

70th Annual Meeting of the European Federation of Animal Science,
City of Ghent (Belgium), 26 - 30 Aug 2019

Antimicrobial usage: Pig farmer's perceptions, attitudes and management



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Context

- Reduction of antimicrobial usage
 - France : EcoAntibio Plans 1 & 2
- Field implementation of the reduction : constraints, need to adapt to the specific field context

Aims of the study

- Describe farmers' antimicrobial usages and decision processes
- Assess the perception of antimicrobial treatments by farmers
- Identify breaks and levers for antimicrobial reduction

Material and Methods

- Indicavet software (Sanders, CEVA, DBM)
 - Monitored the antimicrobial usage of pig farms
 - Data based on vet prescriptions
 - Results edited every quarter
 - Easy to use to follow the evolution of the farms concerning their antimicrobial use
- ALEA : Animal Level of Exposure to Antimicrobials

Material and Methods

- ALEA : Animal Level of Exposure to Antimicrobials
= Percentage of the animal biomass exposed to antimicrobials

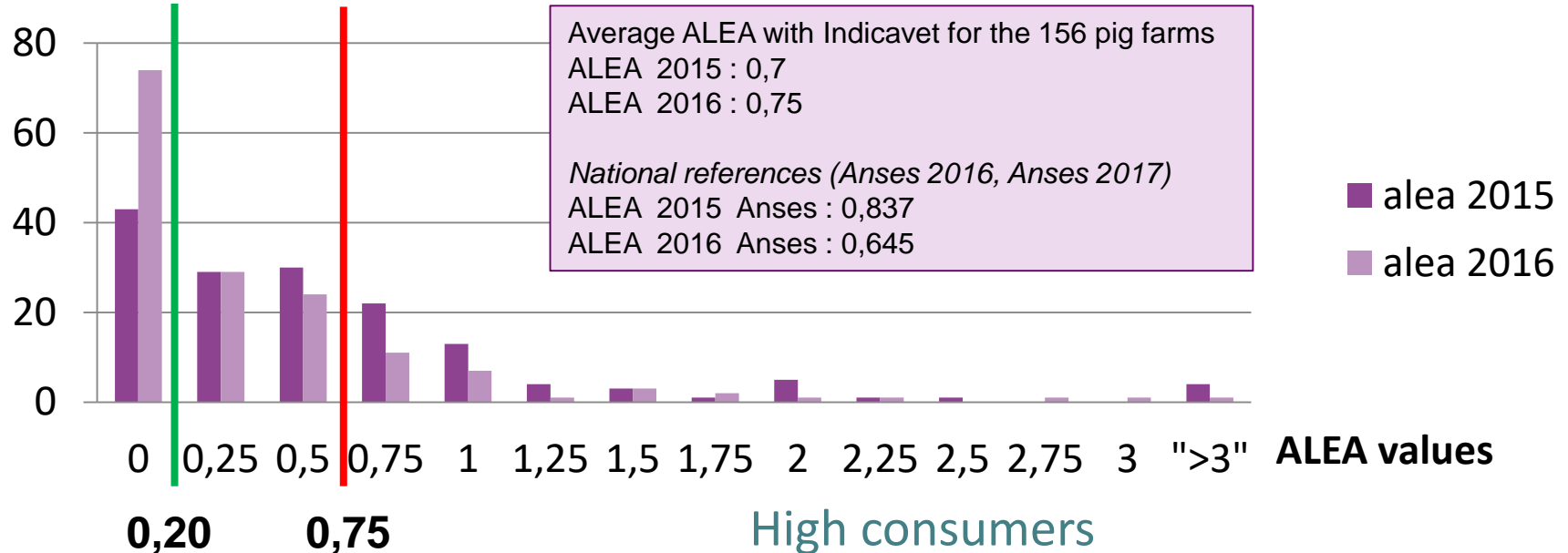
$$\left[\frac{\textit{Total amount of active substance sold}}{\textit{(Defined daily dose for animals x Treatment length)}} \right]$$

*(Number of live and slaughtered animals
x standard weight of adults and slaughtered animals)*

Material and Methods

ALEA values' distribution for the 156 eligible pig farms located in the West region in France and monitored since 2015 with Indicavet

Number of farms



Material and Methods

Elaboration of 4 antimicrobial consumption categories based on two threshold ALEA values (0,2 and 0,75)

	Categorie	ALEA 2015	ALEA 2016
Same farm antimicrobial consumption between 2015 and 2016	Low consumers (35)	< 0,20	< 0,20
	High consumers (9)	> 0,75	> 0,75
Evolution of the farm antimicrobial consumption between 2015 and 2016	Farms who increase (20)	ALEA 2015	ALEA 2016 > ALEA 2015 and change of category between 2015 and 2016
	Farms who decrease (92)	ALEA 2015	ALEA 2016 < ALEA 2015 and change of category between 2015 and 2016

Material and Methods

- Selection of 5 pig farms per category for the survey
- A questionnaire has been filled during an interview with **20 pig farmers**

10 farrow-to-finish farms

9 post-weaning to finishing farms

1 finishing farm

Seven farmers adhere to a quality and welfare charter

« Engagé dans l'élevage »

Material and Methods

- Questionnaire
 - Duration : 30 minutes
 - Three main topics
 - Antimicrobial usage practices (management)
 - Farmers' perception of their antimicrobial usage
 - General informations on the farm

Material and Methods

- Questionnaire
 - 8 open-ended questions
 - «What would bring you to decrease your antimicrobial usage...?»
 - 1 dichotomic question = yes/no
 - 1 « scale of intention »
 - «From 0 to 100%, how much do you think you can reduce your antimicrobial usage ?»

Material and Methods

- Questionnaire

- 5 « Likert scale »

Type of rating scale used to measure attitudes & opinions

Respondents are asked to rate items

according to their **level of agreement**

«Is antibioresistance issue highly exaggerated ?»

Strongly disagree / Tend to disagree

Strongly agree / Tend to agree

Material and Methods

- Questionnaire
 - 2 multiple choice questions
 - «In your opinion, to control the development and spread of antimicrobial resistance is important for:
 - Public Health
 - Animal Health
 - Consumers?»

Material and Methods

After the interviews:

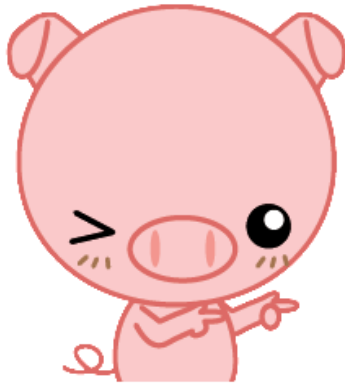
Elaboration of 3 new categories based on the technical performances of the farms (distribution + experts' opinion)

	Lower bound/limit	Upper bound/limit
Feed conversion ratio	FCR 8- 115 > 2,5	FCR 8- 115 < 2,5
Animal losses and Carcass condemnations	Wean-to-finish mortality rate > 6%	Wean-to-finish mortality rate < 6%

Good performances / Average Performances / Low performances

Results - Discussion

- Link between technical performances and antimicrobial usage



No Link

Collineau et al. 2017

Results - Discussion

- Antimicrobial usage practices
 - Major tools of antimicrobial reduction

Major « tools »	Answers of the farmers	
	No	Yes
Use of alternatives	4	15
Building / Material	11	9
Biosecurity	3	17
Regulation/Prices	8	12
Sanitary status	7	13
Genetic	13	5
Vaccines	3	17

Results - Discussion

- Antimicrobial usage practices
 - Measures regarded as ineffective by the farmers

Ineffective measures to reduce antimicrobial use	Answers of the farmers
Use of alternatives	5
Feed	3
Management	2
Biosecurity	2
Vaccines	7

Open-ended question

Results - Discussion

- Farmers' perception of their antimicrobial usage
 - Self-assessment of AMU comparatively to others

2. Sensibilité et perception des antibiotiques

2.1 Selon vous, quelle quantité d'antibiotiques est utilisée dans votre élevage par rapport aux autres élevages français?

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<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- Easier for low consumers (5 sur 5)
- Three of the high consumers think they are far below the average antimicrobials' consumption level

⇒ **Difficulty to self-assess their AMU**

Results - Discussion

- Farmers' perception of their antimicrobial usage
 - Evaluation to their ability to reduce
 - Low consumers
 - ⇒ **Already at their minimum**
 - High consumers and those who increased
 - ⇒ **Bigger potential of antimicrobial reduction**
 - Low consumers and those who decreased
 - ⇒ **They think they can make it without AM**

Moreno et al. 2014

Results - Discussion

- Farmers' perception of their antimicrobial usage
 - « Could you stop antimicrobial usage? »
 - ⇒ **Yes for all of them**
 - Possibility to stop antimicrobial usage on a temporary scale (short or long term goal?)
 - ⇒ **Only for low users or farmers who decreased**

Results - Discussion

- Farmers' perception of their antimicrobial usage
 - Which could be the key measures to help you to reach this goal « without antimicrobials »?
- ⇒ **Strong advisory role of the veterinarian**
- ⇒ **Taylor made antimicrobial reduction plan with their veterinarian**

Visschers et al. 2015 , Collineau et al. 2017

Results - Discussion

- Farmers' perception of their antimicrobial usage
 - Which could be the key measures to help you to reach this goal « without antimicrobials »?
- ⇒ **Better training and better knowledge concerning**
 - **diseases**
 - **treatments**
 - **alternatives**

Results - Discussion

- Farmers' perception of their antimicrobial usage
 - Which could be the key measures to help you to reach this goal « without antimicrobials »?
- ⇒ Increase of antimicrobial price non acceptable
- ⇒ Decrease of vaccination's cost acceptable
- ⇒ « rewards/penalties » : 1/3 of the farmers agree

Conclusion

- Veterinarian = main advisor on animal health
- Real need for a better training and more informations

Importance of veterinarian support and counselling to
implement new practices

- **Better knowledge on « alternatives »**
 - Real need
 - High diversity & difficulty to get validated data

Thank you for your attention!

- *Thank you to the vets from Univet Santé Elevage and Cybelvet*
- *Thank you to the technical teams*
- *Thank you CEVA for the statistical help*
- *Thank you to the farmers for their welcome and availability*

