



# **Practical exploration of digital technology in agriculture and rural areas in Zhejiang**

---

**Zhejiang Provincial Department of  
Agriculture and Rural Affairs**

**Nov. 2020**



## ZHEJIANG A&R AREAS



In recent years, digital technology has been accelerating its integration into various fields of Zhejiang's agriculture and rural areas, and continuously spawning new business forms, new models, and new driving forces. Meanwhile, it has played a significant role in promoting the digital transformation of agricultural and rural areas and realizing agricultural and rural modernization.



## I. Upgrade rural information infrastructure in an all-around way.

- The focus is to improve rural network conditions, technical equipment and service facilities, **laying a good basis for agricultural and rural digitalization.**



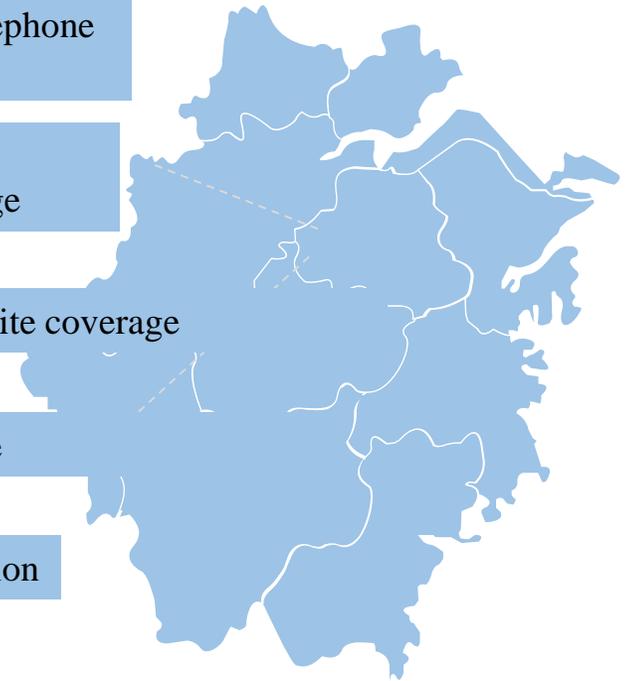
100% of rural telephone penetration

100% of mobile communication signal coverage

100% of administrative village website coverage

98.4% of broadband coverage

88.6% of Internet penetration





# •The cooperative application platform of digital agriculture, rural areas and farmers

## 浙江省数字三农协同应用平台

数据仓 < 三农地图 < 工具箱 < 业务应用

浙江

请输入关键字 安庆市

土地 主体 装备 区划 村庄 监测 机构

天地图

The platform contains a database where 66 thematic databases have been built; a geographic three-dimensional information map, which displays farmers contracted land, agricultural entities, 12,000 marine fishing boats in Zhejiang province; a toolbox containing data, interface standards, etc.



# Zhejiang Agricultural Code

- “Zhejiang Agricultural Code” uses QR codes, NFC, RFID, etc. as identification carriers to provide a unified digital ID card for people, things, and organizations in the agriculture-related areas in Zhejiang province, with the aim to realize on-line handling of affairs, on-line marketing, on-line supervision by using the code.





## •II. Digital application in production management

- At present, Zhejiang province has carried out two batches of **163** digital agricultural factory pilots, which has driven the digital transformation of **1,052** planting and breeding bases and effectively improved the land output rate, resource utilization rate and labor productivity.





## Case 1: Vegetable Factory



Through using clean agricultural production technologies and equipment such as sand culture, water culture and aerosol culture, establish a digital management and control system for **the entire process** from the garden to the table, and set up a standardized, high-quality, green “**digital agricultural and ecological factory**”.



## Case 2: Digital Animal Husbandry

- Build a digital animal husbandry factory which is a standardized, green, circular base in large-scale.





# Case 2: Digital Animal Husbandry



## 农信测试3号场 - 育肥舍2

### 盘猪估重

260	4821.1	0.86
猪只/头	总重/kg	日均增重/kg
18.54	51.62	24.89
均重/kg	均长/cm	均宽/cm

### 自动饲喂

	2.31
	料肉比
	1.99
	均采食/kg
	611
	总采食/kg
	1.76
	均饮水/L
	543
	总饮水/L

### 水电用量

	37.50		545.09
	用水量/吨		用电量/度



### 高危预警 中危预警 更多 >>

	育肥舍2	07:00:03
	氨气 40.22 ppm↑	14:00:35
	温度 28.56 °C↑	14:00:35
	湿度 83.41 %↑	

### 环境监测

	光照	107.41lx
	室外温度	31.19°C
	氨气	40.22ppm
	二氧化碳	419.99ppm
	温度	28.56°C
	湿度	83.41%

### 设备状态

	电子围栏	总1台在线1台
	环控设备	总1台在线0台
	AI摄像头	总6台在线6台



## Case 3: Runway Recirculating Aquaculture



- “Runway Recirculating Aquaculture” in Nanxun District



### III. Digital application in circulation and marketing



Lin'an · Bainiu  
Village

- In the first half of 2020, Zhejiang has **24,000** active agriculture-related online stores, with online retail sales of agri-products reaching **RMB 42.93 billion** through e-commerce platforms, Tik Tok and online celebrity live broadcasting.





# Case: Lin'an Bainiu Village

➤ By building Lin'an pecan industry cloud platform and applying IoT technology and big data analysis models, conduct real-time display and analysis of pecan pests and diseases, and send early warning information to management departments and farmers.



AI video recognition equipment at pecan bases



•UAV mapping and aircraft spraying pesticides at pecan bases



Weather station equipment at pecan bases



# •Case: Lin'an Bainiu Village

- The digital platform of Bainiu E-commerce Town focuses on the development of digital tourism, digital villagers, digital assets, and rural governance to back up the development of e-commerce industry in Bainiu Village and **build an online Bainiu E-commerce Town.**





# IV. Digital application in industry supervision

- The **digital agricultural security** app was applied in 47 counties in Zhejiang province, and **63,000** large-scale entities were put under management, of which **22,000** entities realized the traceability of agricultural product quality and safety, and “online law enforcements” were fully applied.





# Case: fertilizers and pesticides



➤ Digital technology is applied to all the processes of fertilizers and pesticides including purchasing, selling, using, and recycling, in order to realize the whole-process digital traceability of fertilizers and pesticides





## V. Digital application in public services

- With two online platforms including Zhezhengding and Zheliban, provide online services related to the production and life of farmers and realize 100% online acceptance and handling of administrative licensing matters at the provincial level.





## V. Digital application in public services



- Each village has an information agency for farmers, so that farmers don't need to go to village committees or departments for dealing with problems.

- There are **2.92 million farmer mailbox** users, which have sent a total of **13.6 billion** text messages and **7.6 billion** emails, opening up the “last mile” of information services





## VI. Digitalization in rural governance

- Adhere to the concept of “overall smart governance”, initiate the construction of a **digital platform for rural governance at the provincial level**, and promote the demonstration of digital rural construction in **4 cities and 11 counties (cities, districts)**, so that digital technology can effectively empower rural governance and make governance more targeted.





# Case: Smart Rural Governance in Deqing County



- Relying on geographic information, big data, and Internet of Things technologies, Deqing has created a “**digital village map**” to realize the dynamic presentation of rural conditions, visual supervision of the rural environment, and closed-loop processing of rural affairs.



# Case: Smart Rural Governance in Deqing County

➤ Explore the construction of the One-Three-Five” overall framework

- 1-Set up a data base for rural governance
- 3-Build an application system with one map, one terminal, one center
- 5-Promote digitalization in five major areas



序号	项目	事项
01	建设基于CIM的动态交互的数字乡村治理全景图	CIM三维实景地图建模
02		人口动态迁移感知系统全覆盖
03		乡村治理遥感监测
04		乡村治理多规合一应用
05		乡村地名地址数据库建设
06		生活垃圾分类智能监管全覆盖
07		推动数字技术在粮食生产功能区和渔业养殖基地应用
08		完善农产品质量安全追溯管理系统
09		统战阵地数字化项目
10	健全乡村治理交互移动平台（钉钉、我德清）	“我德清”平台建设
11		基层治理四平台、掌上基层APP升级
12		乡村政务服务数字化全覆盖
13		数字公交项目
14		建设乡村数字家庭医生平台
15		乡村旅游数字化项目
16		智慧养老项目
17		农村工匠线上培训
18		数字档案基层治理共享项目
19	构建县域（乡村）数字治理中心	打造县域（乡村）数字治理中心
20	数字治理中心	建立“治理直通车”三服务长效机制

乡村经营

乡村服务

乡村监管

乡村治理

基础设施

- The “Lafei” APP provides **digital, real-time and transparent** whole-process garbage services including separating, collecting, collecting, transporting and disposing of garbage through Internet + big data technology.





# Current main problems

## 1. Relatively insufficient hardware facilities for rural informatization

The construction of new infrastructure such as 5G relatively lags behind, and the construction of agricultural and rural big data has just started.



## 2. Insufficient innovation and application of digital technology

The research and development of rural digital technology lags behind, and there is a lack of economical and practical intelligent agricultural production equipment and technology.





# Current main problems

## 3. Insufficient effective data resources in agriculture and rural areas

Agricultural and rural data resources at all levels are scattered, online platforms are not open enough, and there are "information islands".



## 4. Insufficient digital talents in rural areas

There is a serious shortage of professional and technical personnel who know about both agriculture and informatization.





# Plans for the next period

## Firstly

Upgrade and improve the digital cooperative application platform for agriculture, rural areas and farmers and do a good job in data collection and in-depth application.

## Secondly

Expand the application of 5G and blockchain technology in agricultural production, industry supervision, public services, rural governance and other areas, and promote the transformation of research outcomes into real productivity as soon as possible.

## Thirdly

Strengthen the cultivation of talent teams to provide personnel guarantee for the development of digital villages





**Thank you!**

---

