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

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In France, the Ecoantibio plan is a success: pig exposure to antimicrobials declined by 41 % during the Plan's five years (2012-2016), which is far beyond the initial -25 % objective. But a question arises: is this evolution similar in all pig farms ?
The objective of this study was to analyse the individual trajectory of each farm concerning antimicrobial usage between 2010, 2013 and 2016.

Material and methods

- The study monitored antimicrobial usage (AMU) by weight group in 33 farrow-to-finish farms in western France between 2013 and 2016. Among them, 23 farms were also included in a precedent study that monitored their AMU in 2010 (Hémonic *et al.*, P127, ESPHM 2015).

- AMU was quantified by the number of Course Doses per produced pig per year (nCD/pig).

- At a farm level, an evolution ≥ ± 1 nCD/pig was considered as a significant decrease or increase. Otherwise, the evolution was considered as stable. At a weight-group level, the threshold was fixed at ± 0.5 nCD/pig.

Results and discussion

- In the 23 farms monitored between 2010-2016, the decrease of AMU was marked (- 60 % on average) and concerned a large majority of farms (87 %) (Figure 1)
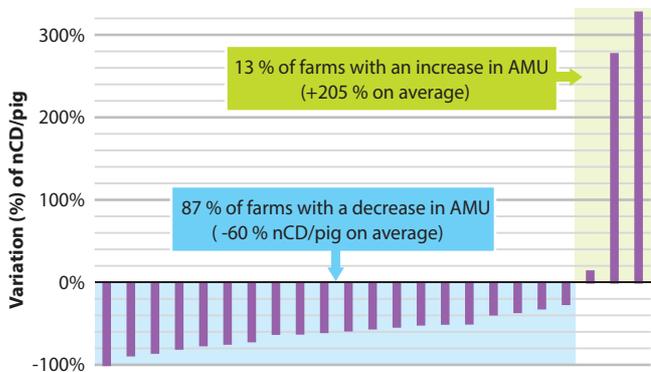

Figure 1 : Variation (%) of nCD/pig between 2010-2016 in 23 farms

- After classifying the farms according to the evolution of their AMU during the first period (2010-2013) and the second period (2013-2016), only eight farms (35 %) kept the same type of evolution (decrease, stagnation or decrease) over both periods (Figure 1).

- Among the 10 farms with a stable use over 2013-2016 after a reduction use over 2010-2013, four were in the bottom-third group of users in 2013. So, their margin of reduction was very thin.
For the six farms in the middle-third or top-third group, a theoretical decrease after 2013 was possible but not reached, probably because of their sanitary situation.

Table 1 : Classification of the 23 farms according to the evolution of their AMU both periods

Type of evolution of antimicrobial usage		Average variation (%) of nCD/pig	
2010-2013	2013-2016	2010-2013	2013-2016
Decrease ≥ - 1 nCD/pig N = 17 farms	Decrease (N = 6)	-45 %	-49%
	Stable (N=10)	-58 %	-3 %
	Increase (n=1)	-74 %	+48 %
Stable =]-1 ; +1[nCD/pig N = 3 farms	Decrease (N = 1)	-9 %	-18 %
	Stable (N=1)	+3 %	+9 %
	Increase (N=1)	+28 %	+195 %
Increase ≥ +1 nCD/pig N = 3 farms	Decrease (N = 2)	+67 %	-71 %
	Increase (N=1)	+78 %	+139 %

- On the 33 farms followed between 2013-2016, 12 reduced their AMU : six belonged to the top-third group of users in 2013 and only two to the bottom-third group.

- At a weight-group level, only AMU for weaned piglets was more frequently reduced between 2013 and 2016 (54 % of the farms).
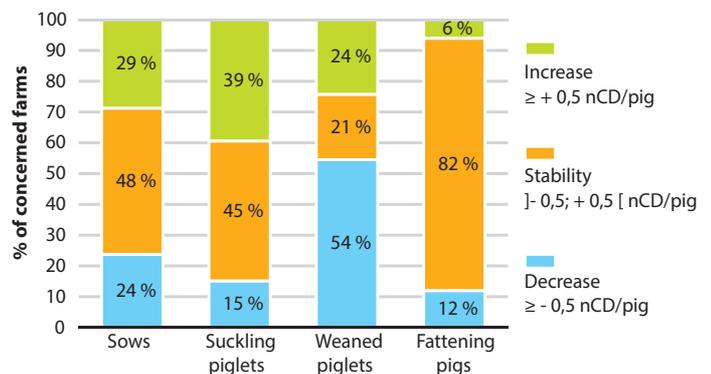For sows, suckling piglets and fattening pigs, most of the farms had stable usage between 2013-2016 (Figure 2).

Figure 2 : Evolution of AMU by weight-group between 2013 and 2016 in 33 farms

- All these results highlighed the variability of individual trajectories in AMU. This is due to sanitary issues that may be different according to each farm and each period. This is also explained by the level of AMU reached at the end of a period : the lower it is, the more difficult it is to continue to decrease during the subsequent period.

Conclusion

This study highlighted the inter- and intra-farm variability in the evolution of AMU. So, it is important to monitor AMU at the farm level to follow their individual trajectories and to compare them to collective trajectories. The new GVET approach, for example, allows French farmers to self-assess their AMU and, more generally, their usage of all medecines (vaccines, dewormers ...). This usefully complements the monitoring of average evolution of AMU at the country level.