨迹>作业面积

作业质量：传感器>深度、数量

作业场景：摄像头>拍摄场景照片

输出

Application Scenarios

应用场景（农机作业补贴）

Deep loosening, deep tilling

深松、深翻

return straw to the fields

秸秆还田

no-tillage sowing

免耕播种

mechanical transplanting of rice seedlings

机插秧等

Operation area: Beidou positioning>Operation track>Operation area
Operation Quality: Sensor > Depth, Quantity
Scene of operation: Camera>Scene photo

“北斗+农机” 当前应用现状

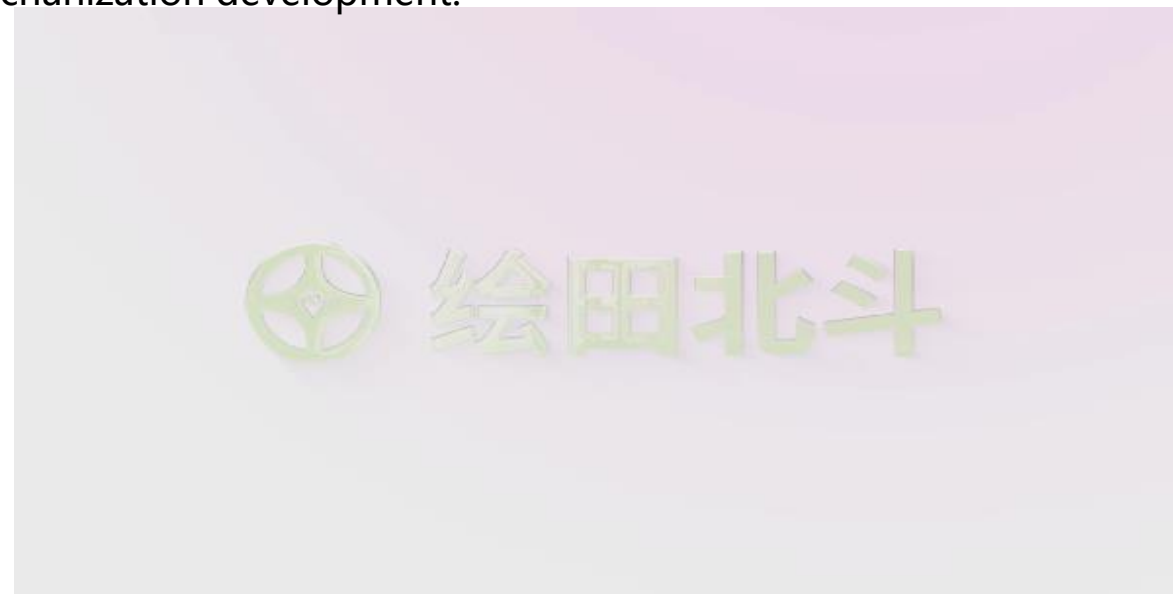
"Beidou+Agricultural Machinery" Current Application Situation

嵌入式：北斗辅助自动驾驶系统

Embedded: Beidou Assisted Autonomous Driving System

北斗精准定位，定位精度2cm；路径规划，最优作业路线；辅助驾驶作业，直线自主行驶；让精准农业、机艺融合等得到了很好的应用，农业机械化作业“从有到优”，提升农业机械化发展质量。

Beidou precise positioning, positioning accuracy of 2cm; planning path planning, the optimal operating route; assisted driving operations, straight-line autonomous driving; so that precision agriculture, machine art fusion and other good applications, agricultural mechanization operations "from there to the best", to enhance the quality of agricultural mechanization development.



“北斗+农机” 当前应用现状

"Beidou+Agricultural Machinery" Current Application Situation

Convergent: unmanned systems for agricultural machinery

融合式：农机无人驾驶系统

Autonomous driving system

无人驾驶系统

北斗高精准定位
定位精度毫米级
BeiDou Highly Accurate Positioning
Positioning accuracy of millimeters

各类传感器
感知作业环境
Various types of sensors
Sensing the operating environment

路径规划
最优作业路线
Path planning
Optimized route

AI无人驾驶
完全自主行驶
AI driver
Fully autonomous driving

Application Scenarios

应用场景
智慧农业生产

大面积
连片式
高标准
多机协同
无人作业模式

Large area
Continuous
High standard
Multi-machine synergy
Unmanned operation mode

农机无人驾驶应用示例
Examples of unmanned agricultural machinery applications

Tillage, planting, harvesting and production

耕种管收生产环节
全覆盖 complete coverage

Hangar field transfer operations

机库田间转移作业
全自动 automatic

Automatic obstacle avoidance

自动避障异况停车
保安全 safty

Crop production processes

作物生产过程实时
全监控 monitor

Intelligent decision-making and work

智能决策精准作业
全无人 automatic

“农田+物联网设备”，提升田间管理能力“

Farmland + IoT devices" to improve field management capabilities

农情监测站
Agricultural monitoring stations

土壤环境监测设备
Soil environment monitoring equipment

作物长势监测设备（户外）
Crop growth monitoring equipment (outdoor)

生产环境视频监控设备
Production environment video surveillance equipment

大棚环境监测设备
Environmental monitoring equipment for greenhouses

作物长势监测设备（大棚）
Crop growth monitoring equipment (greenhouses)

无人机UAV

物联网虫情测报灯
Internet of Things (IoT) Insect Detection Lights

物联网+人工智能集成应用，实现田间管理数字化

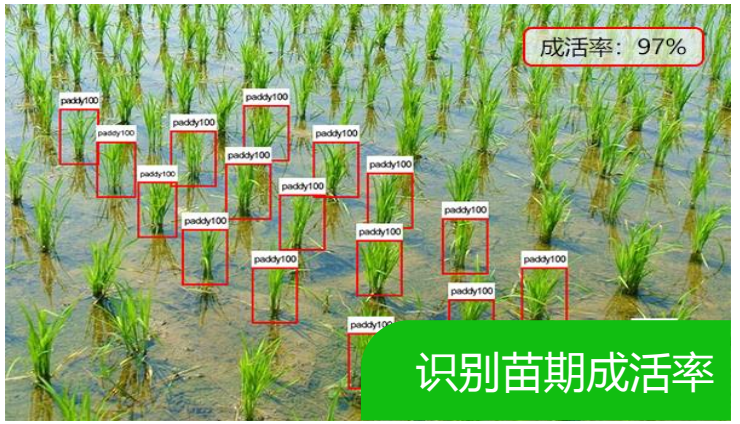
IoT+Artificial Intelligence Integrated Application to Digitalize Field Management

可提高整体优质秧苗约5%-10%

Improves the overall quality of seedlings by about 5-10 percent

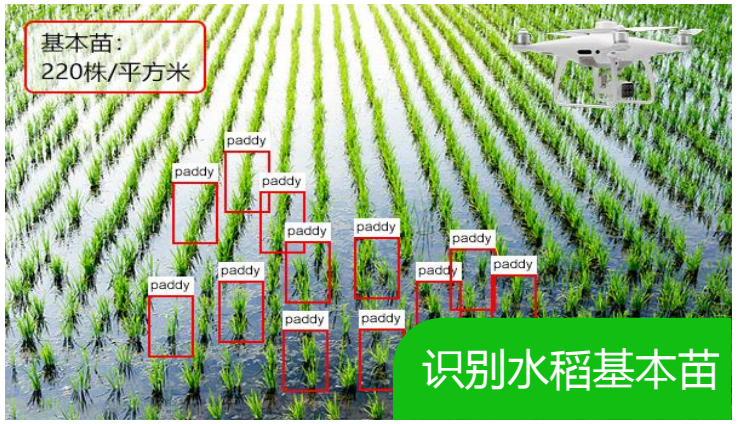
根据漏插率情况 可增产约3%-5%

Depending on the leakage rate, the yield can be increased by about 3%-5%.



根据成活率及时补救 可减少损失约3%-5%

Timely remediation can reduce losses by about 3-5%, depending on survival rates.

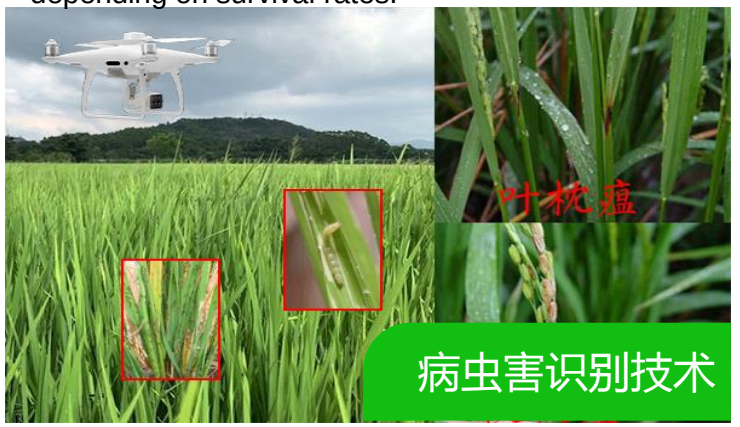


根据苗情长势精准施肥，可增产5%-10%

Precise fertilization according to seedling growth can increase yield by 5%-10%

根据草害及时防治，可减少损失3%-5%

Timely control according to grass infestation can reduce losses by 3%-5%



根据病虫害及时防治，可增产约3%-5%

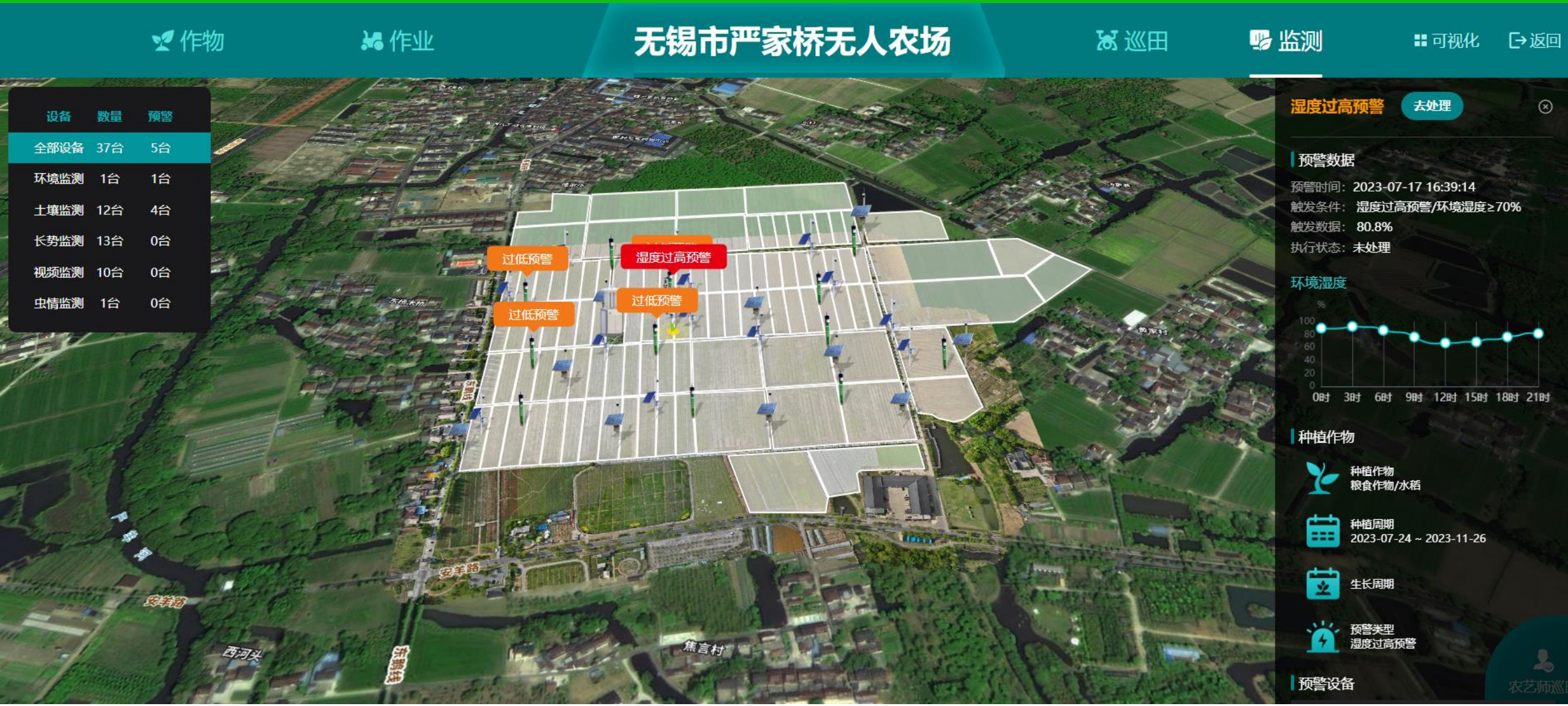
According to the timely control of pests and diseases, the yield can be increased by about 3%-5%

病虫草害识别与诊断，提升田间管理能力。

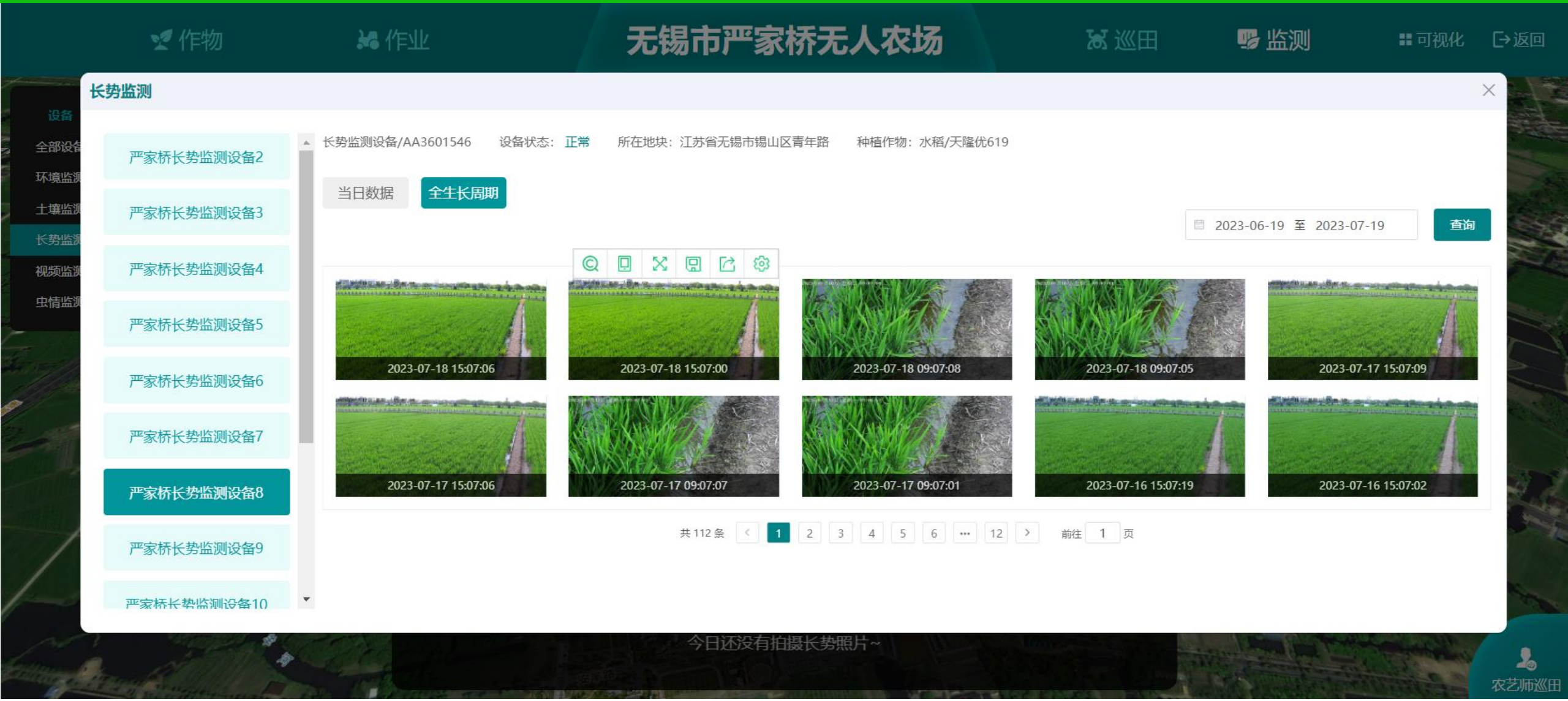
Pest and weed identification and diagnosis to improve field management.

智慧农场建设-田间管理智慧化示例

Smart Farm Construction-Field Management Intelligence Example



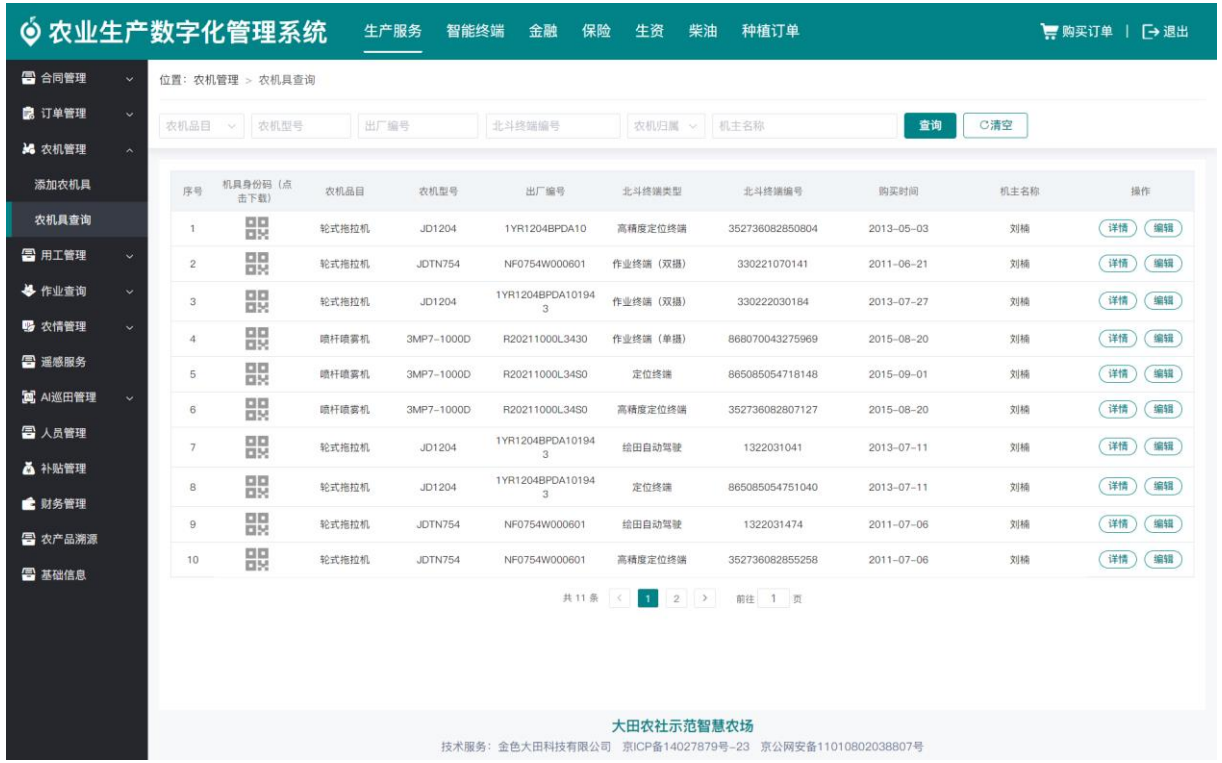
智慧农场建设-田间管理智慧化示例
Smart Farm Construction-Field Management Intelligence Example



智慧农场建设-田间管理智慧化示例
Smart Farm Construction-Field Management Intelligence Example

“信息技术+管理模型集成应用”，实现生产运营数字化

IT+Integration Application of Management Model, Digitization of Production and Operation



提升水稻规模化种植的生产运营管理能力，提高管理边际。

Enhance the production and operation management capability of large-scale rice cultivation and improve the management margin.

通过信息化管理方式，提高生产管理效率，规范日常管理；规避日常经营生产过程中的“跑冒滴漏“等问题。

Improve production management efficiency and standardize daily management through information management; avoid problems such as "running, dribbling, and leaking" in the daily operation and production process.

通过标准化、精细化的管理，让生产管理更加规范、更加细致入微，降低运营成本。

Through standardization and refinement of management, production management is more standardized and detailed, and operating costs are reduced.

管合同 | 管人员 | 管订单 | 管装备 | 管作业 | 管用工 | 管财务 | 管补贴

Contract， Staff，Orders，Equipment，Operation，Human Resource，Finance，Subsidy

智慧农场建设-生产运营数字化示例

Smart Farm Construction - Production Operation Digitization Example

大田农社

谢谢大家的聆听

Thank you all for listening.

大田农社，愿与您一起
用科技为农业赋能

Dada Farming Society, together with you
Empowering Agriculture with Technology