

# Antimicrobial usage evolution between 2010, 2013 and 2016 in a group of French pig farms





- Objective : - 25 % of antimicrobial usage

- ANSES

- - **41,5 %** for pig exposure to antimicrobials  
during the five years of the Plan (2012-2016)

- - **46,9 %** between 2010 et 2016

**Question : Is this evolution similar in all pig farms?**

## ■ The objective of this study was

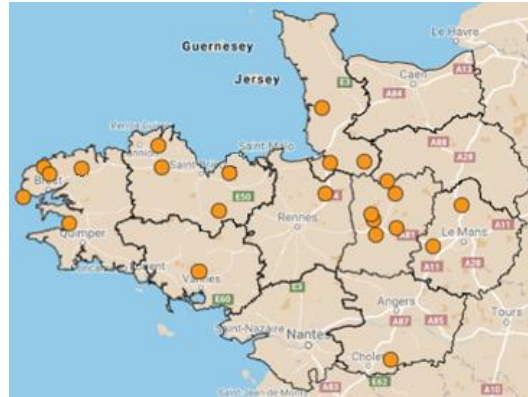
- To monitor the antimicrobial usage evolution in the same farms between 2010, 2013 and 2016,
- To analyse the **individual trajectory of each farm**
- To identify the factors of variation

## ■ ResAP

→ Permanent Panel of pig farms followed in 2010, 2013 and 2016

## ■ Condition of eligibility

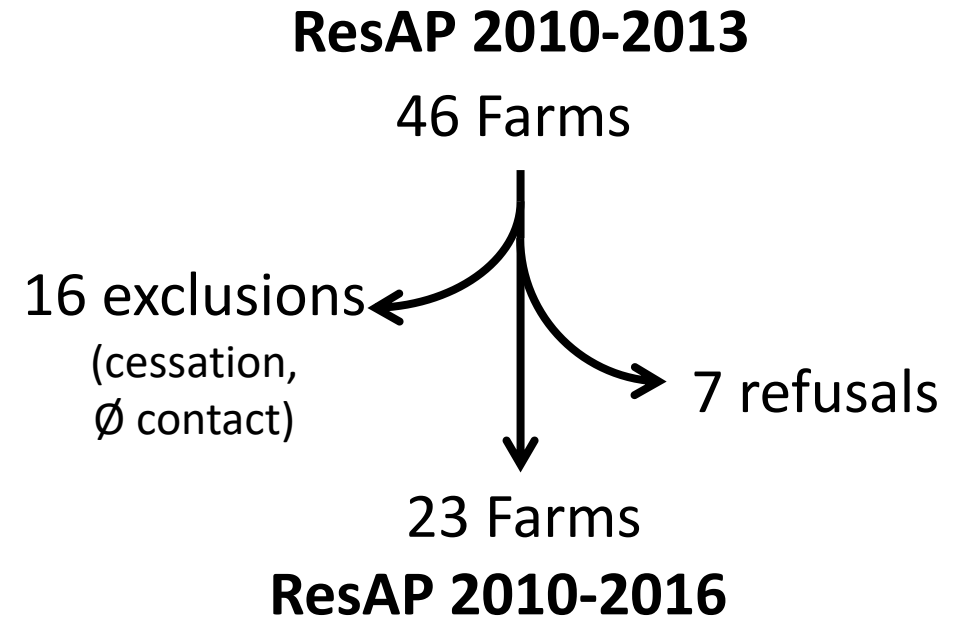
- Farrow-to-Finish Farm
- Western region
- Size stability



## ■ Characteristics

	Panel	Reference GTE
Number of farms	23	1018
Number of sows	163	232
Wean mortality rate	2,4	2,6
Finish mortality rate	3,5	3,8

## ■ Evolution of the Panel



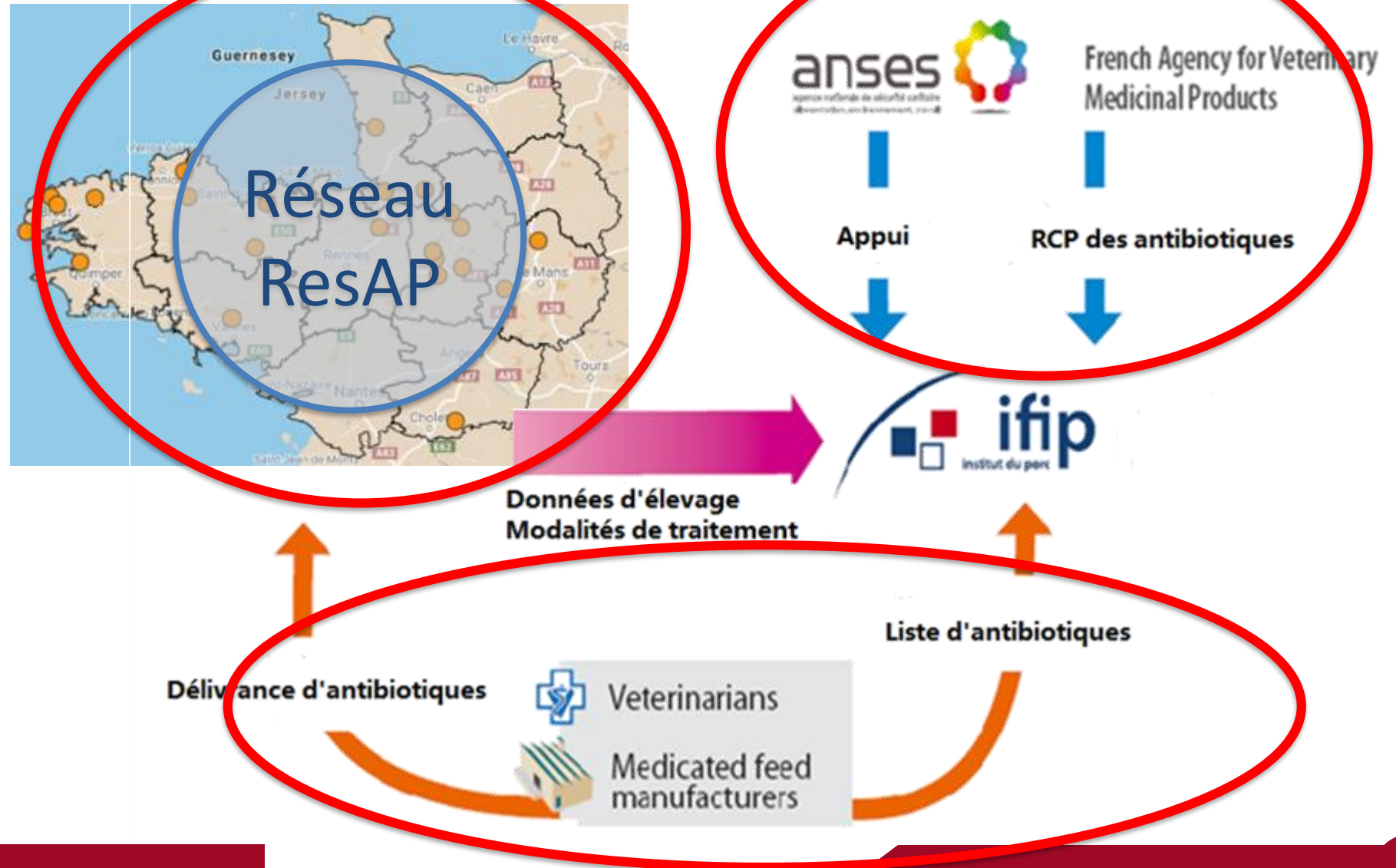
High rate of exclusion : 35 %  
 Participation rate: 77 %  
 Difficulty to maintain a stable and permanent panel

# Material and Methods

1 – Conversation with **ANSES & First phone interview with the farmers**

2 – Contacts with the **veterinarians** and the **feed suppliers** of each farmer

3 – Interviews with the farmers :  
*Production*  
*Antimicrobial usage*  
*Animals' category*



## ■ Calculation of indicators (Number of course doses per pig per year)

- Based on data/informations collected

$$\frac{Q_{ma} / (\text{dose} \times \text{treatment length} \times \text{weight reference})}{\text{Number of animals present or produced}}$$

→ nCD / produced pig (*per farm*)

→ nCD / pig (*per animals' category = weight-group*)

## ■ Evolution of antimicrobial usage between 2010 → 2013 → 2016

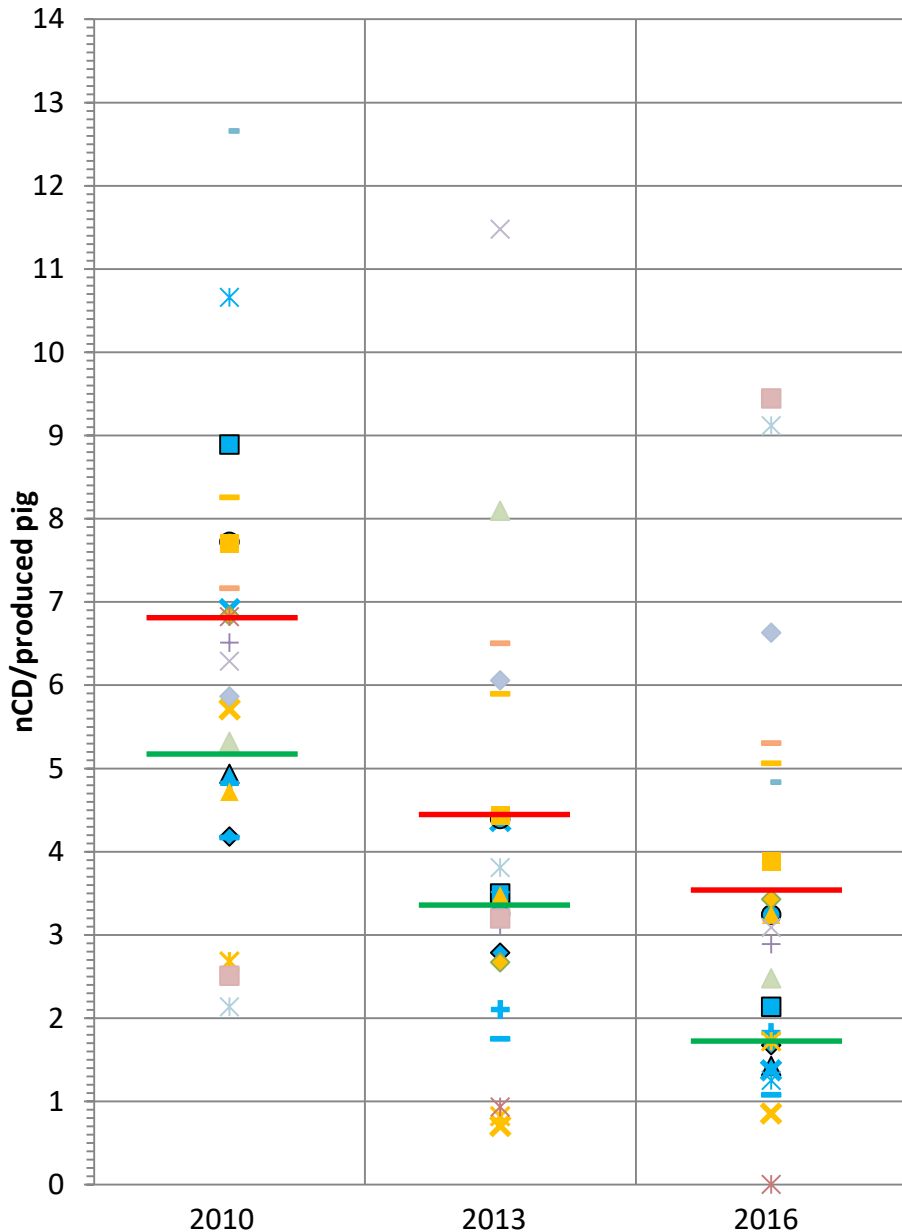
- Two thresholds have been defined

■ At a farm level (nCD / produced pig)



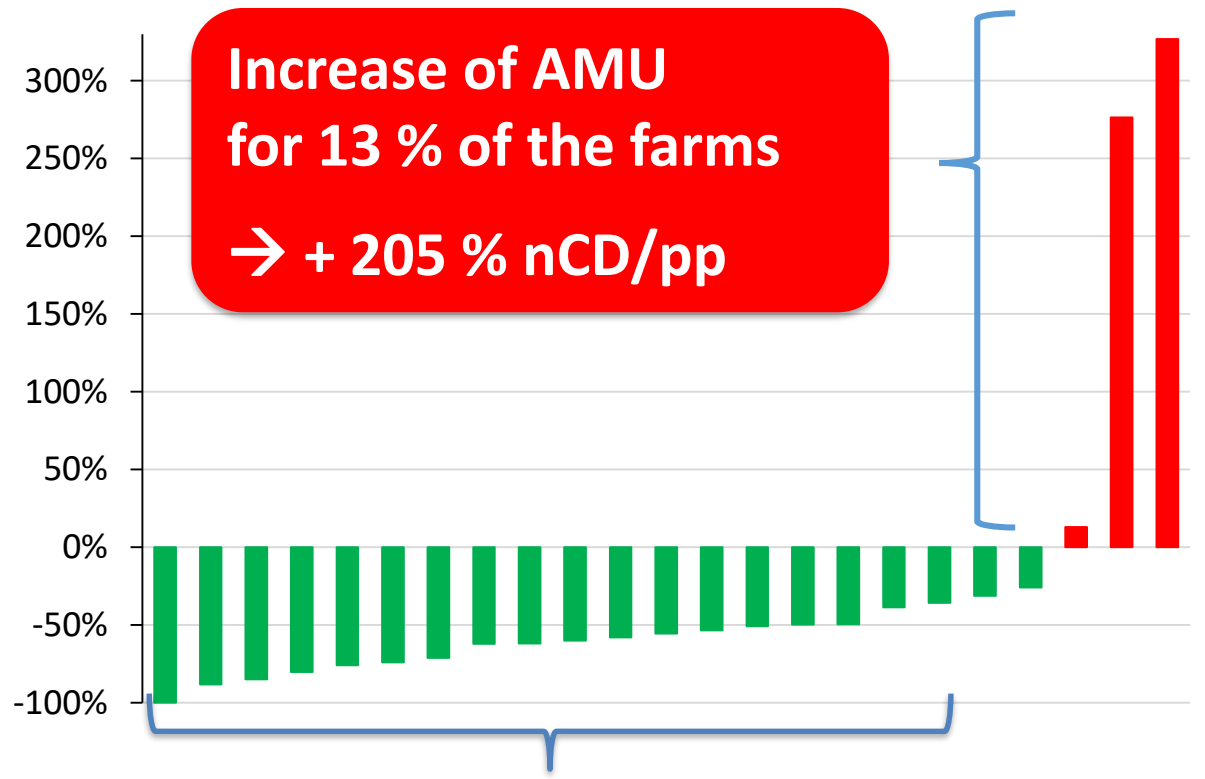
■ At a weight-group level (nCD / pig)

# Results : Overall Evolution

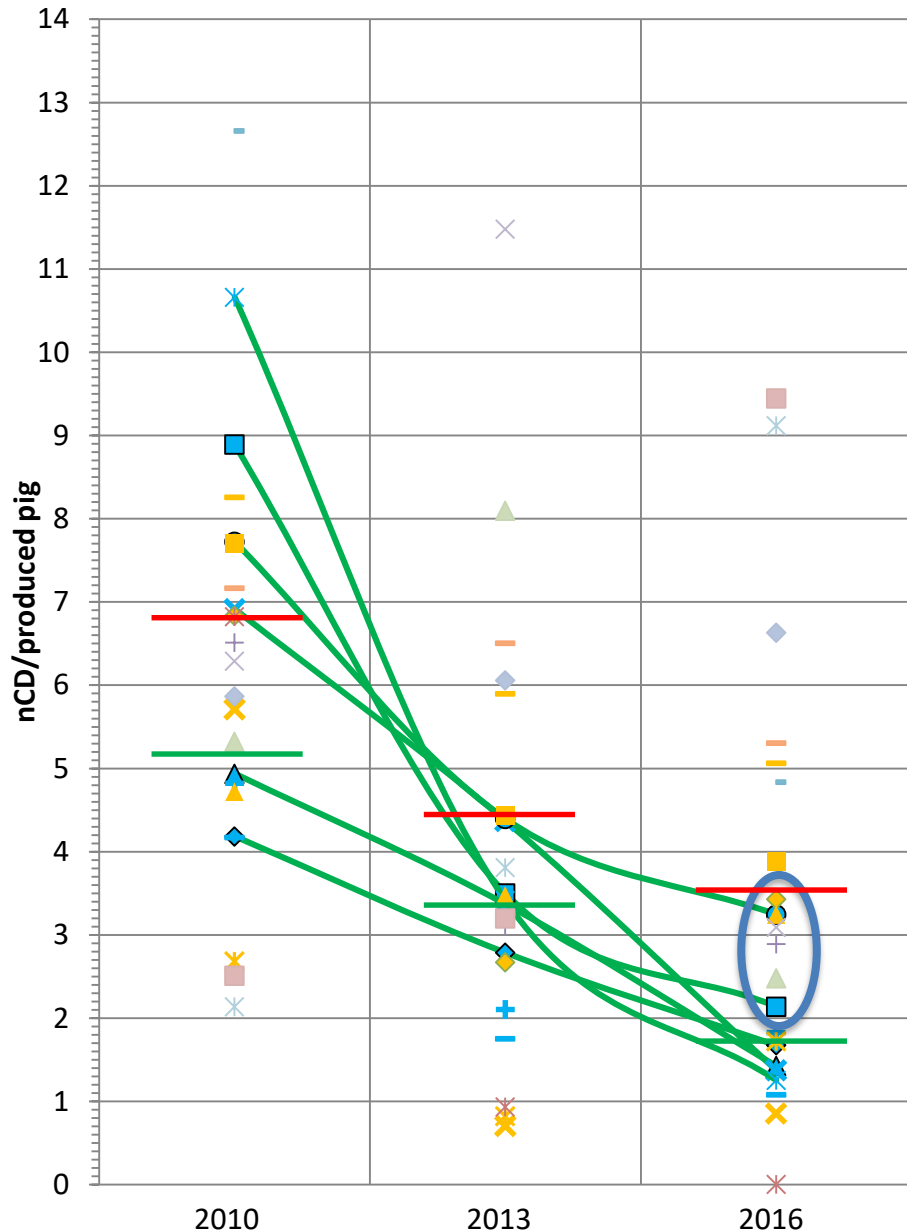


## ■ Antimicrobial usage (AMU) between 2010-2016

Variation (%)  
of the nCD/  
produced pig



# Results at the farm level: Individual trajectories



Type of evolution	N	Variation % of nCD/pp		
		2010-2013	2013-2016	2010-2016
Steady Decrease	6	-45 %	-49 %	-72 %

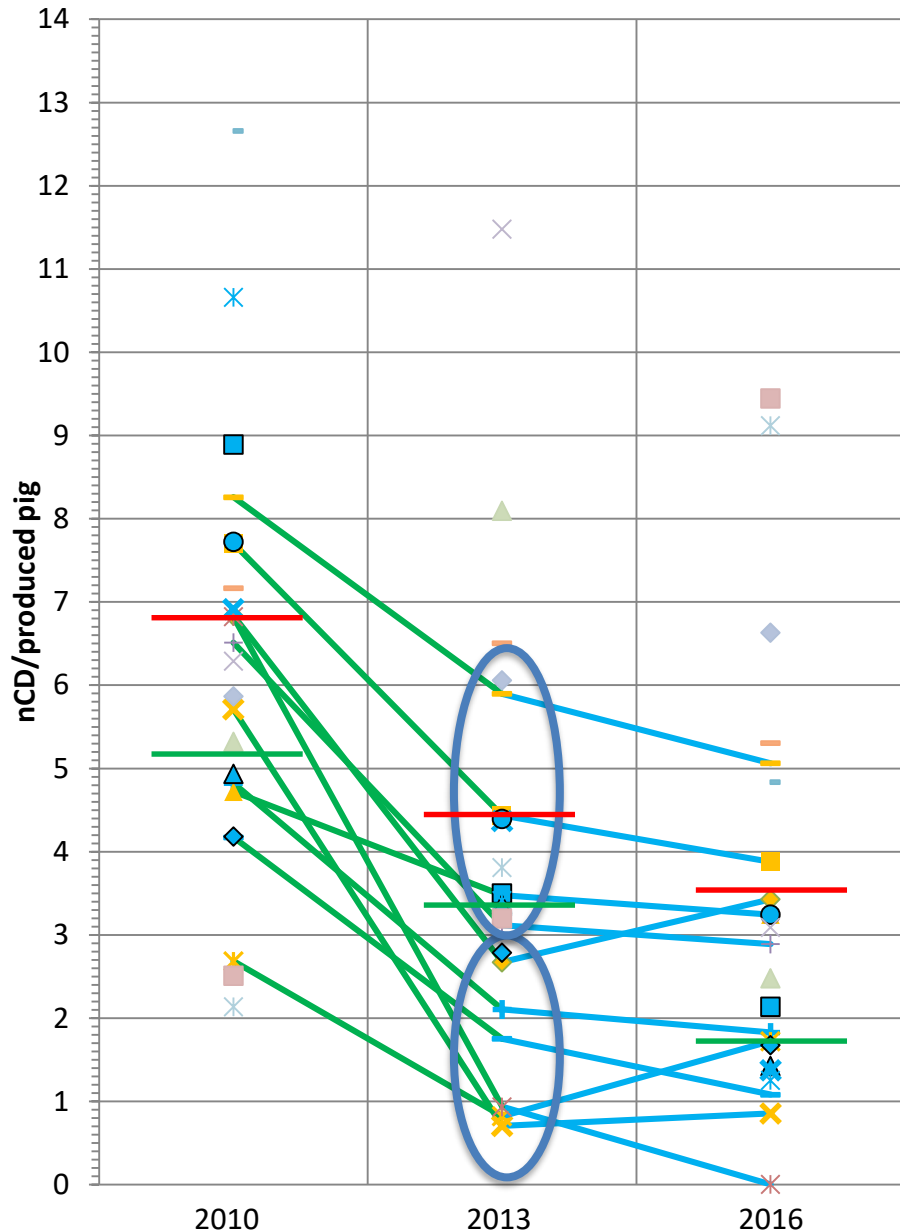
Reduction effort → Important and constant

- Sanitary Situation in favour of a decrease
- Margin of reduction possible after 2013
- Two farms → room for improvement in 2016





# Results at the farm level: Individual trajectories



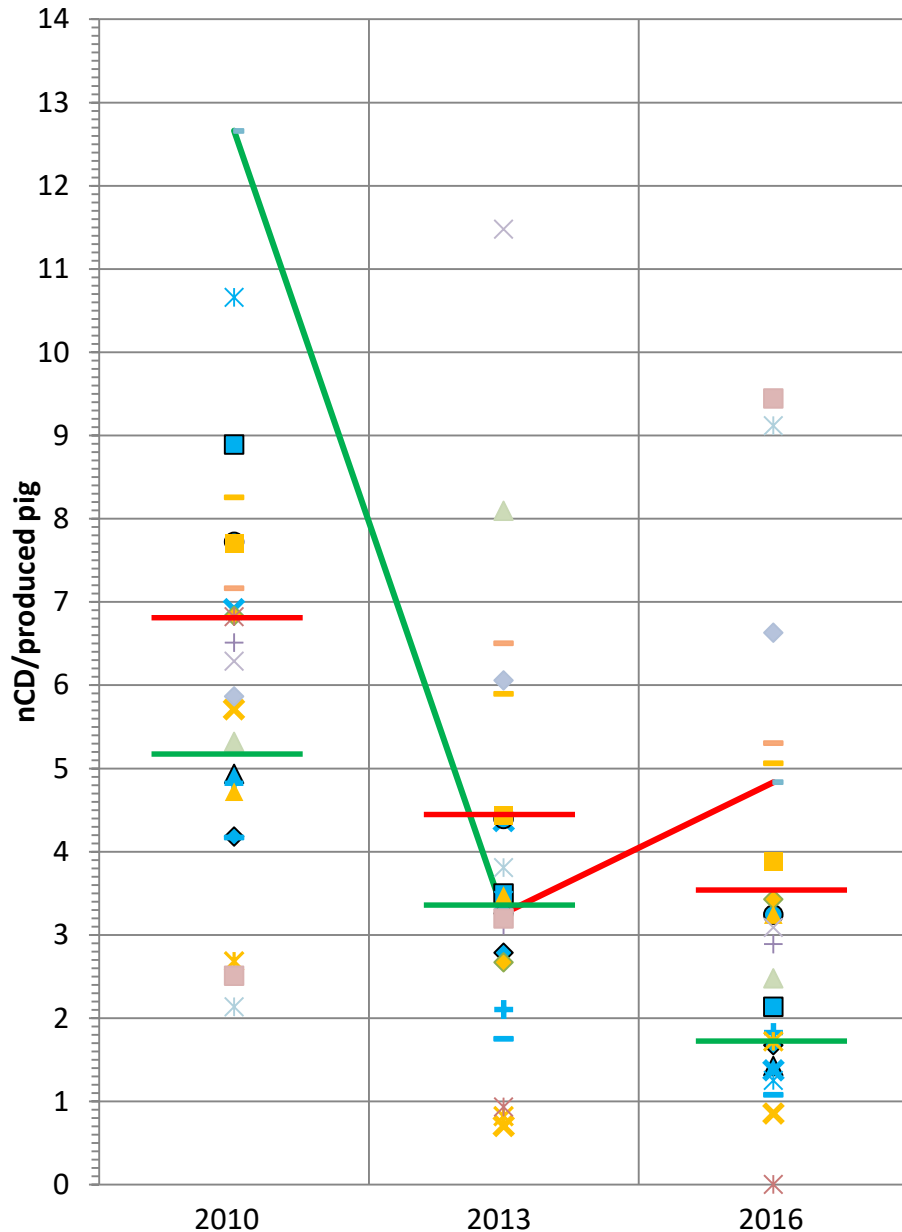
Type of evolution	N	Variation % of nCD/pp		
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Steady Decrease	6	-45 %	-49 %	-72 %
Decrease + Stability	10	-58 %	-3 %	-58 %

To maintain the decrease after 2013 → **Difficult**

- 4 farms → really low AMU in 2013
- = **Potential rate of decrease really low**
- 6 farms → no success



# Results at the farm level: Individual trajectories

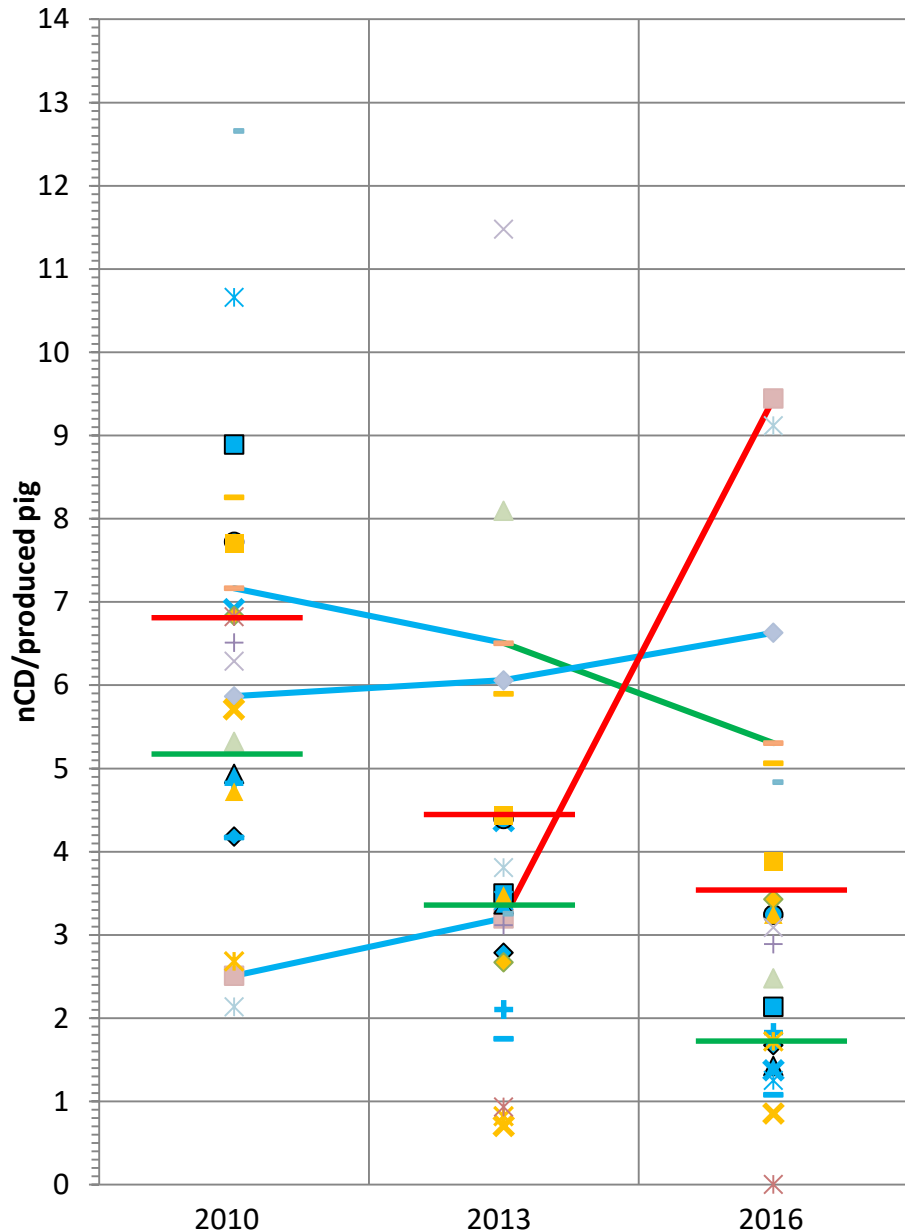


Type of evolution	N	Variation % of nCD/pp		
		2010-2013	2013-2016	2010-2016
Steady Decrease	6	-45 %	-49 %	-72 %
Decrease + Stability	10	-58 %	-3 %	-58 %
Decrease + Increase	1	-74 %	+48 %	-62 %

Increase due to a sanitary problem

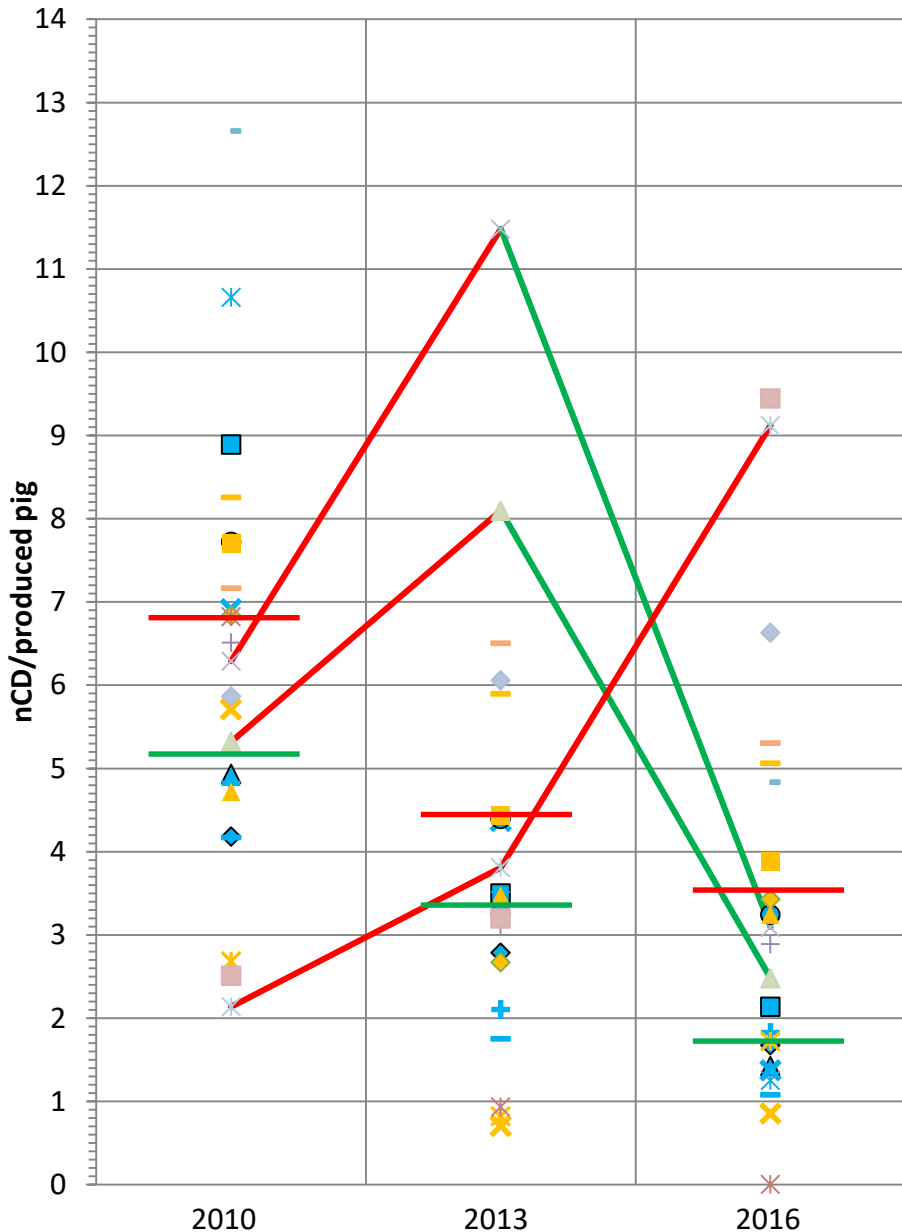


# Results at the farm level: Individual trajectories



Type of evolution	N	Variation % of nCD/pp		
		2010-2013	2013-2016	2010-2016
Stability + Decrease	1	-9 %	-18 %	-26 %
Stability	1	+3 %	+9 %	+13 %
Stability + Increase	1	+28 %	+195 %	+276 %

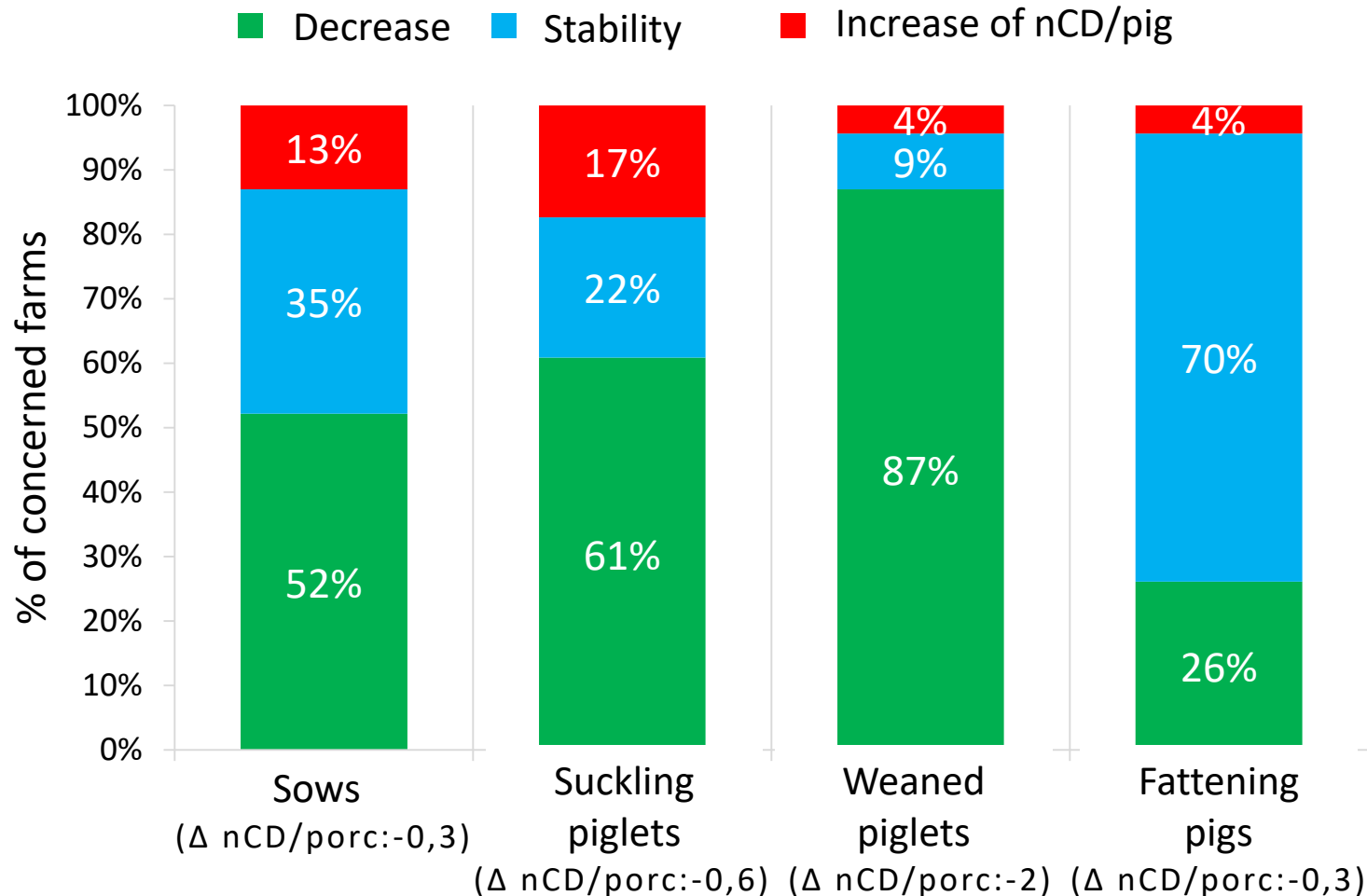
# Results at the farm level: Individual trajectories



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Stability + Decrease	1	-9 %	-18 %	-26 %
Stability	1	+3 %	+9 %	+13 %
Stability + Increase	1	+28 %	+195 %	+276 %
Increase + Decrease	2	+67 %	-71 %	-52 %
Increase + Increase	1	+78 %	+139 %	+327 %

High variability inter and intra-farm

## ■ Evolution of AMU by weight-group between 2010 et 2016



- **At a weight-group level**  
→ Most of the farms decrease or have a stable usage
  - **Post-Weaning** : AMU for weaned piglets was more frequently reduced
  - **Finishing** : stability  
→ nCD/a < 0,5 en 2010
  - **Sows**
  - **Suckling piglets**
- } More frequent increase

## ■ Increase

### ■ Sanitary problems (77 %)

- Sows: uro-genital troubles
- Suckling and weaned piglets: digestive problems
- Fattening pigs: Respiratory problems

## ■ Decrease: Therapeutical changes (59 %)

- Improvement of herd management
- Stop of preventive treatments (41 %)
- Optimisation of the vaccination protocols (35 %)
- Use of alternative products(19 %)
  - Zinc oxyde, phytotherapy, urine acidifiers...

- **Reduction of the AMU over both periods (6 years)**
  - 2010 - 2013 : 17 farms reduced their AMU
  - 2013 - 2016 : Less reduction (9 farms)
    - It becomes to be more difficult
  
- **High variability of individual trajectories**
  - Motivation of the farmer + Sanitary situation of the farm
  
- **Monitoring antimicrobial usage in pig farms is a key element of a reduction plan**
  - **For the farmers:**
    - to follow their individual trajectory and to compare them to collective trajectories
  - **For the vets:**
    - to know the sanitary situation of the farm and the evolution of their AMU
  - **For the institutions (Anses/Ifip) :**
    - to collect accurate data

Merci de votre attention



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ANTIBIOTIQUES VÉTÉRINAIRES

