



FIELD INNOVATION

How Technology is Improving Smallholders' Productivity and Sustainability

Justin Gong
Co-founder, XAG





- *Founded in **2007***
- ***1,400+** Employees*
- ***800+** Developers & Engineers*
- ***550+** Distributors Worldwide*
- ***290+** Training Facilities*
- ***53,000+** UASs Sold*
- ***1,300,000** Farm Customers*

**XAG R&D Centre**

**XAG Operating Centre**

**XAG Manufacturing Centre**

**XGEOMATICS Data Centre**

**XAG EDUCATION Research Centre**

XAG DRONE OPERATION SCALE

21,731

UAS (Set)

791,832

Total Time (Hr)

4,253,299

Total Acreage (Ha)

6,513,951

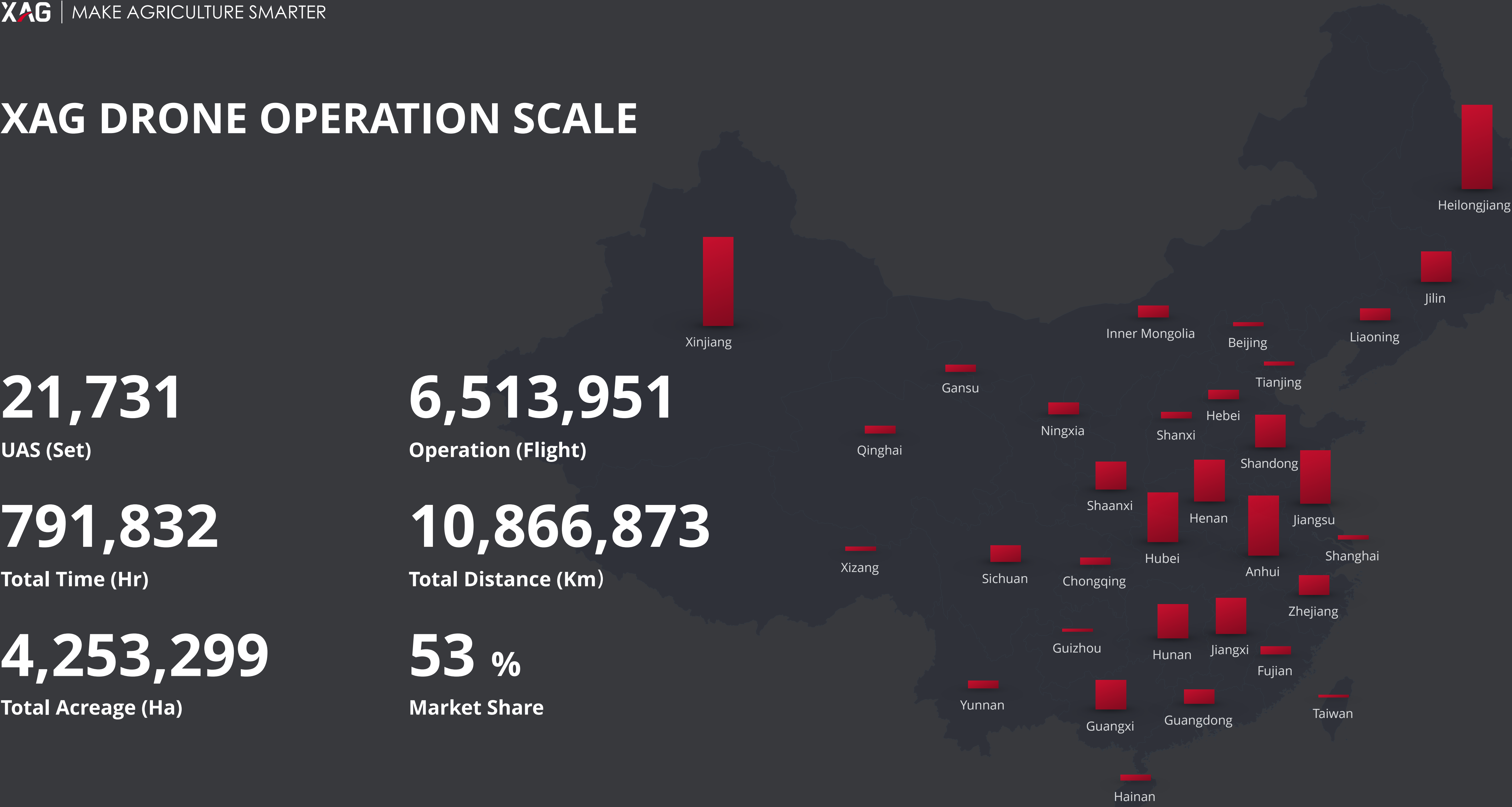
Operation (Flight)

10,866,873

Total Distance (Km)

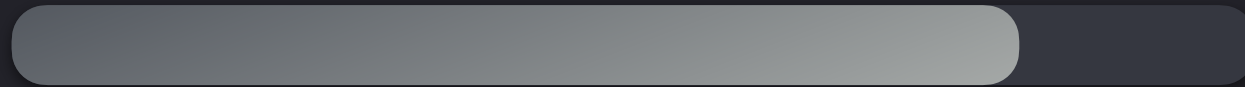
53 %

Market Share



AGRICULTURE MECHANISATION IN CHINA

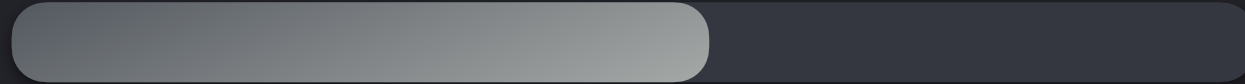
Cultivating 81%



Planting 53%



Harvesting 56%



Managing 7%



Manual Spray

- Low Efficiency
- Labour-intensive
- Imprecise
- Soil Pollution
- High Poisoning Risk

Tractor Spray

- Only for Large Farms
- Imprecise
- Water-consuming
- Soil Compaction
- Soil Pollution
- Crop Damage

Airplane Spray

- Only for Large Farms
- Chemical Drift
- Water-consuming
- Soil Pollution
- Limited by Runway
- High Cost



ECOLOGICAL CRISIS

34.8%

Asia / World
Arable Land

51.7%

Asia / World
Pesticide Use

3 Million

Cases of Pesticide
Poisoning Occur Every
Year Worldwide

250,000

Deaths Resulting from
Pesticide Poisoning
Every Year Worldwide

Source: FAOSTAT, WHO

We Need A



SOLUTION



Build Digital Farming Infrastructure

Generate HD Field Map
Build RTK Navigation Network
Enabling High Precision Agri-services
Provide Infrastructure for Autonomous Vehicle

Standardise Agri-services
Pave the Way for Auto Agri-machinery



Provide Autonomous Platforms for Precision Agriculture

Autonomous UAS Replaces Traditional Methods
Save Labour & Improve Production Efficiency
Reduce 30%+ of Pesticide & 90%+ of Water
Eco-friendly, Improve Production Quality & Safety

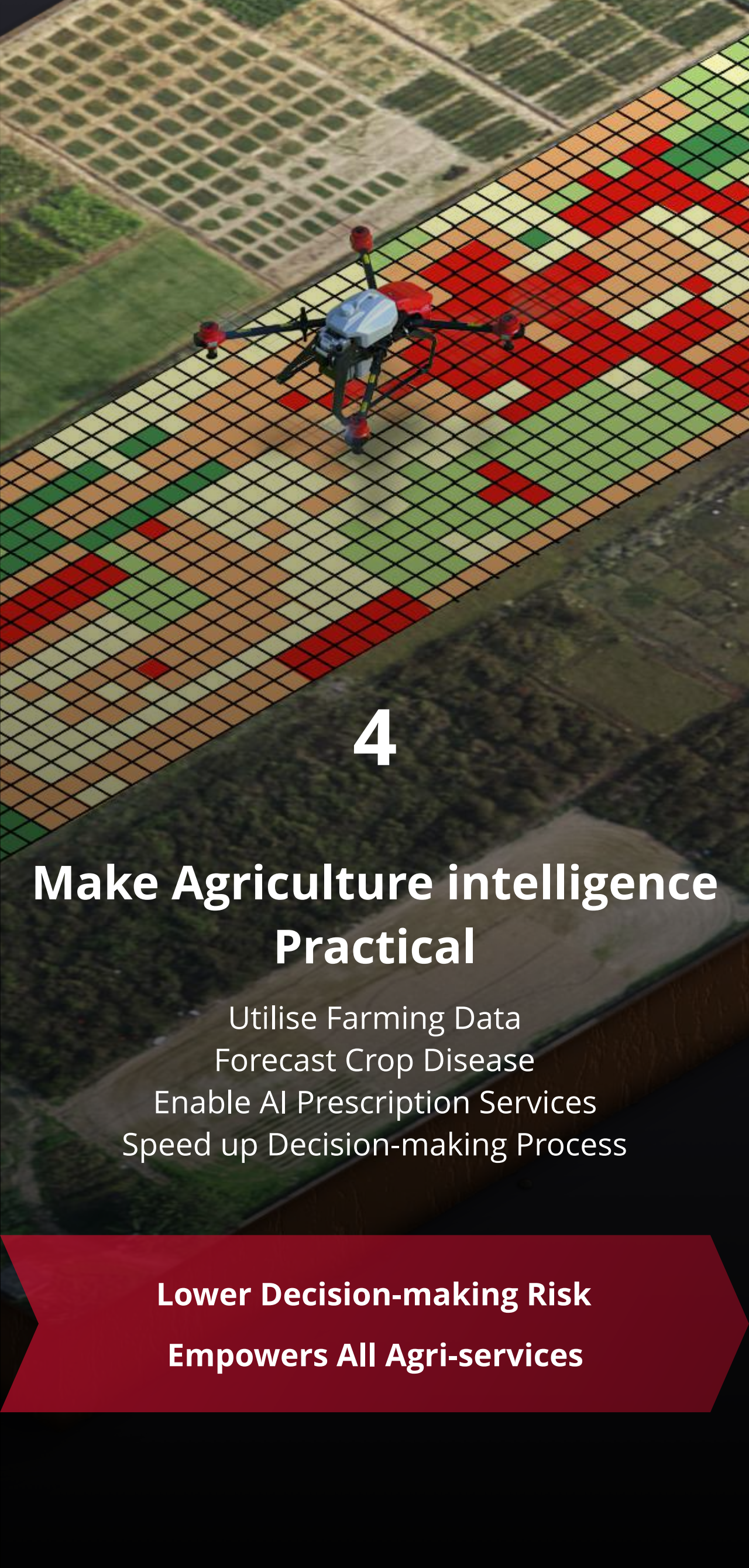
Lower Production Cost
Improve Produce Quality



Connect Land, Crop, Farmer and Consumer

IoT Technology Assists Farming Decision-making
Manage Farmland Scientifically with Big Data
Make Agriculture Production Traceable
Build Trust between Farmers and Consumers

Rebuild the Trust b/w
Consumers & Farmers

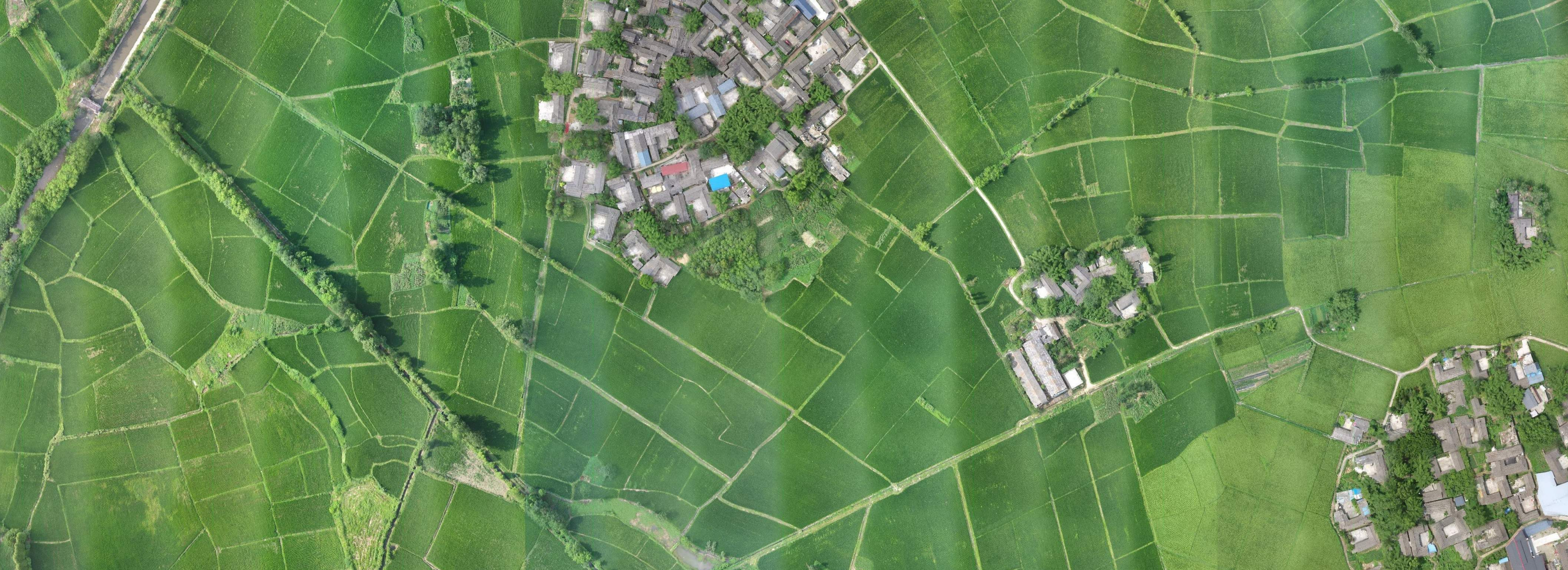


Make Agriculture intelligence Practical

Utilise Farming Data
Forecast Crop Disease
Enable AI Prescription Services
Speed up Decision-making Process

Lower Decision-making Risk
Empowers All Agri-services

XAG SMART AGRICULTURE SOLUTIONS



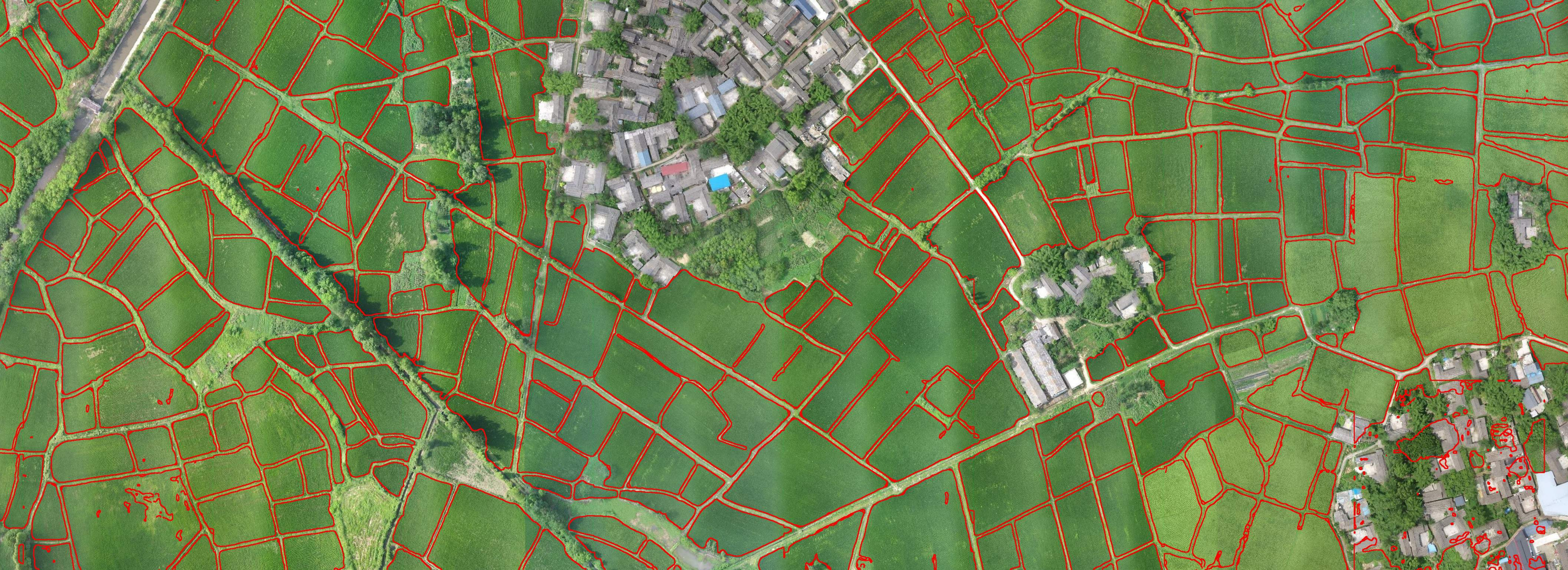
Field Edge Recognition

Deep Learning / Image Segmentation



Field Edge Recognition

Deep Learning / Image Segmentation



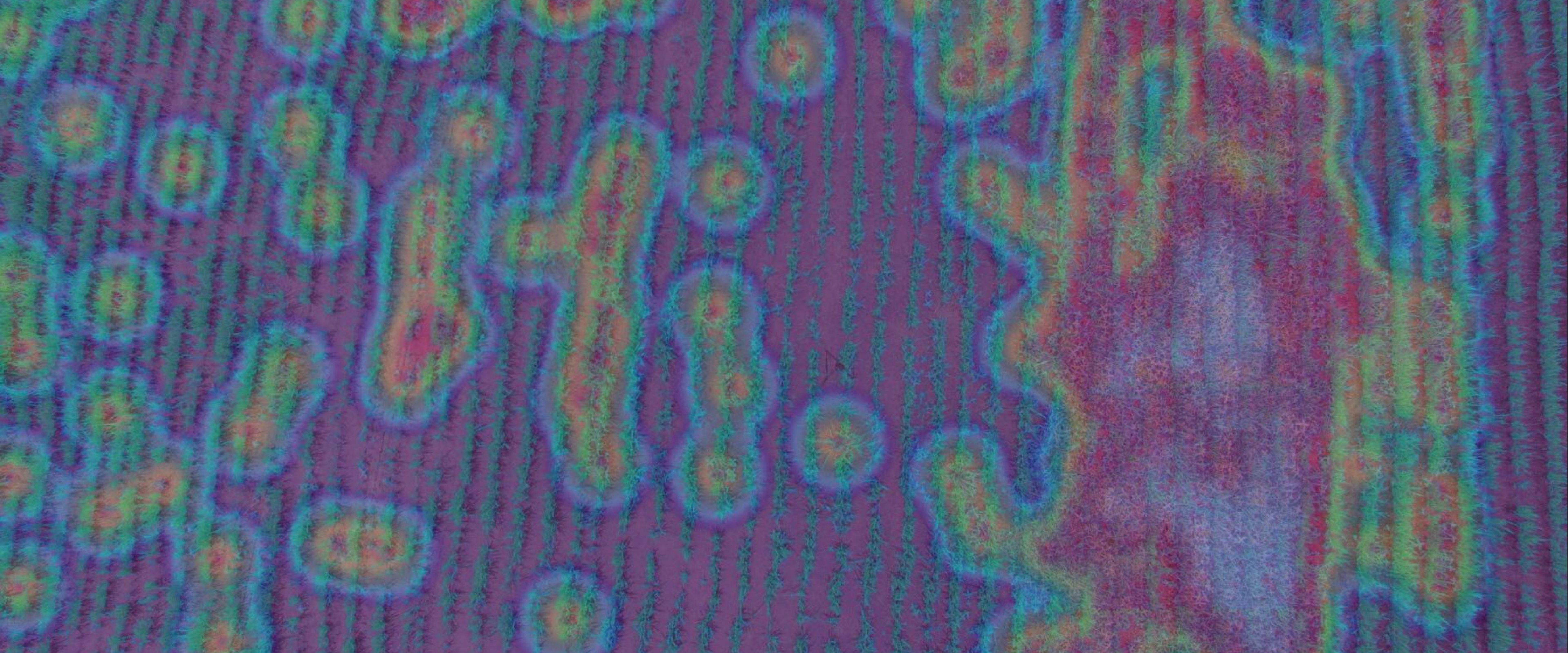
Field Edge Recognition

Deep Learning / Image Segmentation



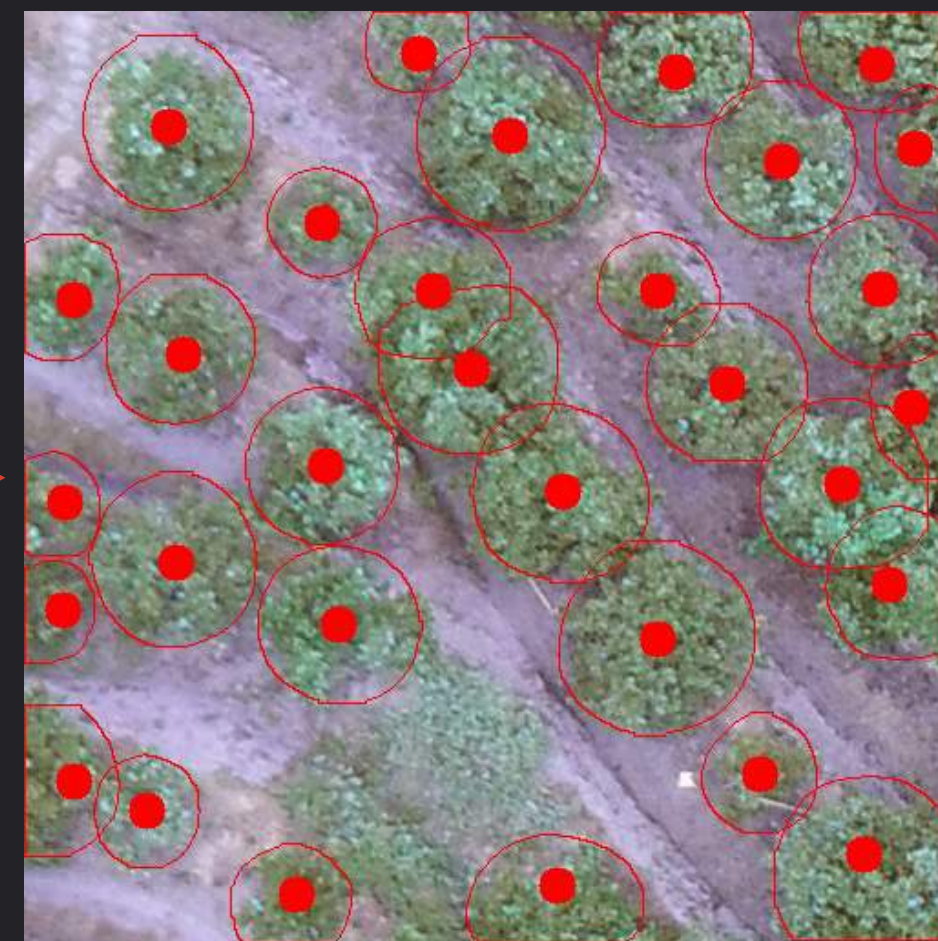
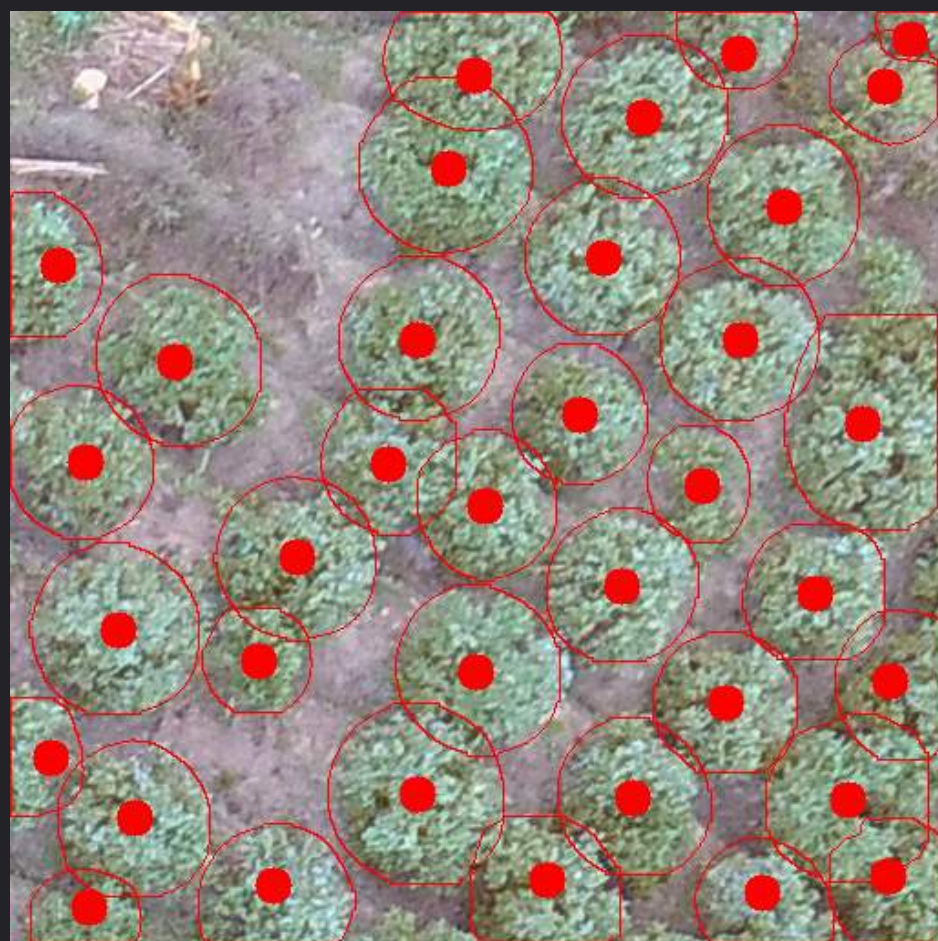
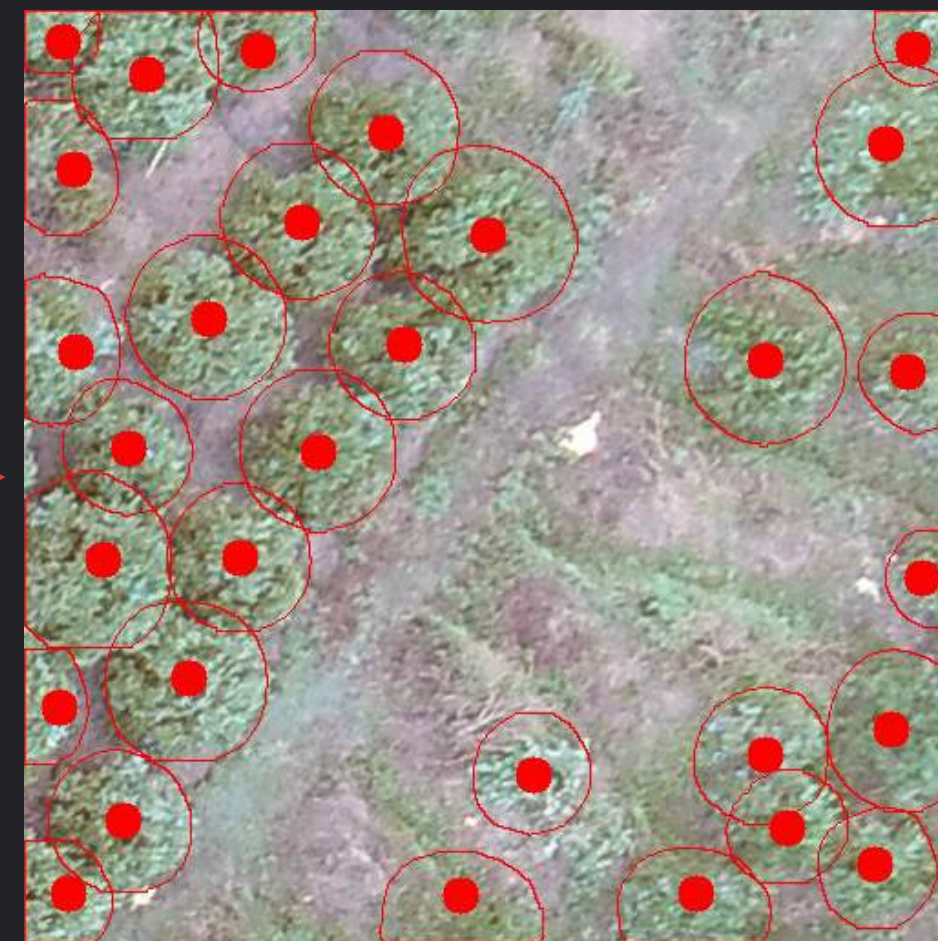
Rice Weeds Detection

Deep Learning / CrowdNet



Rice Weeds Detection

Deep Learning / CrowdNet



Fruit Tree Locating & Edge Recognition

Deep Learning / R-CNN

XAG SMART AGRICULTURE SOLUTIONS



XAG SMART AGRICULTURE SOLUTIONS

4



AutoPilot Optimisation



Boundary Identification



Crop Statistics



Prescription Map



Production Guiding



Soil Optimisation



Yield Prediction



Accurate Recommendation



Top | Decision-making Layer (XAI Agricultural Intelligence)

3



Wireless Sensor Network



Mobile Internet



RTK Navigation Network



Data Centre



Cloud Information & Monitoring System



Agri-produce Traceability System



3rd | Connectivity Layer (XIoT Agricultural Internet-of-things & Cloud Computing)

2



Obstacle Avoidance System



Terrain Reader



HD RGB Camera



MultiSpectrum Camera



FarmCamera



FarmMonitor



2nd | Perception Layer (XSense Information Sensing/Perception Devices)

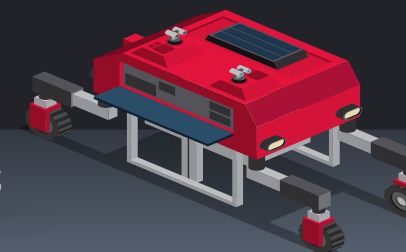
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Plant Protection UAS



Surveying UAS



Agri-robot



Control & Navigation System



Remote Control System



Dispensing & Spraying System



Liquid Refilling System



Power System



Bottom | Execution Layer (XPlatform Hardware Systems)



Product Operating

Aftersales Service

National-wide Service Centre
Quick Response Service Team
Full Coverage Product Care
Third Party Liability Insurance



Battery Rental

Yearly Unlimited Battery Rental Plan
Lower Threshold & Ease Anxiety
Improve Efficiency & Profitability

Training & Education



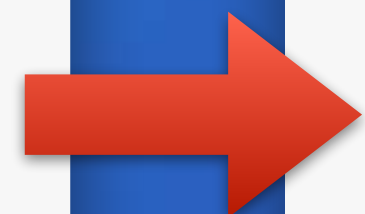
Training (UAS, Basic Aeronautic, Agricultural Knowledge, etc.)
Operator & Coach Licencing (XAGA Certificate, AOPA Class V, CASA RePL, etc.)
Knowledge Sharing (News, Wikis, Expertise, Experience, Live, Discussion, etc.)



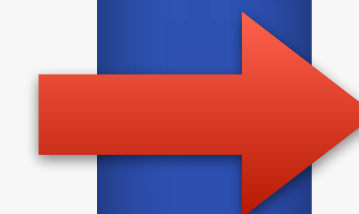
University-enterprise Cooperation
Robotic & UAS Related Curriculum
Collaborative Laboratories
Next-gen UAS & Agricultural Talents



Course A (Theoretical, Online Study & Exam)



Course B (Practical, Field Training & Assessment)



XAG ACADEMY

**XAG ACADEMY Plant Protection/Surveying
UAS Operator/Coach Certificate**



AOPA Class 'V' Drone Pilot Licence



Australian Government

Civil Aviation Safety Authority

CASA Remote Pilot Licence (RePL)



Theoretical Knowledge



Airframe Structure



Pre-flight Check



Repair and Maintenance



Agricultural Knowledge



Safety Guidelines



Standard Operation Procedure



Field Trial



**Comprehensive CropScience
Research Facilities**



**Advanced Chemical Compound
Engineering Capabilities**



**World Leading Drone
Application Technologies**



**Top Rated Agricultural
Scientists and Experts**



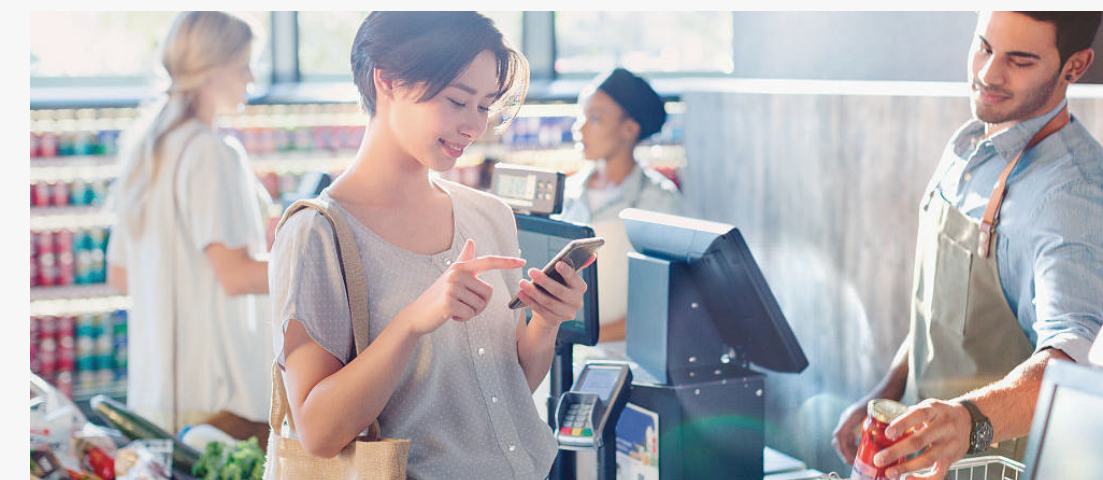
**24/7 Production Monitoring
and Transparency**



**Professional Farming
Technical Support**



Sophisticated Consumer Big Data



Complete Supply Chain Network

Thank You!

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