

# Are tailor-made health plans effective in triggering changes in pig farm management?

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INRAE

Oniris  
ÉCOLE NATIONALE  
VÉTÉINAIRE, AGROALIMENTAIRE ET DE L'ALIMENTATION



健康  
畜禽

Healthy  
Livestock

BIOEPAR

EAAP – Lyon - 2023



# Animal health is multidimensional

Good  
animal  
condition

High  
performance



Good  
welfare

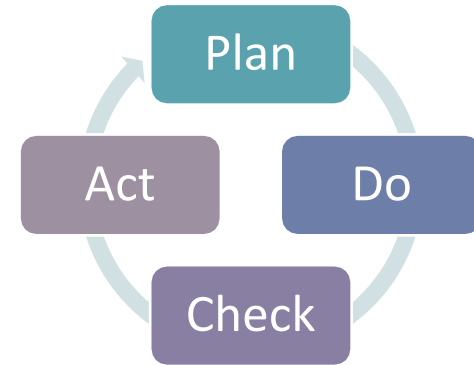
Minimal  
antimicrobial  
use

# Hypotheses and objective

Ambitions for good health can trigger changes in farm management

## A tailor-made health plan

- A set of recommendations for a given farmer
- To achieve and maintain a high health and welfare status
- Tailored to each farm context



## Our objective

- To evaluate the effectiveness of tailor-made health plans in pig farms designed after a systematic biosecurity and herd health audit

# Intervention study in 20 farms in France



- Biosecurity audit
- Farming practice
- Clinical examination
- Performance
- Antimicrobial use

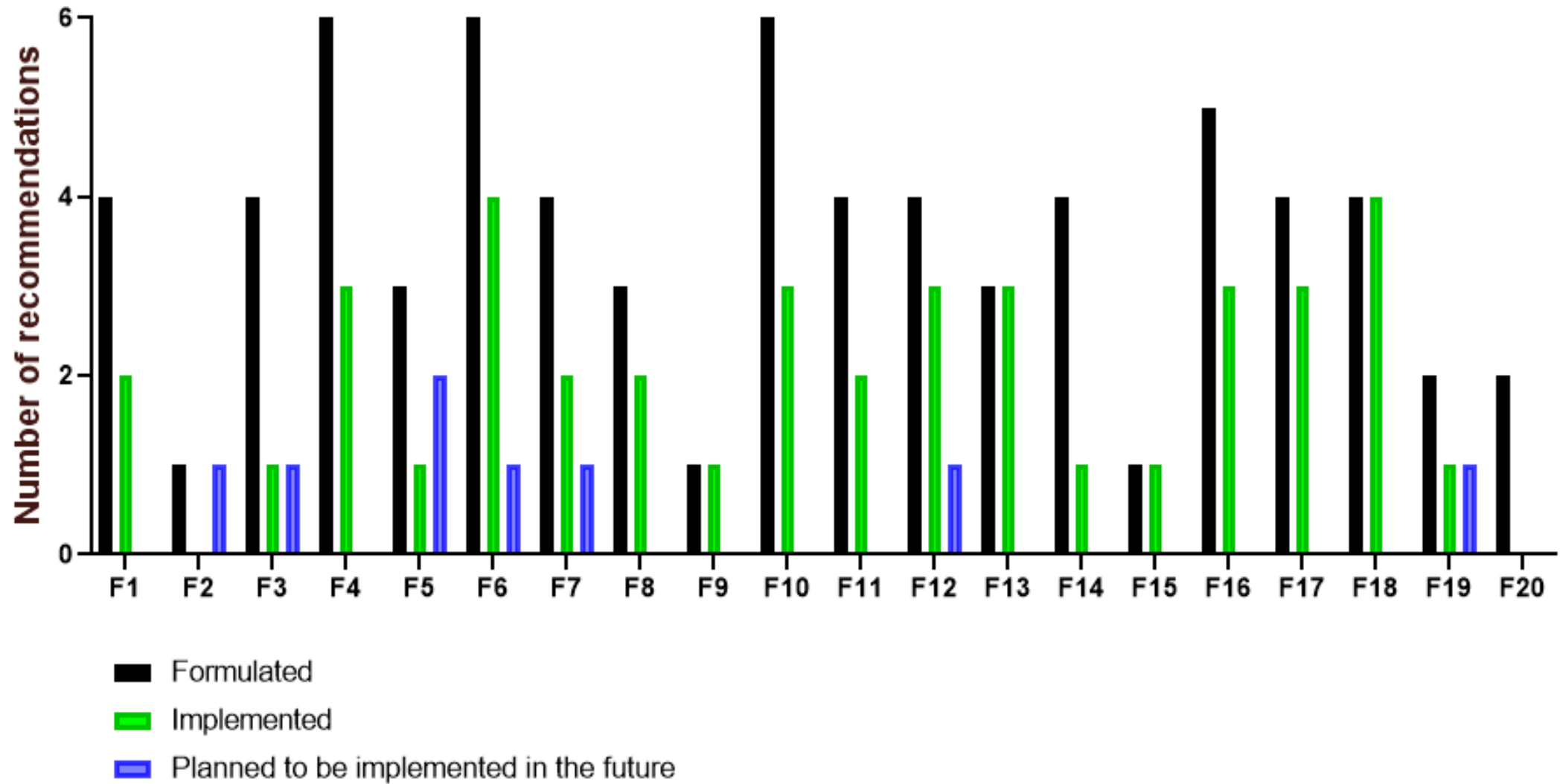
## HEALTH PLAN

- Compliance

- Biosecurity audit
- Compliance
- Clinical examination
- Performance
- Antimicrobial use



# Recommendations in health plans and observance



# Categorisation of the tailor-made health plans

## Plans **targeting a given health disorder**

- A health disorder is present in the farm
- At a level that can be improved
- Recommendations aim at reducing frequency or effects of that disorder

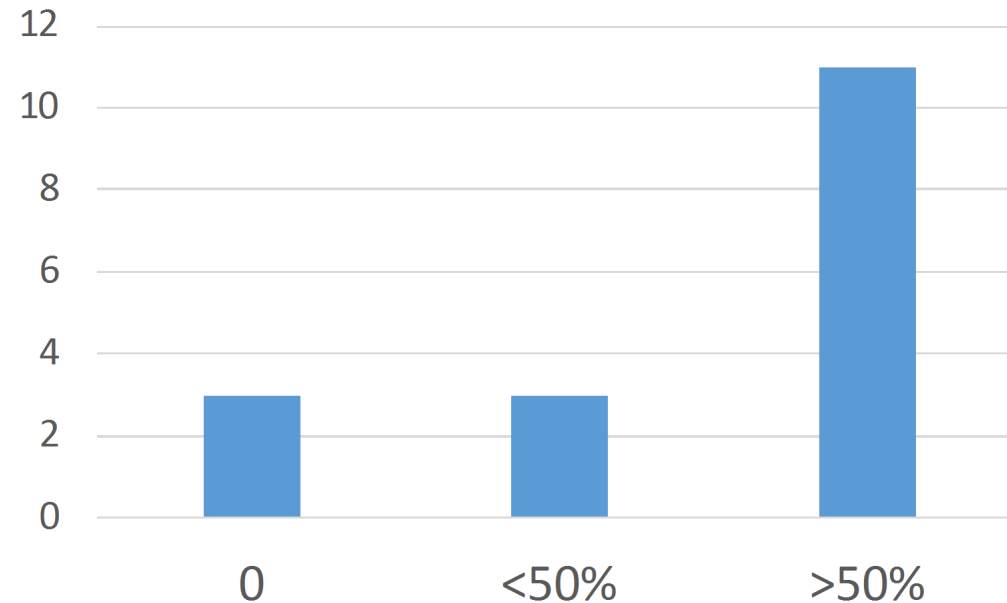
## Plans to improve **non-specific prevention** (irrespective of a disorder)

- Recommendations aim at reducing a possible risk
- No intention to improve a given disorder
  - Either no present health disorder to target
  - Or no plausible causal link between the risk of concern and the health disorder

# Assessment of non-specific prevention plans

17 non-specific prevention plans

Compliance



No indicator on risk evolution – no new outbreak

# Assessment of plans targeting a health disorder

Compliance



Clinical signs

Performance



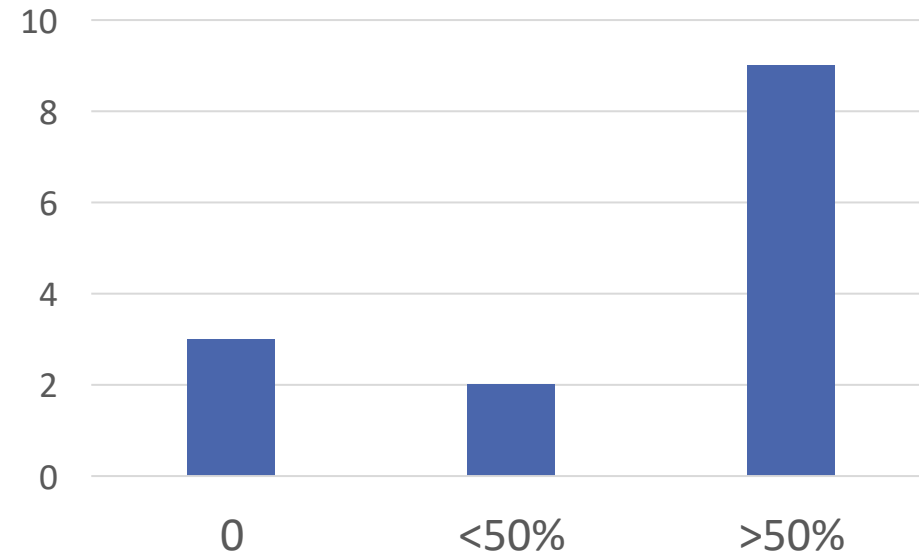
Welfare?  
Stress?

Antimicrobial use

Compliance
😊
😞
😊
😊
😊
😊
😊
😊
😞
😊
😞
😊
😐
😐
😊

# 14 plans targeting a given health disorder

## Assessment based on compliance



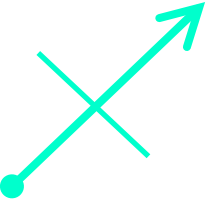
Compliance	Clinical signs		
	Cough	Sneeze	Diarrhoea
😊	😊	😊	
☹️	😊	😊	
😊			↗️↗️↗️
😊			😊
😊			↗️↗️↗️
😊			
😊	😊	😐	
☹️			😊
😊			↗️↗️↗️
☹️			
😊	😊	😐	
😐			☹️
😐			?
😊	😐	😐	

# Assesement based on clinical signs

- 4/9 improved AFTER compliance

When clinical signs improve without compliance, the plan is NOT EFFECTIVE

- In 3 farms, no ROOM FOR IMPROVEMENT on the observed signs => Frequency of observation?



Compliance	Clinical signs			Performance	
	Cough	Sneeze	Diarrhoea	ADG	FCR
😊	😊	😊		?	?
😞	😊	😊		😞	😞
😊			↗↗↗	?	?
😊			😊		
😊			↗↗↗		
😊				😞	😊
😊	😊	😊		?	?
😞			😊		
😊			↗↗↗	?	?
😞				?	?
😊	😊	😊		😞	😊
😊			😞	😊	😞
😊			?		
😊	😊	😊		😊	😊

## Assesment based on performance

- 1/4 improved after compliance
- Missing data
- Lack of specificity?
- Observation period?

Compliance	Clinical signs			Performance		AMU
	Cough	Sneeze	Diarrhoea	ADG	FCR	DDDvet
😊	😊	😊		?	?	↗↗↗
😞	😊	😊		😞	😞	↗↗↗
😊			↗↗↗	?	?	😞
😊			😊			😞
😊			↗↗↗			😞
😊				😞	😊	😊
😊	😊	😊		?	?	↗↗↗
😞			😊			😞
😊			↗↗↗	?	?	?
😞				?	?	↗↗↗
😊	😊	😊		😞	😊	😊
😊			😞	😊	😞	?
😊			?			?
😊	😊	😊		😊	😊	?

## Assesment based on antimicrobial use

- 1/6 improved after compliance
- Missing data
- Threshold for use?

Compliance	Clinical signs			Performance		AMU	Combined score
	Cough	Sneeze	Diarrhoea	ADG	FCR	DDDvet	
😊	😊	😊		?	?	↗↗↗	😊
😞	😊	😊		😞	😞	↗↗↗	😞
😊			↗↗↗	?	?	😞	😞
😊			😊			😞	😊
😊			↗↗↗			😞	😞
😊				😞	😊	😊	😊
😊	😊	😊		?	?	↗↗↗	😊
😞			😊			😞	😞
😊			↗↗↗	?	?	?	
😞				?	?	↗↗↗	😞
😊	😊	😊		😞	😊	😊	😊
😊			😞	😊	😞	?	😊
😊			?			?	
😊	😊	😊		😊	😊	?	😊

« Liberal » score

Compliance + at least 1 improvement

Other approaches to aggregate several criteria?

Compliance	Clinical signs			Performance		AMU	Combined score	Vet opinion
	Cough	Sneeze	Diarrhoea	ADG	FCR	DDDvet		
😊	😊	😊		?	?	↗↗↗	😊	😊
😞	😊	😊		😞	😞	↗↗↗	😞	😞
😊			↗↗↗	?	?	😞	😞	😊
😊			😊			😞	😊	😞
😊			↗↗↗			😞	😞	😊
😊				😞	😊	😊	😊	😊
😊	😊	😊		?	?	↗↗↗	😊	😊
😞			😊			😞	😞	😞
😊			↗↗↗	?	?	?		😊
😞				?	?	↗↗↗	😞	😞
😊	😊	😊		😞	😊	😊	😊	😊
😊			😞	😊	😞	?	😊	😞
😊			?			?		😊
😊	😊	😊		😊	😊	?	😊	😊

# Conclusions

Tailor-made health plans consisted in a limited number of recommendations adapted to the context of each farm

Plans triggered changes in management

To assess changes in health, multicriteria evaluation should be further developed

Assessment of the benefits of non-specific « prevention only » plans cannot be supported by observations in « peace time »

# More details in



<https://animsci.peercommunityin.org/articles/rec?id=195>

## Acknowledgements



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健康畜禽

Healthy  
Livestock

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