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

Context

- 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?

Aim of the study

- The objective of this study was
  - To monitore 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

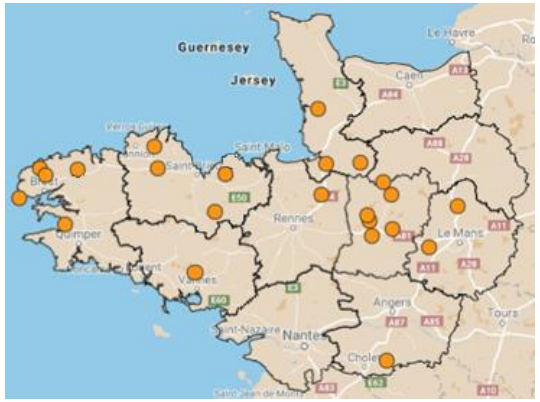
- **ResAP**

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

Setting up of the Panel

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

ResAP 2010-2013

46 Farms

16 exclusions
(cessation,
Ø contact)

7 refusals

23 Farms

ResAP 2010-2016

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

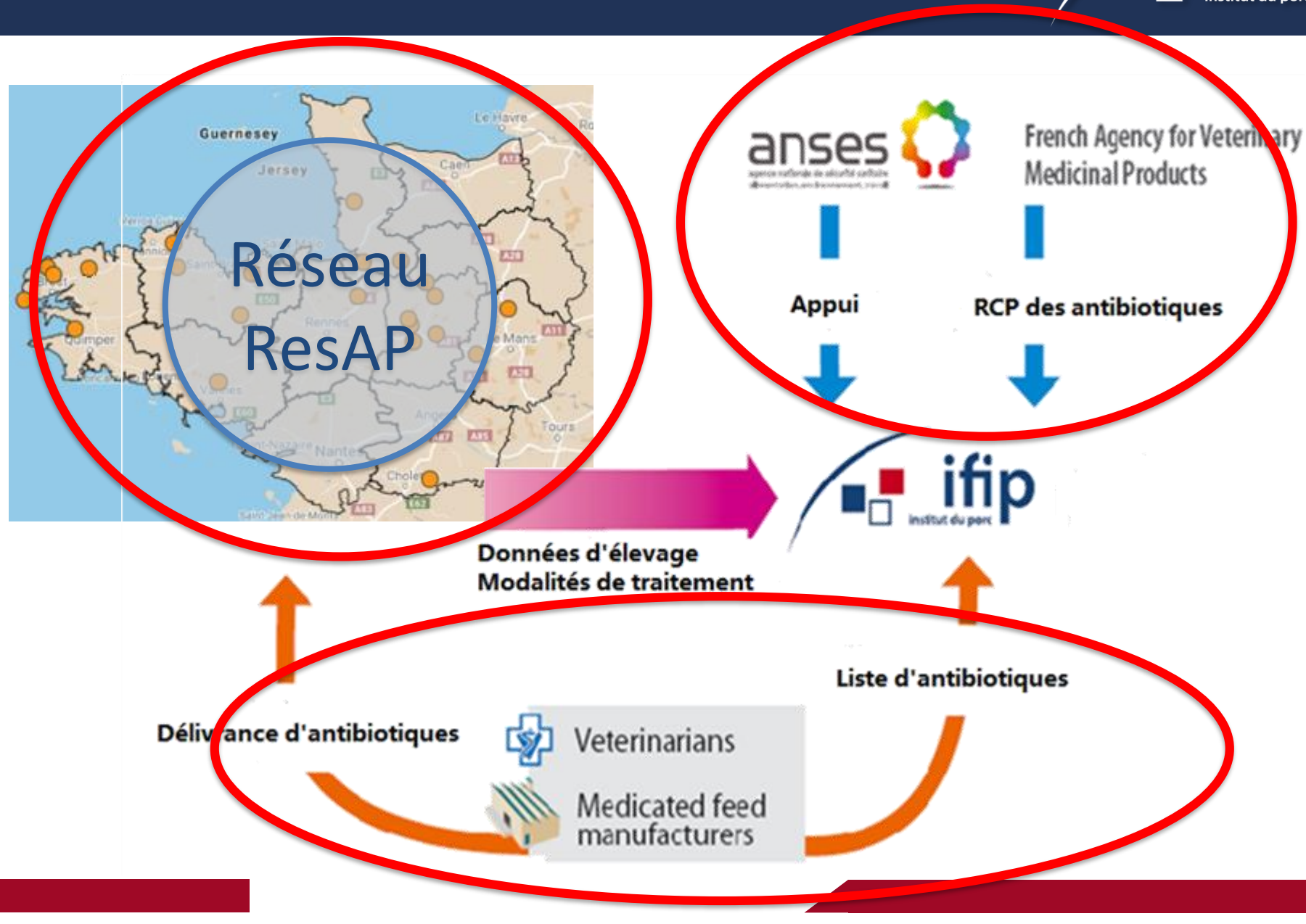
Material and Methods

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



Material and Methods

- Calculation of indicators (Number of course doses per pig per year)
  - Based on data/informations collected

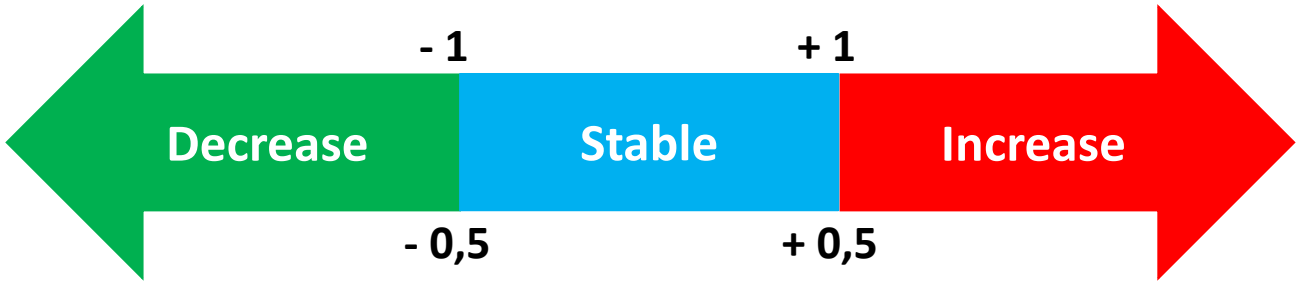
$$\frac{\text{Qma/ (dose x treatment lenght x weight reference)}}{\text{Number of animals present or produced}}$$

→ nCD / produced pig *(per farm)*

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

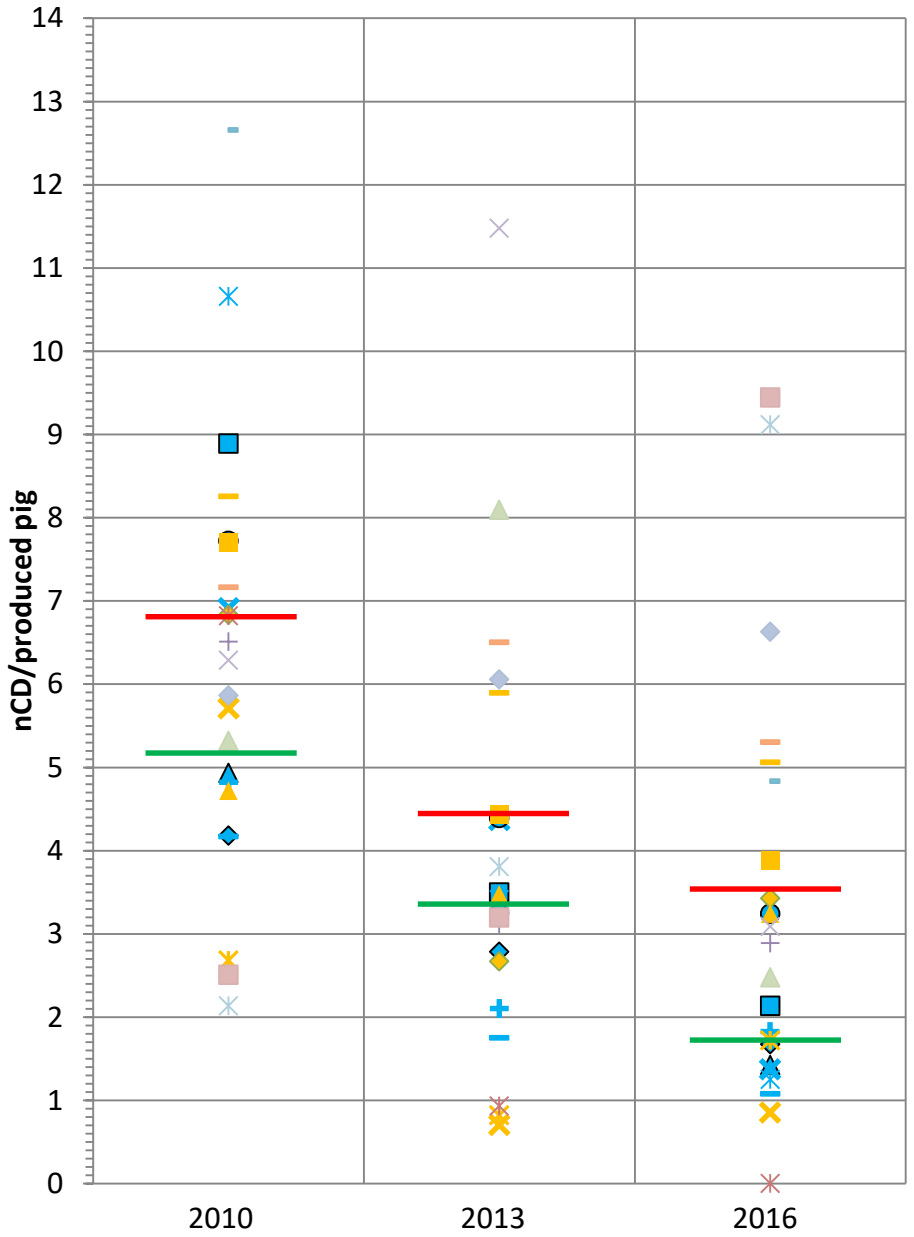
- Evolution of antimicrobial usage between 2010 → 2013 → 2016
  - Two thresholds have been defined

At a farm level (nCD / produced pig)

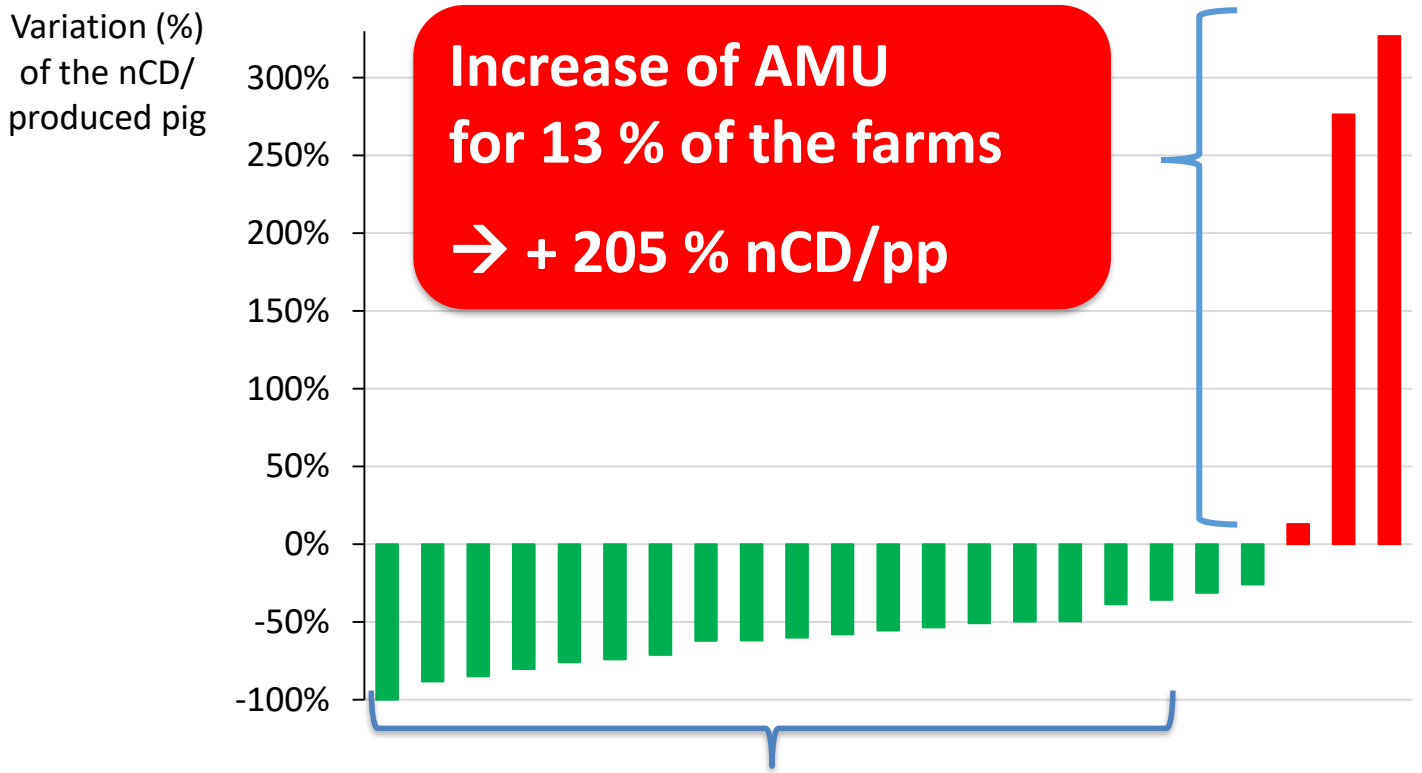


At a weight-group level (nCD / pig)

Results : Overall Evolution

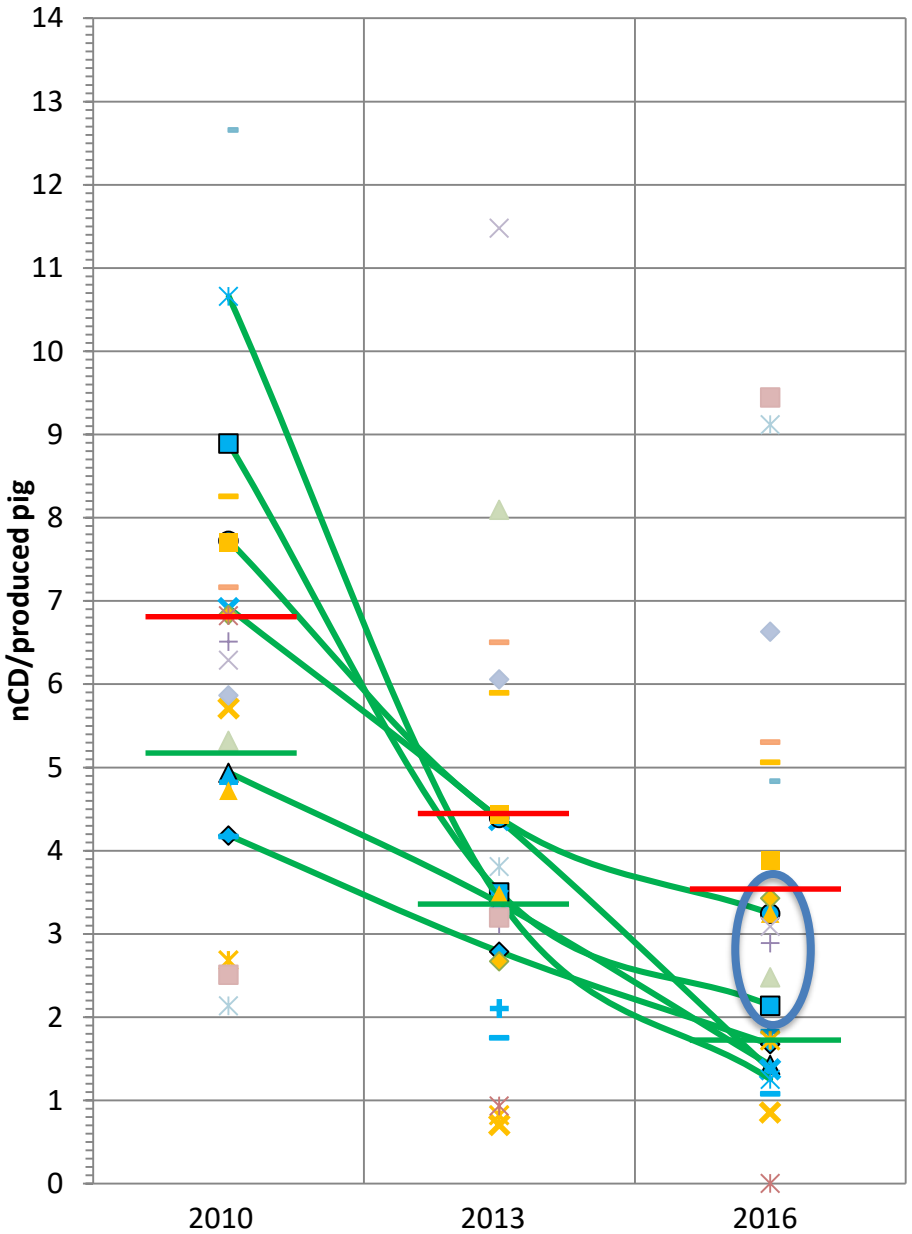


Antimicrobial usage (AMU) between 2010-2016



Decrease of AMU for 87 % of the farms
→ - 60% nCD/pig produced on average

Results at the farm level: Individual trajectories

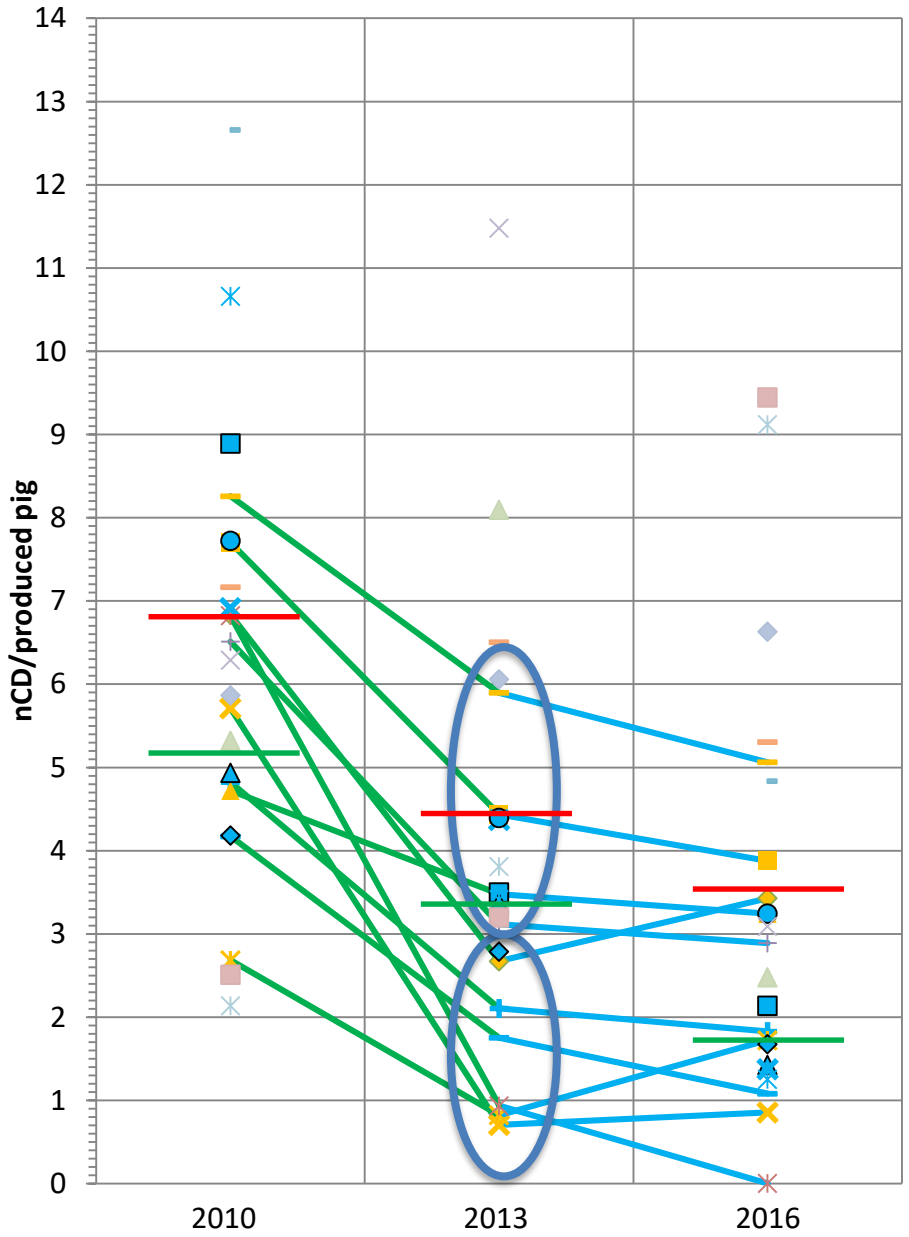


Type of evolution	N	Variation % of nCD/pp		
		2010-2013	2013-2016	2010-2016
Steady Decrease	6	-45 %	-49 %	-72 %

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		
		2010-2013	2013-2016	2010-2016
Steady Decrease	6	-45 %	-49 %	-72 %
Decrease + Stability	10	-58 %	-3 %	-58 %

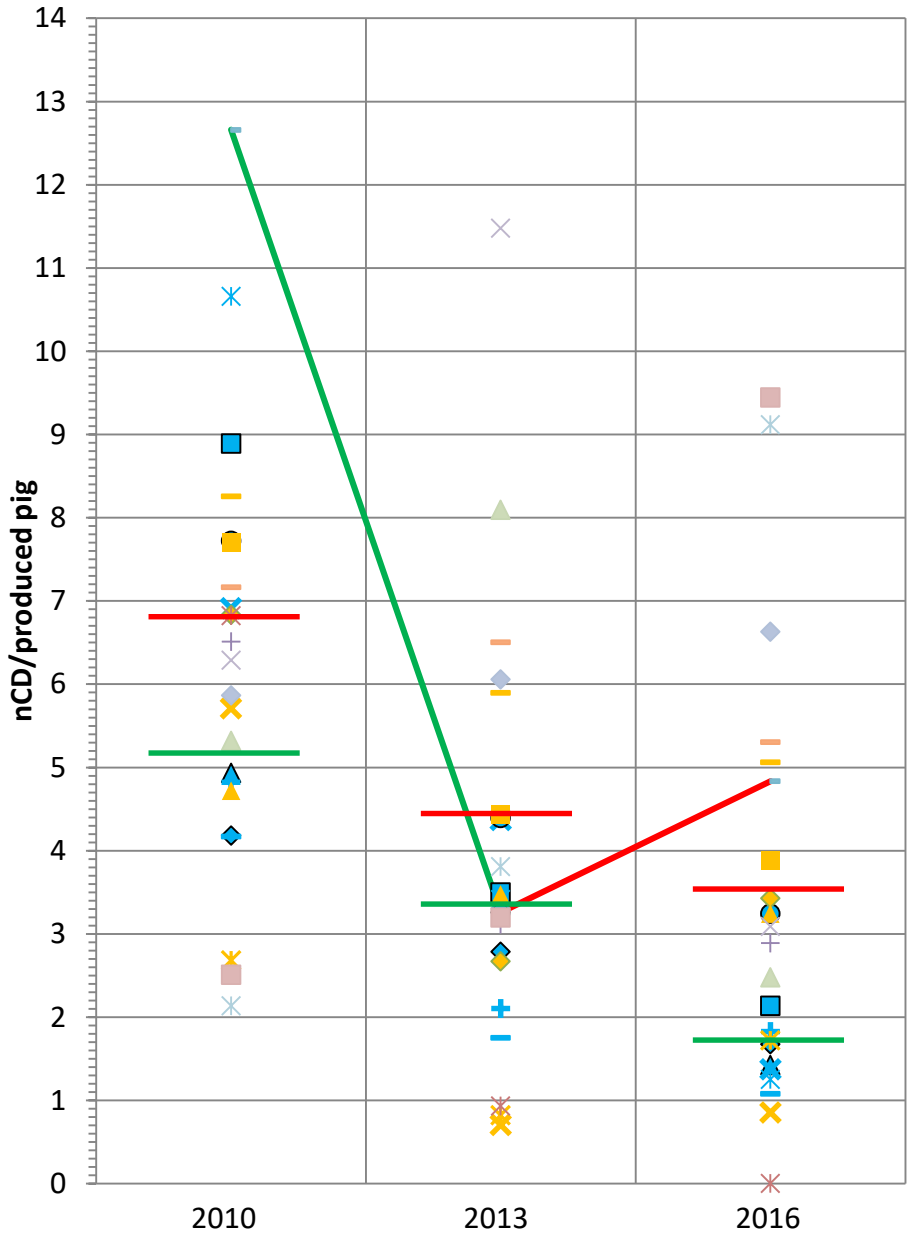
To maintain the decrease after 2013 → **Difficult**

- 4 farms → really low AMU in 2013

  = Potential rate of decrease really low

- 6 farms → no success

Results at the farm level: Individual trajectories



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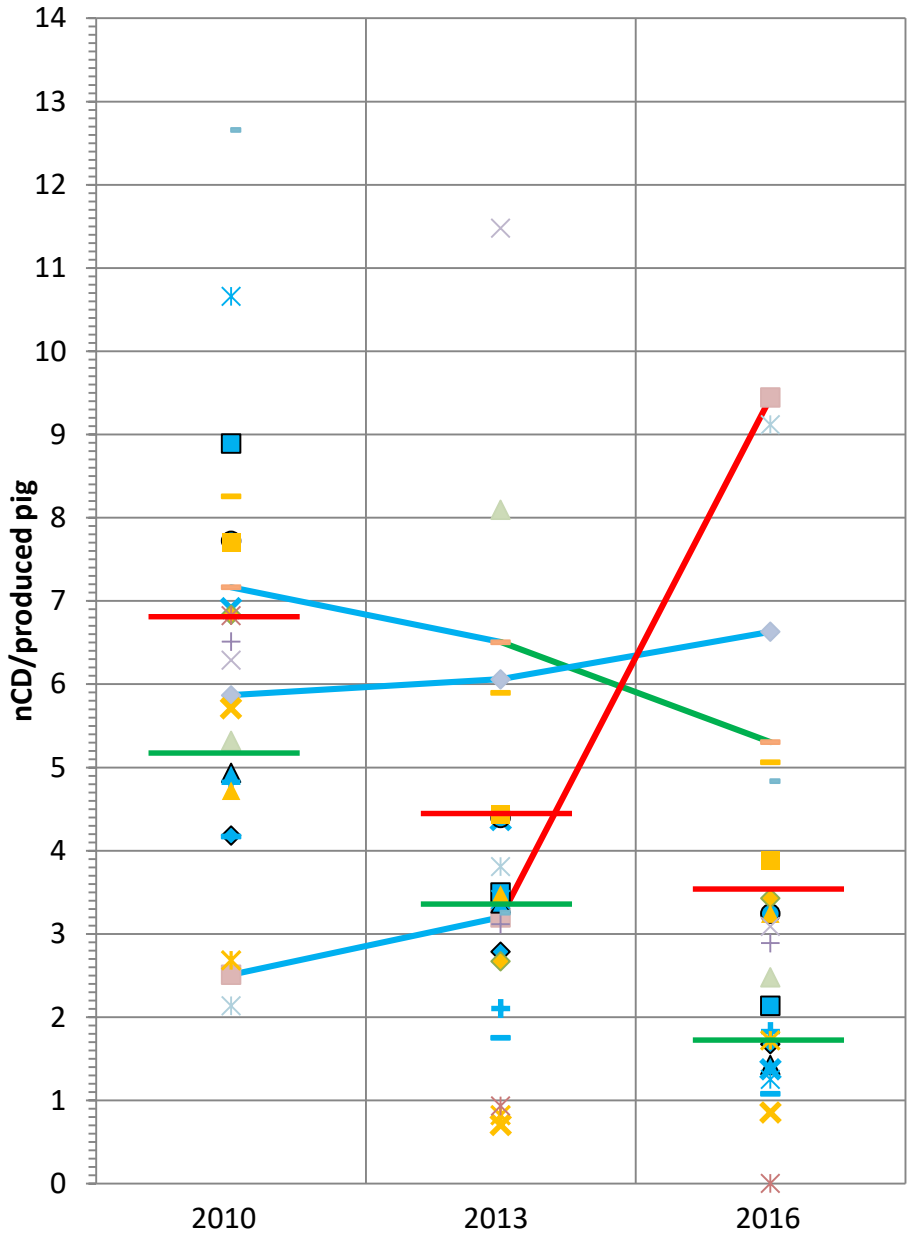
Steady Decrease	6	-45 %	-49 %	-72 %
Decrease + Stability	10	-58 %	-3 %	-58 %
Decrease + Increase	1	-74 %	+48 %	-62 %

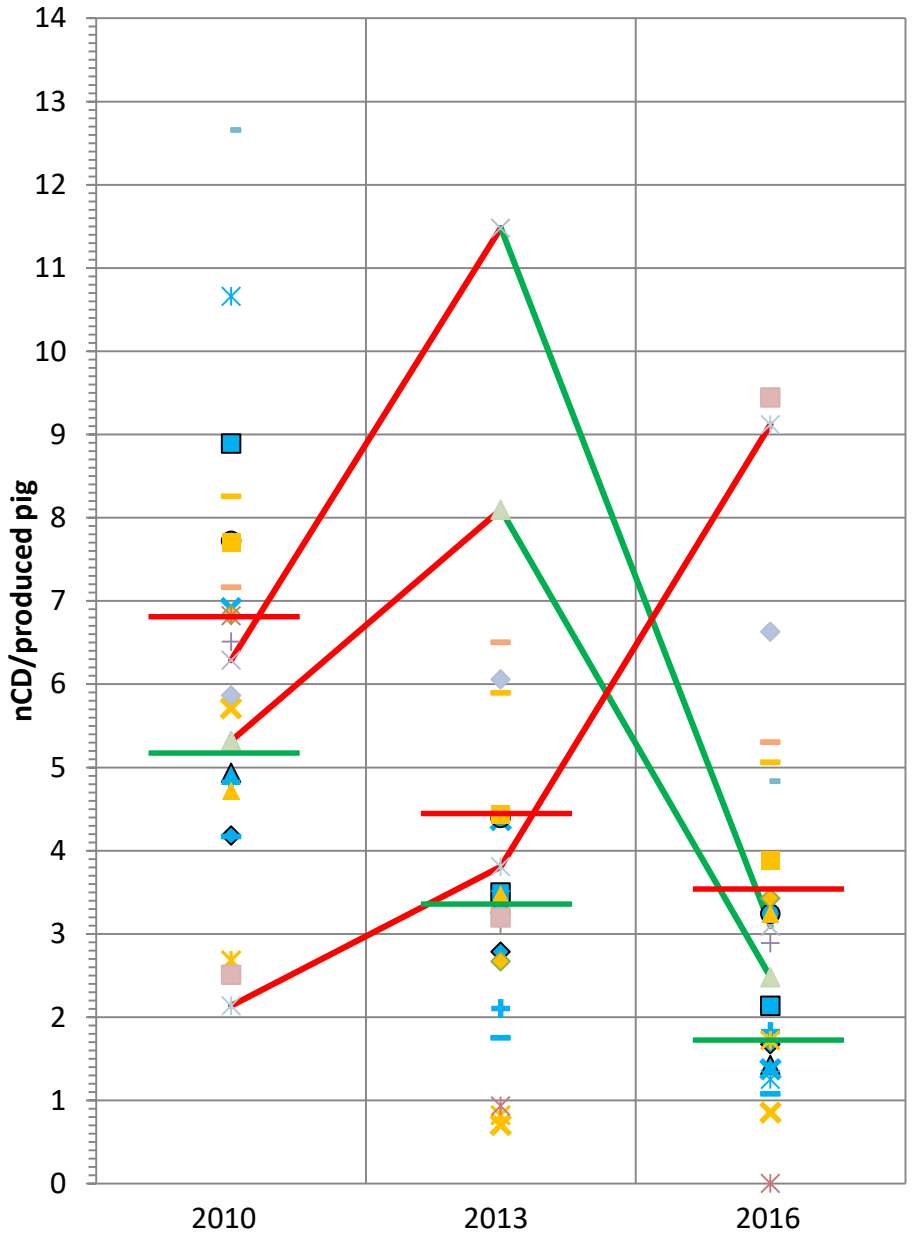
Increase due to a sanitary problem

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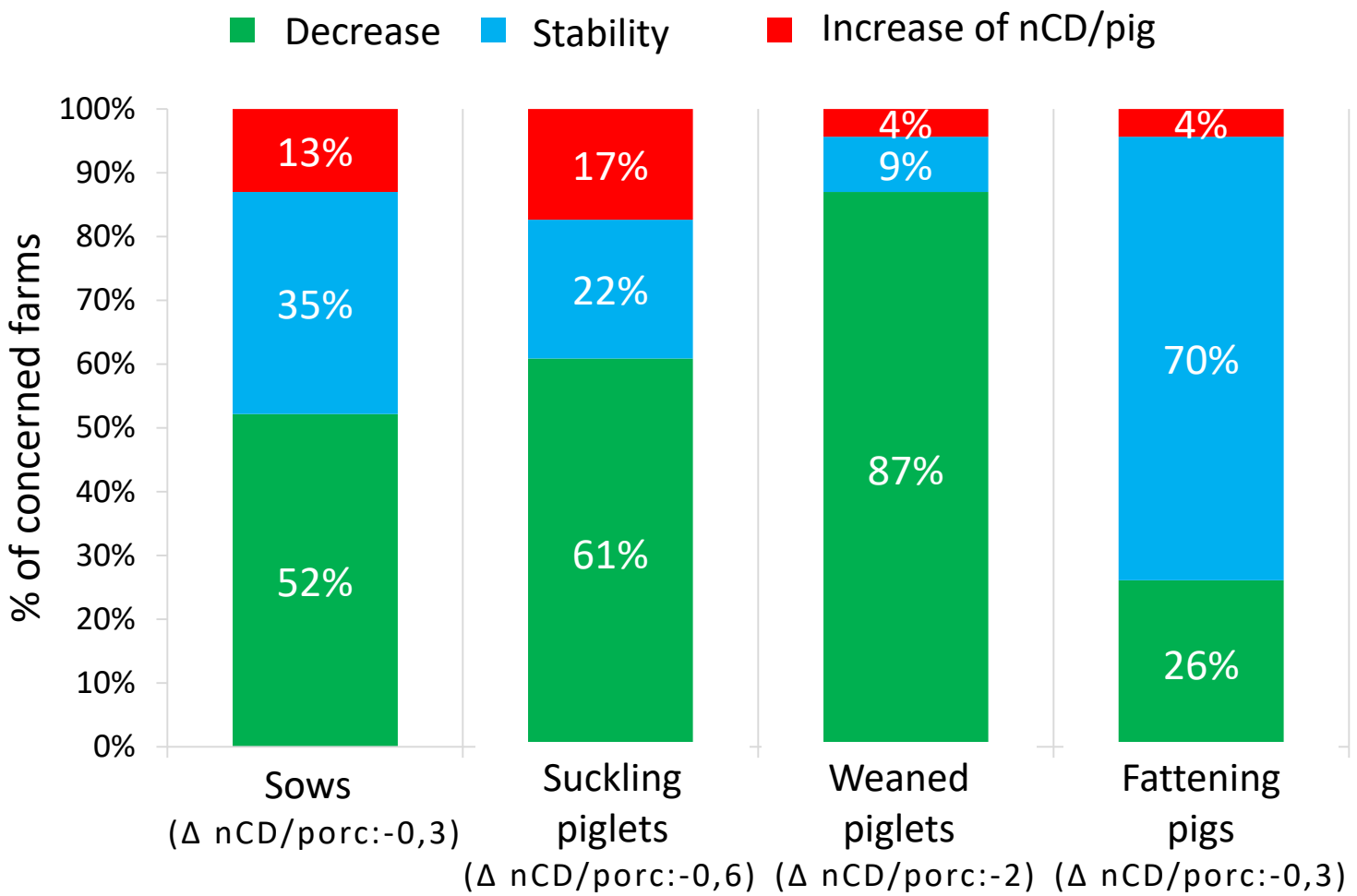
Stability + Decrease	1	-9 %	-18 %	-26 %
Stability	1	+3 %	+9 %	+13 %
Stability + Increase	1	+28 %	+195 %	+276 %
Increase + Decrease	2	+67 %	-71 %	-52 %
Increase + Increase	1	+78 %	+139 %	+327 %

High variability inter and intra-farm

Results at the weight-group level

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**

Explaining factors of variation

- 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…

Conclusion

- **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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