



健康  
畜禽

Healthy  
Livestock

# Tackling Antimicrobial Resistance through improved livestock **Health & Welfare**

## WP1 Outcomes in EU and CN



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Funded by:



Horizon2020

## Overall objective of WP1

To reduce the risk of pathogen introduction, exposure and spread on modern intensive broiler and pig farms in China and Europe through the development and application of **tailor-made herd biosecurity protocols** and **health plans**



# WP1 Progress in EU

Two **Biosecurity Risk Analysis Tools and Protocols** for broiler and pig farms, developed to:

1. to **assess systematically disease risks related to housing and management** in broiler farms and pig farms
2. to **define farm tailor-made health plans** including **biosecurity protocols** and adapted to the farm specific risks
3. to **monitor the risk mitigation** by means of **biomarkers**



# Biosecurity Risk Analysis Tools (BEATs)

based on two conceptual approaches previously developed and used for biosafety risk analysis:

1. the Biocheck.UGent, which is an elaborate of the University of Gent to check for the biosecurity status on farm
2. the FAO 3zone-biosecurity model

## Protocols

based on **biomarkers** = markers or indicators of a biological process or pathological states, providing information on a current status of future risk of disease of an individual (Pletcher et al., 2011; Moore et al., 2007).

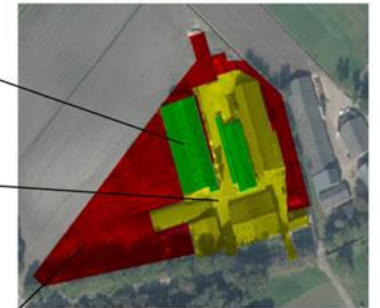


### 'Coat rak': defining on-farm risk zones

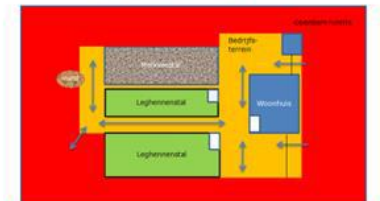
[elaboration of FAO 3zone biosecurity model, 2015]

- Green zone with broiler houses and entree rooms: clean, strictly isolated, restricted access
- Orange zone with paved surfaces and functional farm areas: with biosecurity measurements to reduce contamination with 'foreign' manure to medium/low risk
- Red zone with external areas (unpaved roads, ditches, pastures, .. ): high risks, farmers little acting opportunities

By Google-Earth ...

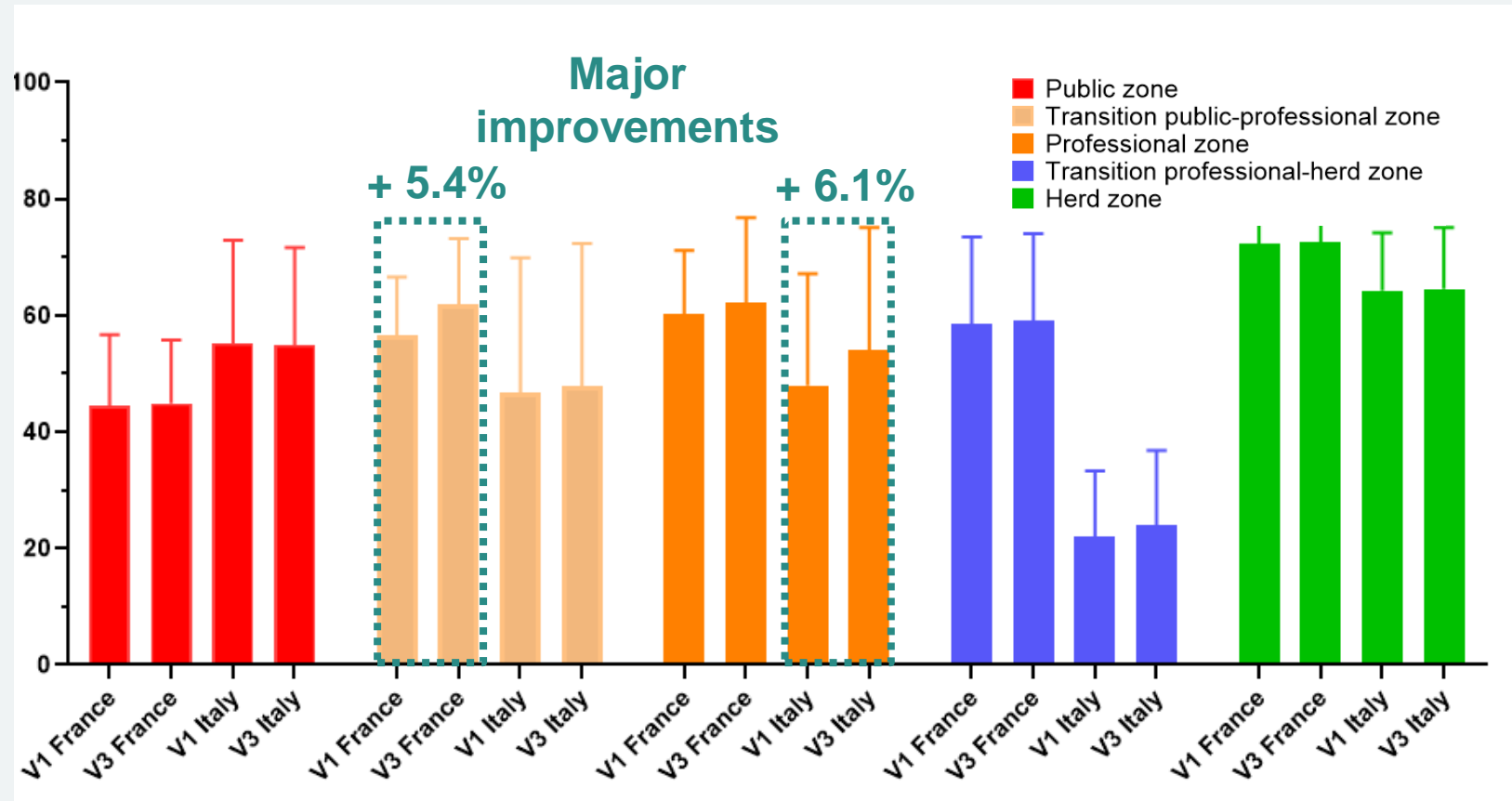


... or schematic



# Outcomes from pig farms

Major improvements in **T1 zone** in French farms and in the **professional zone** in Italian farms



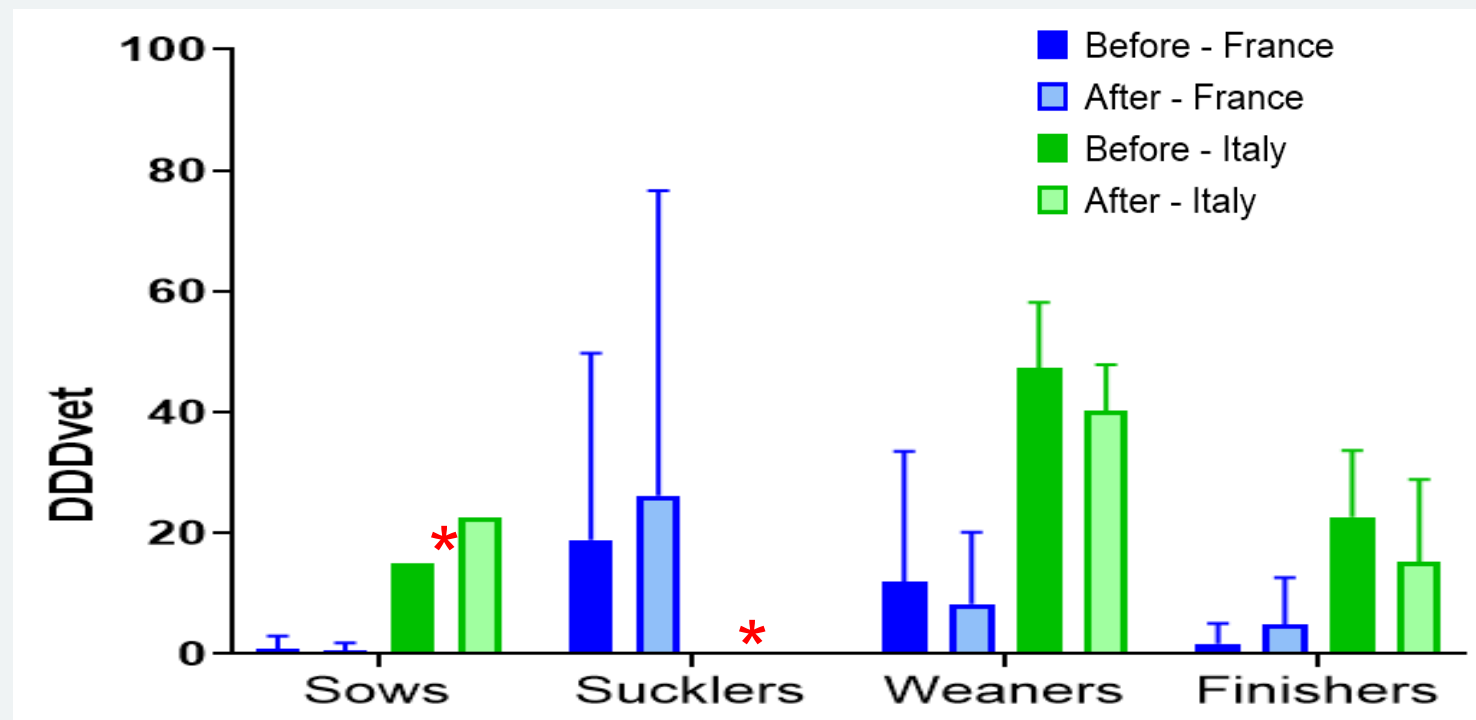
# Outcomes from pig farms

## Antimicrobial use

FR: Main use for piglets and weaners with respectively low increasing and decreasing

IT: Main use for weaners with a decreasing for weaners and finishers

Number of farms	FR	IT
Sows&piglets	13	1*
Weaners		4
Finishers		15



# Outcomes from broiler farms

## Interventions

**NL:** 13 farms - **GR:** 10 farms - **CY:** 7 farms

(farms were not representative of the broiler farms in each country)

Table 2: Number of interventions as shown per cost estimate and amount of time it takes to realize. In brackets the percentage of interventions that was realized at the end of the study period is shown

Term \ Costs	Low	Medium	High
Short	222 (53%)	44 (43%)	0
Medium	88 (51%)	94 (12%)	33 (21%)
Long	0	44 (20%)	111 (1%)

Most interventions were planned for the **green** zone (303), followed by the **orange-green** zone (117), the **orange** zone (104), the **red-orange** transition zone (77), and the **red** zone (32)

# The EU broiler team

## Antimicrobial use

**NL:** 13 farms (no AMU in 3 of them); **GR:** 10 farms; **CY:** 7 farms

Country	AMU	Cycle 1	Cycle 2	Cycle 3	Cycle 4
The Netherlands	n. farms with AMU	3	7	8	4
	days of treatment*	5	3	3	4
Cyprus	n. farms with AMU	6	6	3	2
	days of treatment*	11	4.5	7	6
Greece	n. farms with AMU	15	15	15	15
	days of treatment*	7	5	6	6

\* Median



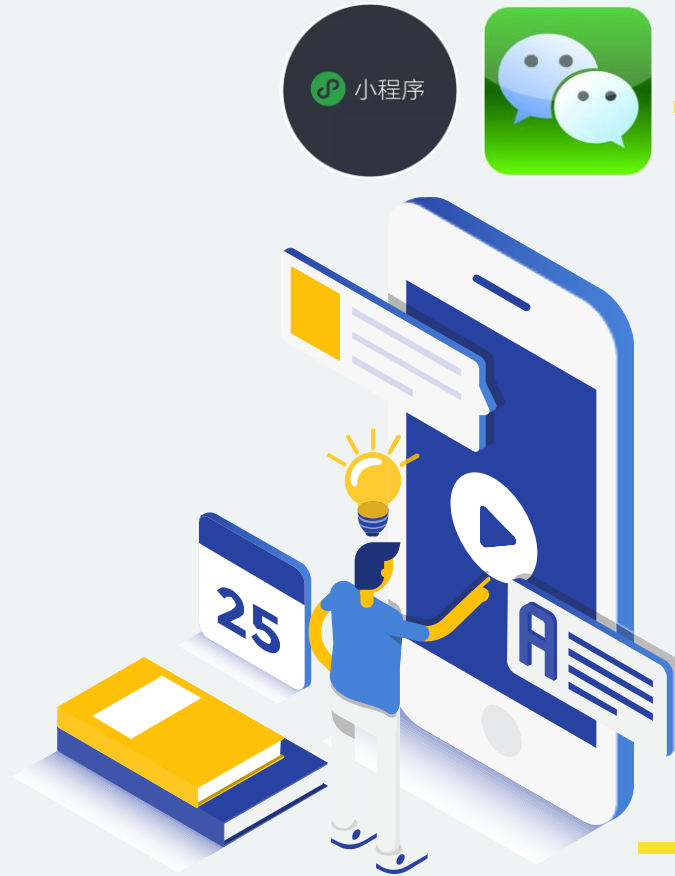
## Main conclusions from the WP1 EU team

- BiosEcurity Analysis Tool (BEAT) was found effective to identify biosecurity **strengths and weaknesses** of pig and broiler farms
- Assessment with BEAT was a **good starting point** for the making of tailor-made health plan for each farm, in agreement with farmers and their vets responsible for herd health, including targets that could be checked and updated in the medium and long term as an **ongoing process**
- Although AMU cannot only be linked to biosecurity only, a **reduction in AMU is** reported for broiler and pigs farms **with higher use** of such antimicrobials
- Interesting to see the **longer-term effects** in the future

**Online risk assessment  
systems for intensive  
pig and broiler farms**



# Online risk assessment system 风险在线评估系统



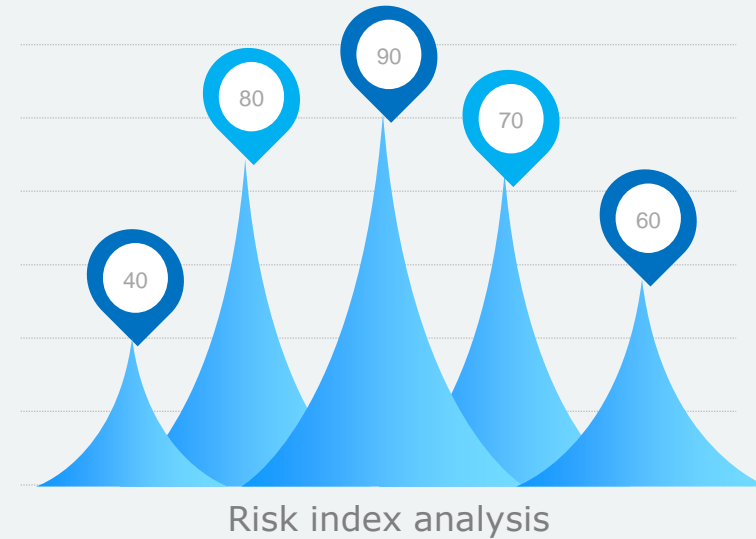
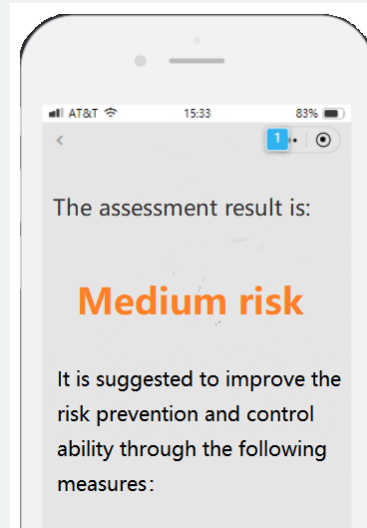
## Wechat applet online risk assessment system

微信小程序在线风险评估系统

- Assessment of epidemic disease risk in intensive pig farms  
规模猪场疫病风险评估
- Assessment of epidemic disease risk in intensive broiler farms  
规模鸡场禽流感风险评估

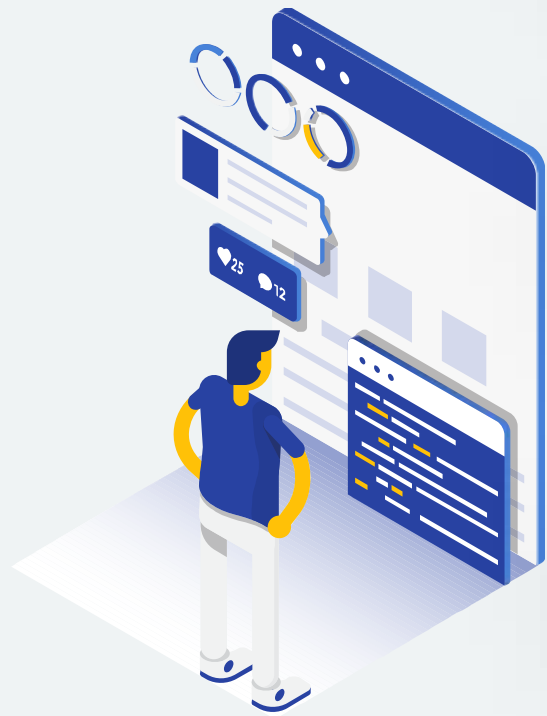
# Online risk assessment system 风险在线评估系统

- ✓ Enables **rapid online** assessment of the risk of introduction, occurrence and spread of diseases in intensive pig/broiler farms  
实现**在线快速**对规模猪场/鸡场传入、发生和扩散疫病的风险进行评估



- ✓ Put forward suggestions on **risk management measures** to help pig/broiler farms improve their bio-prevention and control ability and **reduce the risk level**  
提出**风险管理措施建议**，帮助猪场/鸡场提高生物安全防控能力，**降低风险水平**

# Online risk assessment system 风险在线评估系统



## Development

- Expected to complete the development of online risk assessment system for pig and broiler farms on wechat applet in 2 months.

预计于2个月内完成微信小程序平台的猪场和鸡场在线风险评估系统的开发。

## Application

- Using the online risk assessment system to evaluate more than 40 pig farms and 20 broiler farms in China.

应用风险评估系统对中国至少40个猪场和20个鸡场进行在线评估。

## Promotion

- Promoted as a common biosecurity management tool for pig and broiler farms, realize the risk self inspection, early warning and improvement of farms.

推广成为养殖场常用的生物安全管理工具，实现养殖场的风险自查、预警和完善。



**Thanks for your attention**