

Succesvolle vermindering van antibioticumgebruik op varkensbedrijven: via coaching naar betere bioveiligheid en management

Merel Postma, UGent

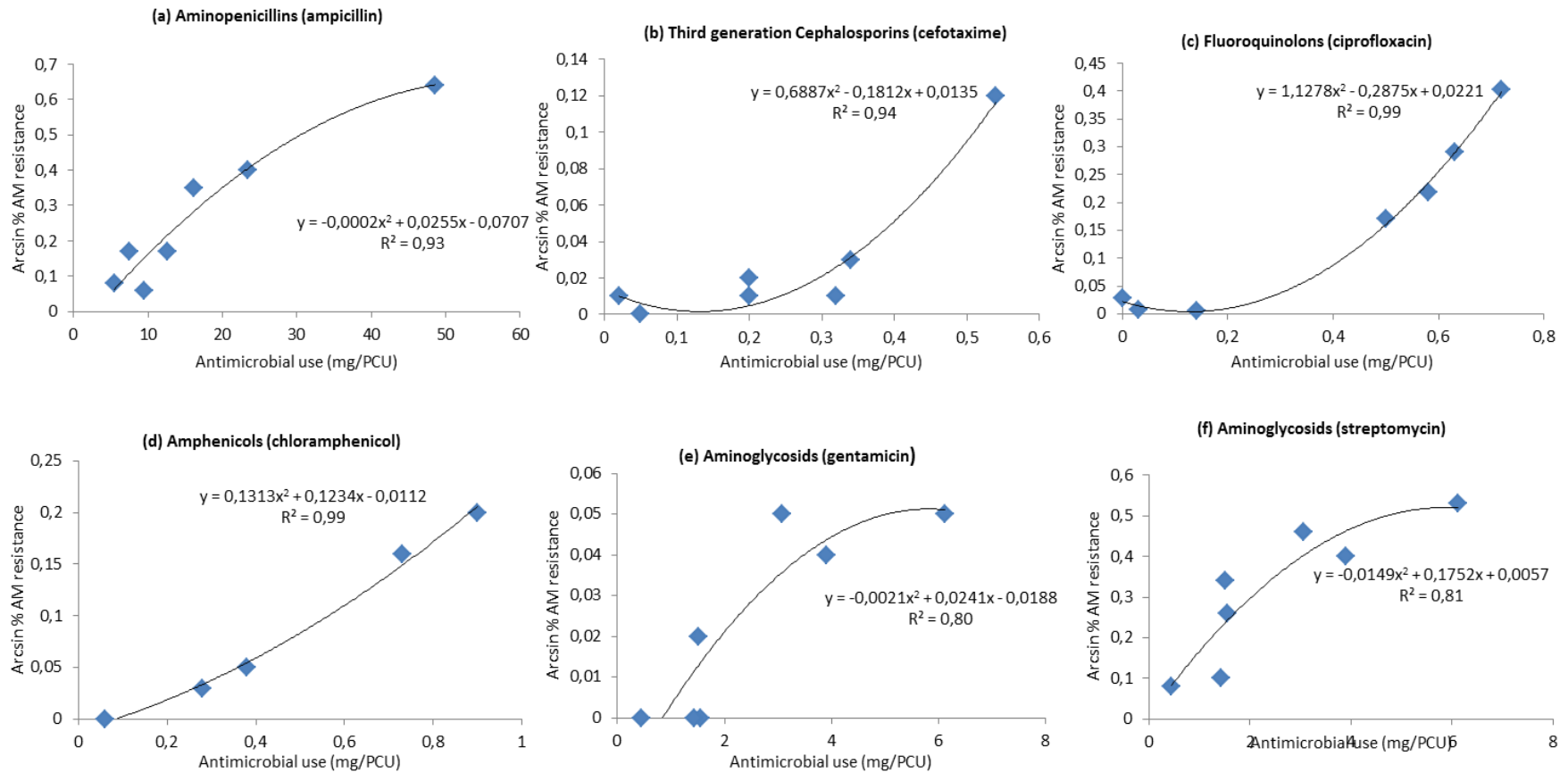
Wannes Vanderhaeghen, AMCRA WE

BAPCOC studiedag “Examples of best practices to reduce antibiotic resistance” 18/11/2016

Outline

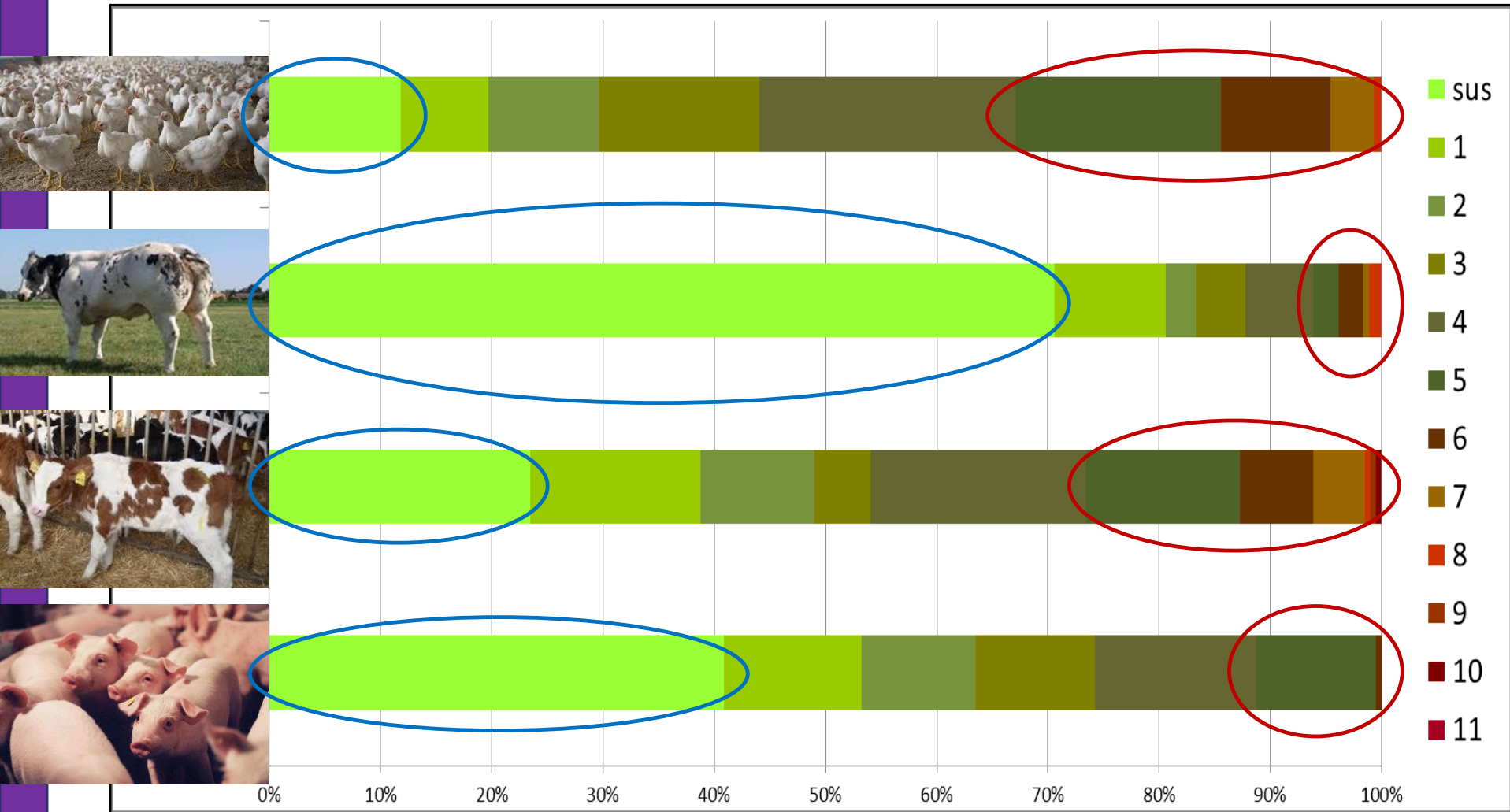
- Introduction
- Alternatives to antimicrobial use
- Reducing AMU without jeopardizing production parameters
- Conclusions

Introduction: link AMU and AMR

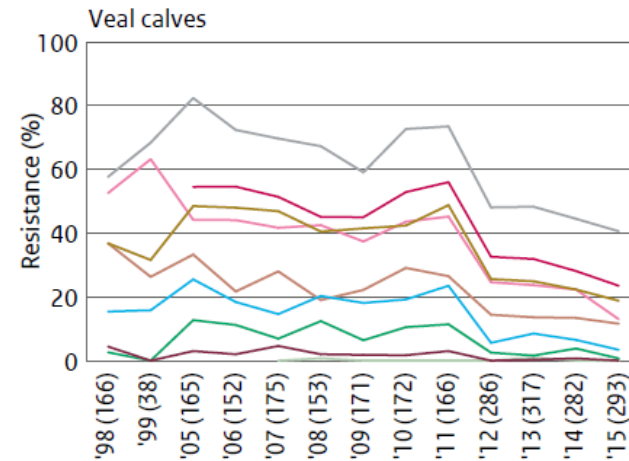
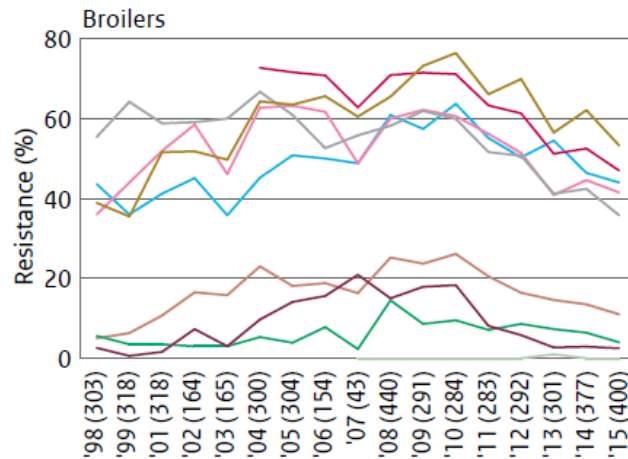
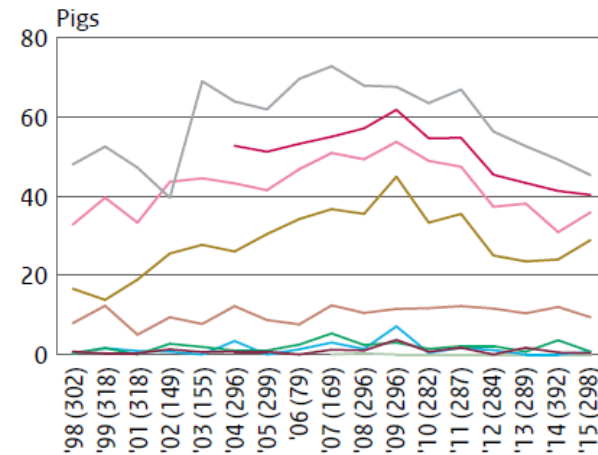
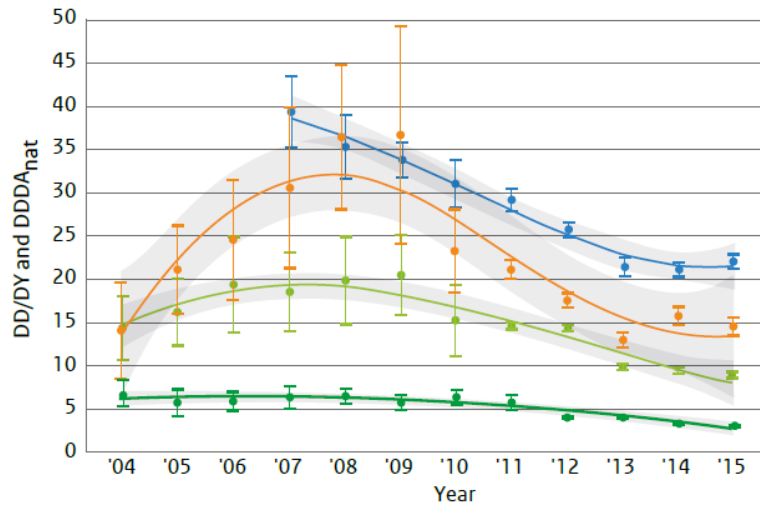


Chantziaras et al., 2013

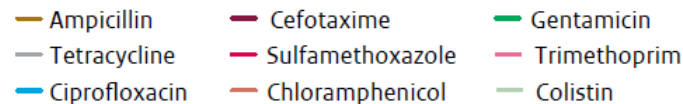
Introduction: link AMU and AMR



Introduction: link AMU and AMR

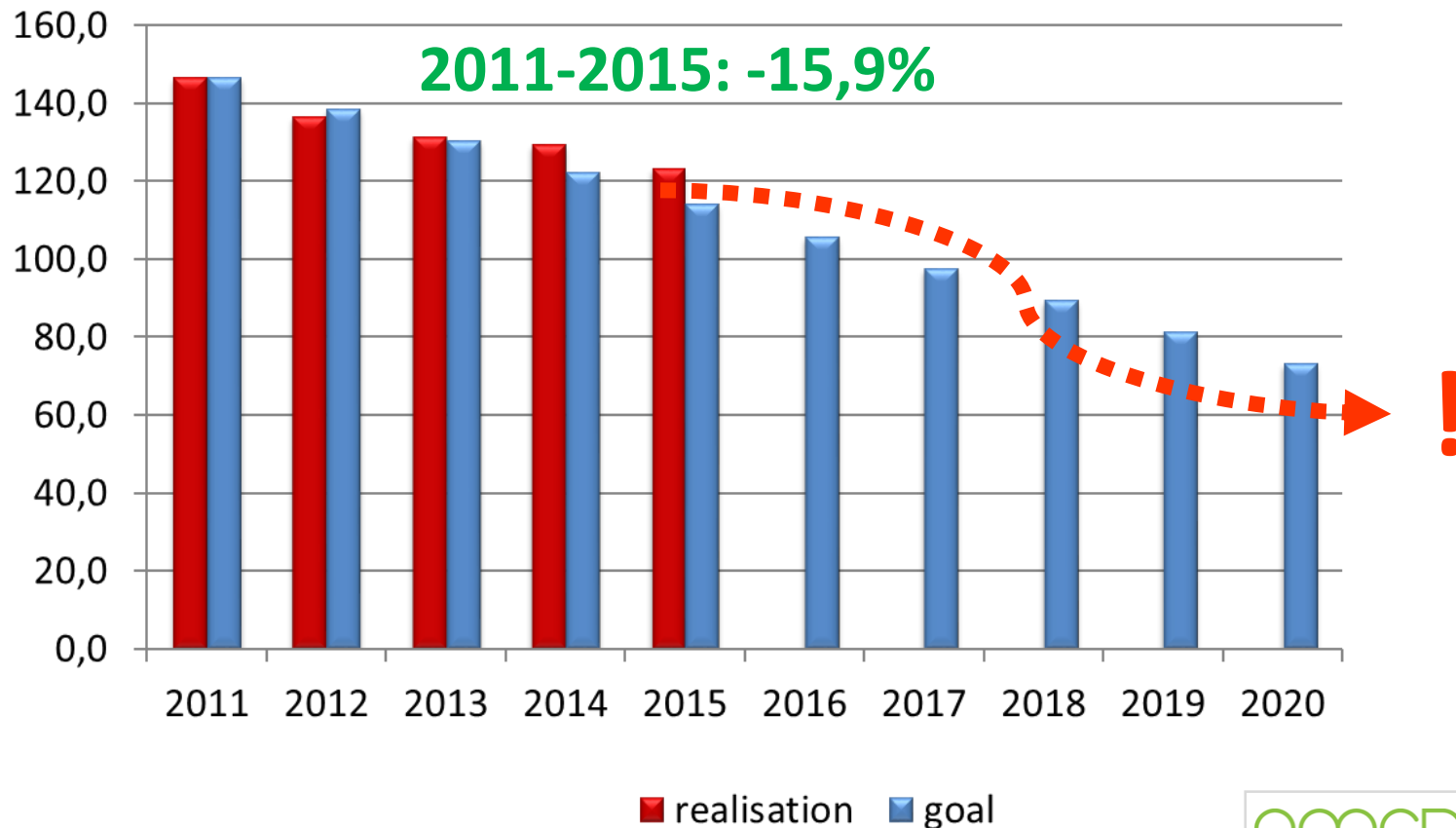


MARAN 2016



Introduction: reducing AMU in animals

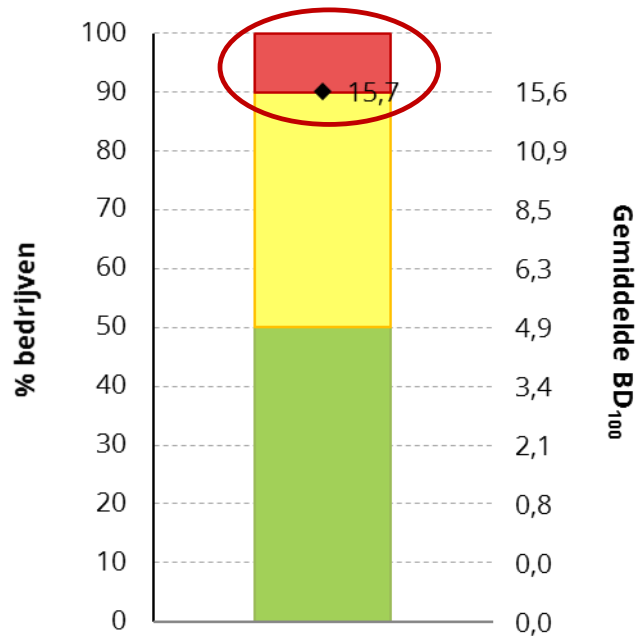
Evolution total AMU since 2011 (AMCRA 2020)



Introduction: reducing AMU in animals

- Identification of highest users

◆ Uw gemiddelde BD_{100} en uw positie t.o.v. andere bedrijven

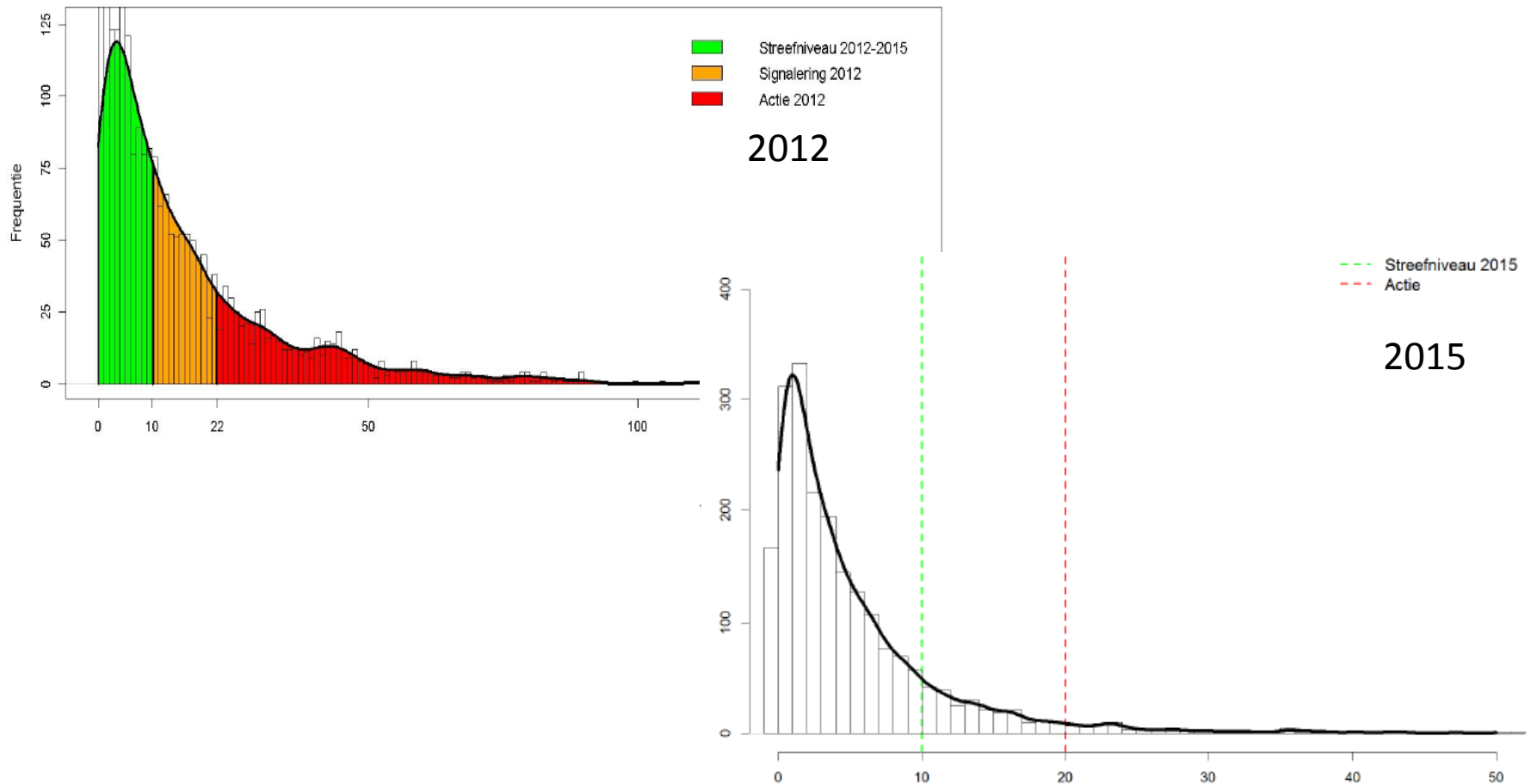


→ Certus: special action plan required



Introduction: reducing AMU in animals

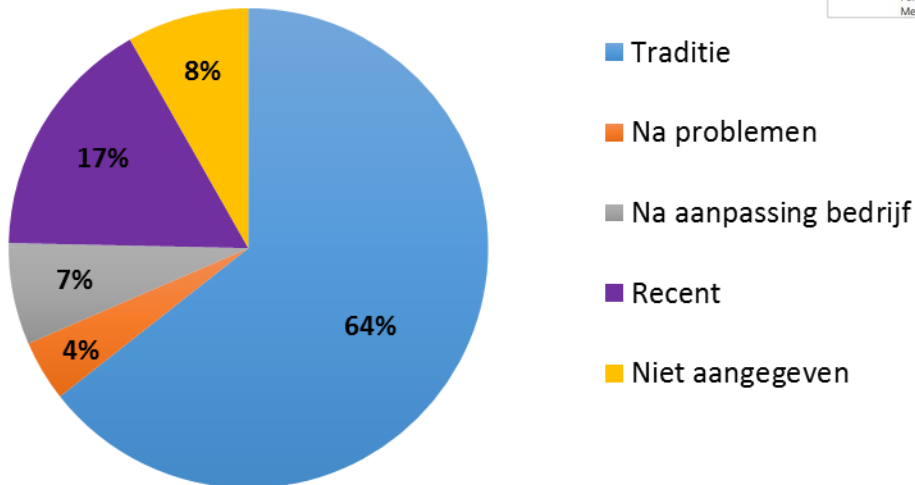
- NL: general decrease in AMU



Reduction of AMU in animals

- RATIONAL reduction
 - Limit AMU to necessary treatments

Aanvang standaardbehandelingen?



Zoonoses and Public Health

ORIGINAL ARTICLE

Reducing Antimicrobial Usage in Pig Production without Jeopardizing Production Parameters

M. Postma¹, W. Vanderhaeghen^{1*}, S. Sarrazin¹, D. Maes² and J. Dewulf¹

¹ Veterinary Epidemiology Unit, Department of Reproduction, Obstetrics and Herd Health, Faculty of Veterinary Medicine, Ghent University, Merelbeke, Belgium

² Porcine Health Management Unit, Department of Reproduction, Obstetrics and Herd Health, Faculty of Veterinary Medicine, Ghent University, Merelbeke, Belgium

Reduction of AMU in animals

- RATIONAL reduction
 - Limit AMU to necessary treatments
 - Take away the necessity to treat with AM
- ⇒ **Alternatives!?**

Preventive Veterinary Medicine 118 (2015) 457–466



Contents lists available at ScienceDirect

Preventive Veterinary Medicine

journal homepage: www.elsevier.com/locate/prevetmed



Alternatives to the use of antimicrobial agents in pig production: A multi-country expert-ranking of perceived effectiveness, feasibility and return on investment



Merel Postma^{a,*}, Katharina D.C. Stärk^b, Marie Sjölund^{c,d}, Annette Backhans^{c,d}, Elisabeth Grosse Beilage^e, Svenja Lösken^e, Catherine Belloc^f, Lucie Collineau^b, Denise Iten^{g,1}, Vivianne Visschers^g, Elisabeth O. Nielsen^h, Jeroen Dewulf^a, on behalf of the MINAPIG consortium²

Alternatives to AMU

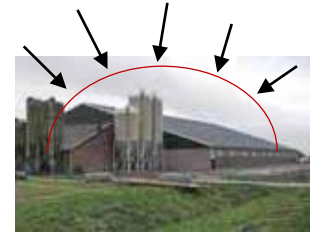
Top 5 alternatives according to pig health experts

1. Improved internal biosecurity
2. Increased vaccination
3. Use of zinc/metals (weaned piglets)
4. Improved feed quality/optimisation
5. Diagnostics & action plan

Alternatives to AMU

Higher **biosecurity**

“The combination of all measures taken to reduce the risk of introduction and spread of diseases on herd, region, country,... level.”



External



Internal

Better **herd management**

“All measures that address animal health and welfare, environmental, economic and social sustainability for on-farm processes and result in healthy animals and safe and quality pork products.”

ORIGINAL ARTICLE

Reducing Antimicrobial Usage in Pig Production without Jeopardizing Production Parameters

M. Postma¹, W. Vanderhaeghen^{1,*}, S. Sarrazin¹, D. Maes² and J. Dewulf¹

¹ Veterinary Epidemiology Unit, Department of Reproduction, Obstetrics and Herd Health, Faculty of Veterinary Medicine, Ghent University, Merelbeke, Belgium

² Porcine Health Management Unit, Department of Reproduction, Obstetrics and Herd Health, Faculty of Veterinary Medicine, Ghent University, Merelbeke, Belgium

* Current affiliation: AMCRA (Center of Expertise on Antimicrobial Consumption and Resistance in Animals), FPS Health, Food chain safety and Environment, Eurostation II, Place Victor Horta 40 box 10, 1060 Brussels, Belgium

Impacts

- A promising route of action to achieve the reduction in antimicrobial use is the optimization of herd management, improvement of the biosecurity level and guidance on prudent antimicrobial use.
- Implementation of these improvements as a team effort of the farmer in collaboration with experts resulted in a significant reduction of 52% in antimicrobial usage from birth till slaughter, and a further reduction of 32% in breeding animals.
- On average, the production results were improved during the intervention period.

Keywords:

Antimicrobial reduction; pig production; biosecurity; vaccination; herd optimization; team effort

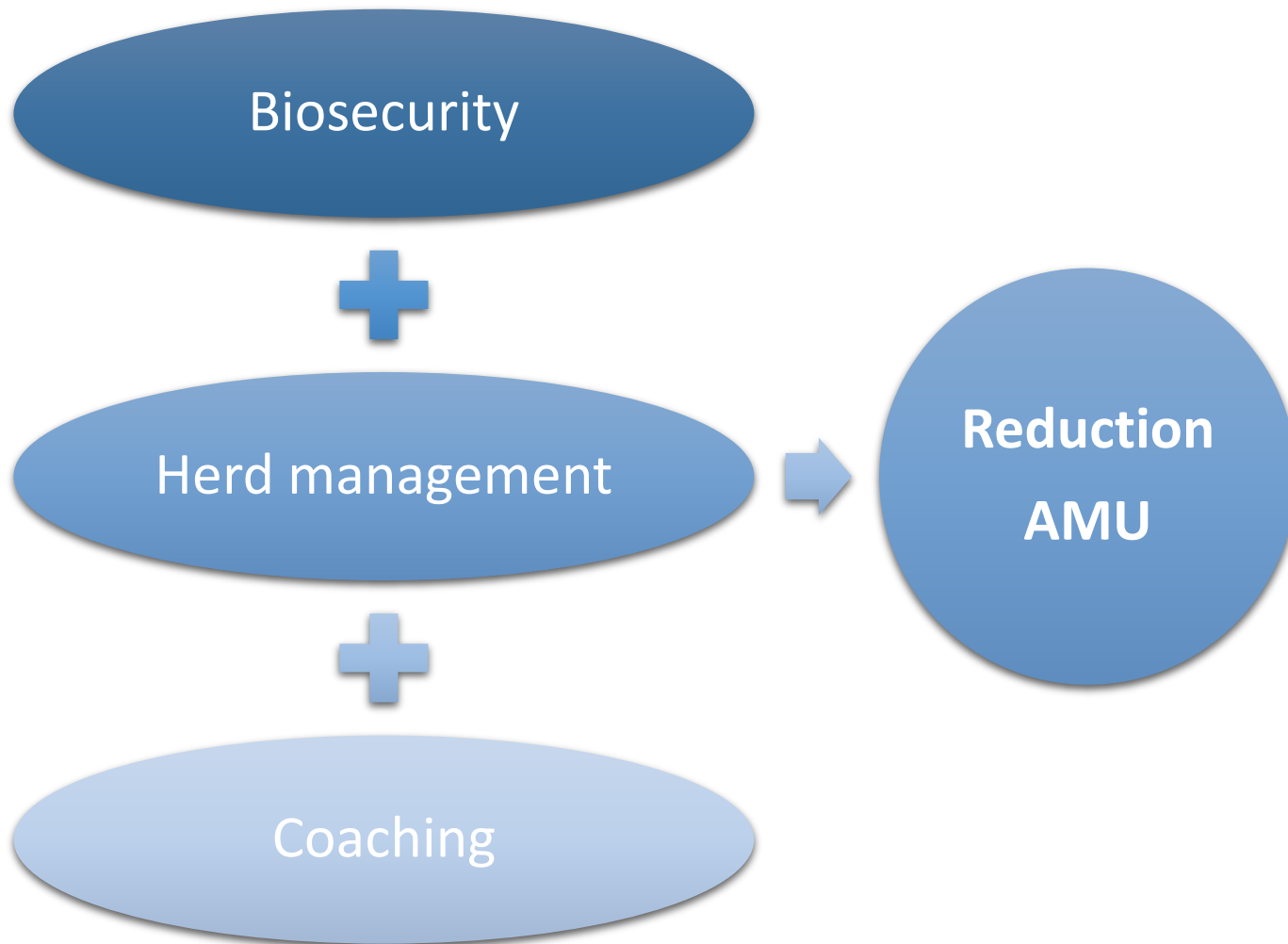
Correspondence:

M. Postma. Veterinary Epidemiology Unit, Department of Reproduction, Obstetrics and Herd Health, Faculty of Veterinary Medicine, Ghent University, Salisburylaan 133, 9820, Merelbeke, Belgium. Tel.: +32 9 264 75 48; Fax: +31848369077; E-mail: Merel.Postma@ugent.be

Summary

Antimicrobial usage (AMU) has been described to be high in pig production. Although farmers are aware of the high usage, little is known about intervention to improve the situation. This study evaluated the extent to which AMU could be reduced in pig production by the optimization of herd management, biosecurity status, vaccination strategy, anthelmintic therapy and advice on prudent AMU. Furthermore, the effects of these interventions on the herd production results were explored. This intervention study was conducted on 61 Flemish pig herds and included three visits per herd. During the initial visit, information was gathered on herd management, biosecurity status (quantified by means of the Bio-check UGent™ risk-based scoring system), vaccination strategy, anthelmintic

Reducing AMU without jeopardizing production parameters



Study set up

61 Flemish herds



3 Herd visits



Intervention &
follow up

Coaching

⇒ Herd-specific advice



Study results

Follow-up of advices on biosecurity & herd management

	% ADVISED	% FEASIBLE	% IMPLEMENTED
Registration symptoms & moment mortality for analysis	95	98	66
Hand hygiene, change coverall and clean boots	86	88	59
Change needles often	85	82	62
Hygiene lock per animal/age category	76	58	7
Use strict euthanasia policy	71	90	81
Wash sow before farrowing crate	68	45	20
Analysis drink water 1x/year well/pipes	68	98	80
Keep dog/cat out of the stable	49	34	21
AI / AO, do not return to younger age group	41	54	33
Use dirty road for transport of manure	20	100	75
Change wooden boards for plastic boards	10	67	83

Study results

Follow-up of advices on diagnostics & vaccination

	% ADVISED	% FEASIBLE	% IMPLEMENTED
Request slaughter findings for analysis	75	59	57
Additional vaccinations in general	51	94	81
Additional specific vaccinations: PCV2	16	100	62
Check serology titres in general	33	95	90
Adjustment of vaccination scheme: Atrofic rhinitis	8	100	80

Study results

Follow-up of advices on AMU

	% ADVISED	% FEASIBLE	% IMPLEMENTED
Restrictive use of potent AM	92	72	45
Stop (routine) prophylactic treatment birth until slaughter	88	69	59
Stop prophylactic treatment in sows	24	90	83
Ask for resistance profile/sensitivity testing	7	79	0

Study results

Higher external biosecurity

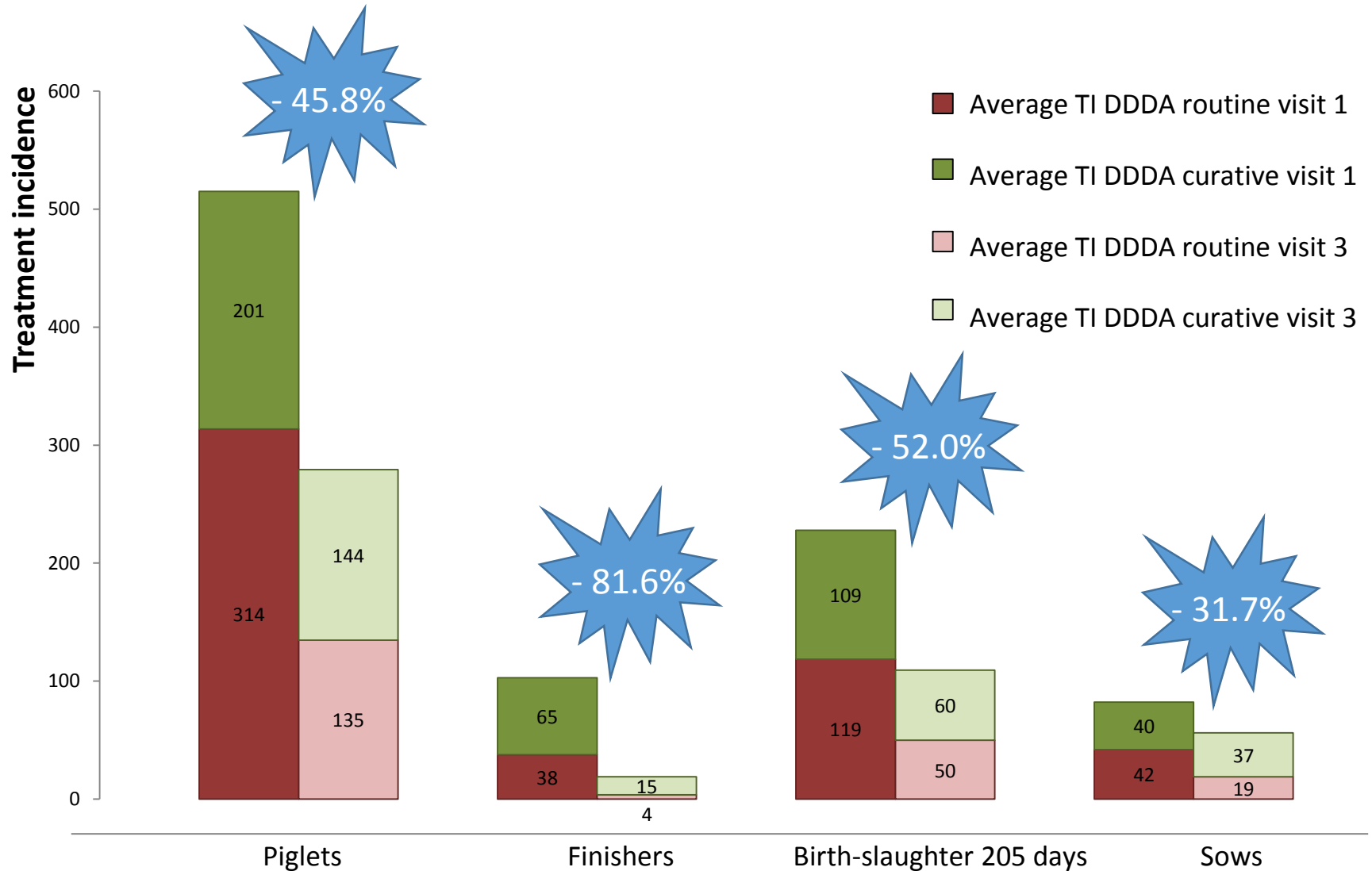
Parameter	% difference
Biosecurity external	+3.7%
Purchasing policy	+3.6%
Removing animals, manure and carcasses	+6.2%
Supply of fodder, water and equipment	+3.9%
Access check	+2.8%
Vermin and bird control	+6.4%
Location and environment	-4.8%

Study results

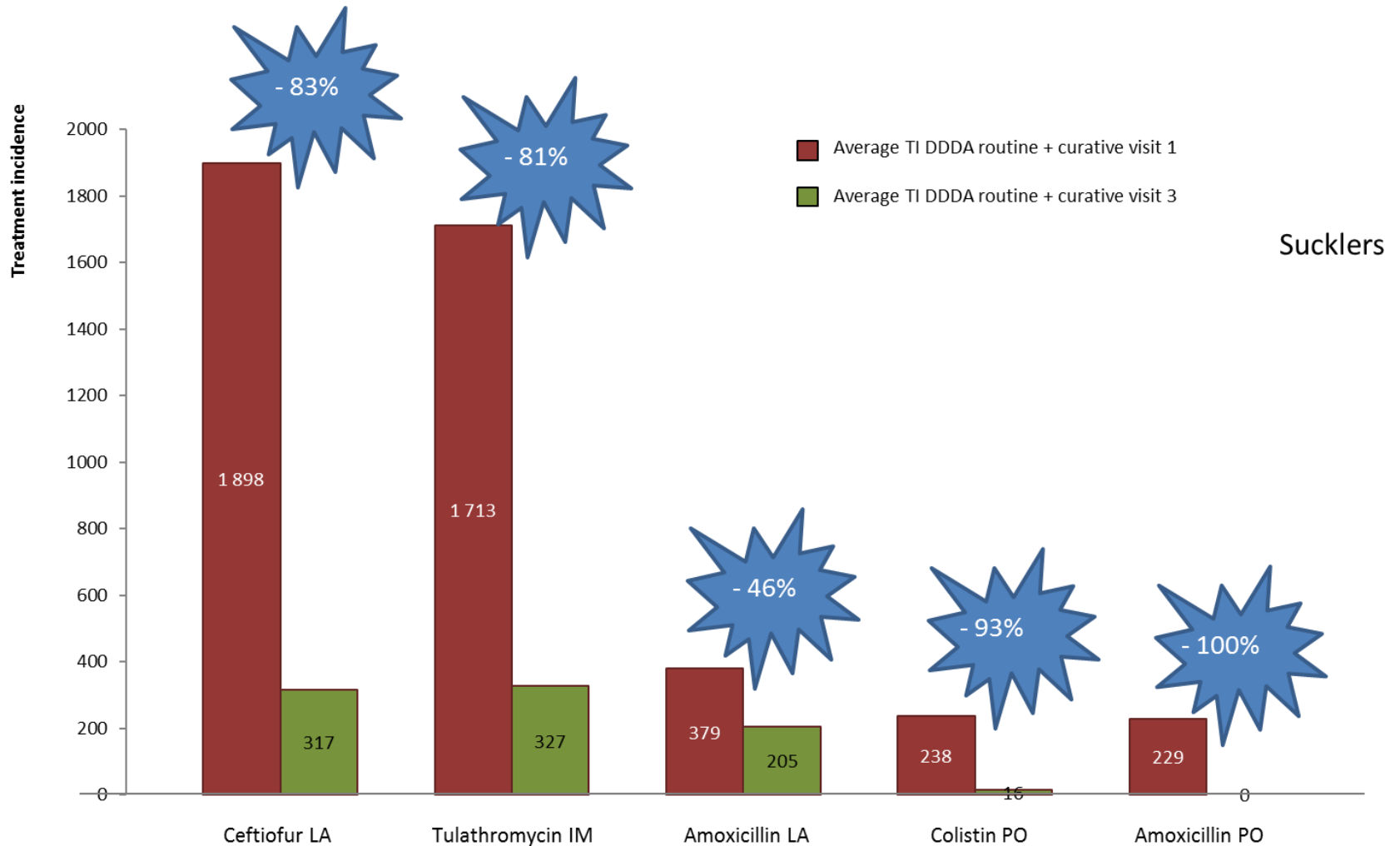
Higher internal biosecurity

Parameter	% difference
Biosecurity internal	+14.2%
Disease management	+21.1%
Farrowing and suckling period	+18.8%
Nursery period	+6.1%
Fattening period	+8.3%
Compartmentalizing, working lines and equipment	+17.5%
Cleaning and disinfection	+18.0%

Study results



Study results



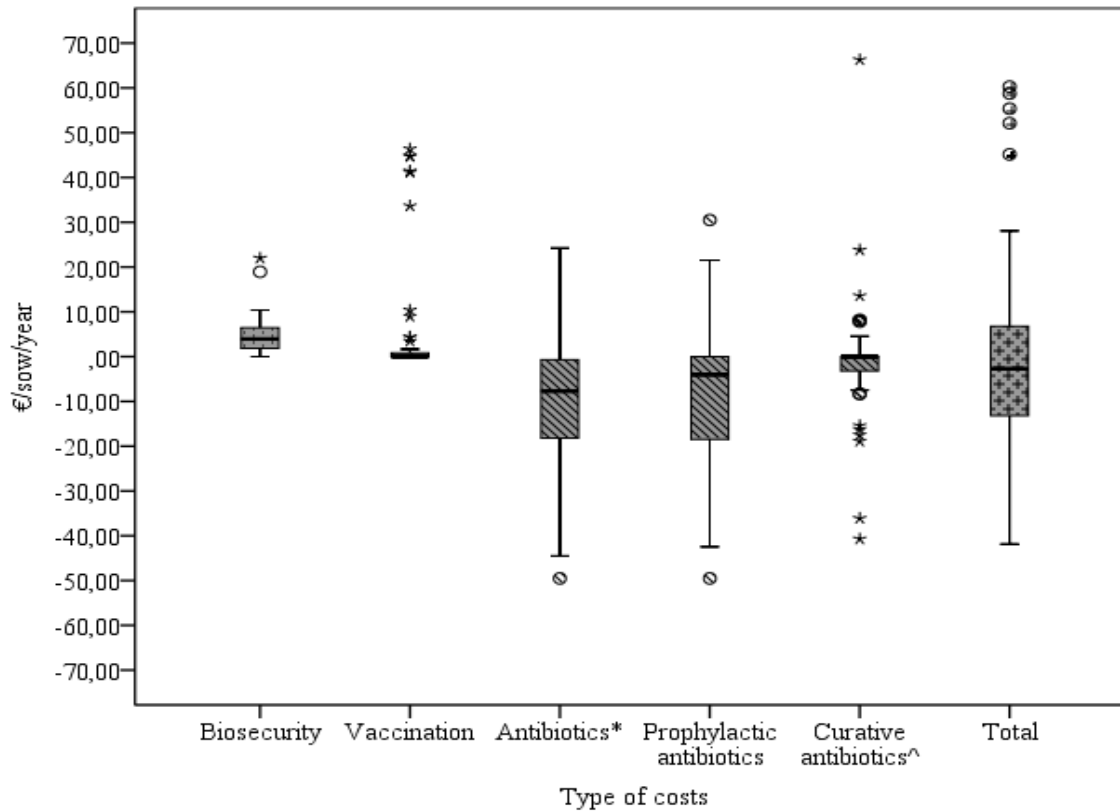
Study results

Production parameters

	VISIT	MEAN	DIFFERENCE	P-VALUE
Number of weaned piglets per sow per year	Initial	26.4		
	Follow up	27.5	+1,1	<0.01
Daily weight gain (g/day) finishers	Initial	667.5		
	Follow up	675.2	+7,7	0.01
Mortality in finisher period (%)	Initial	3.2		
	Follow up	2.6	-0,6	0.04

Study results

Economic effect



Net benefit

€ 42,99 per sow/year

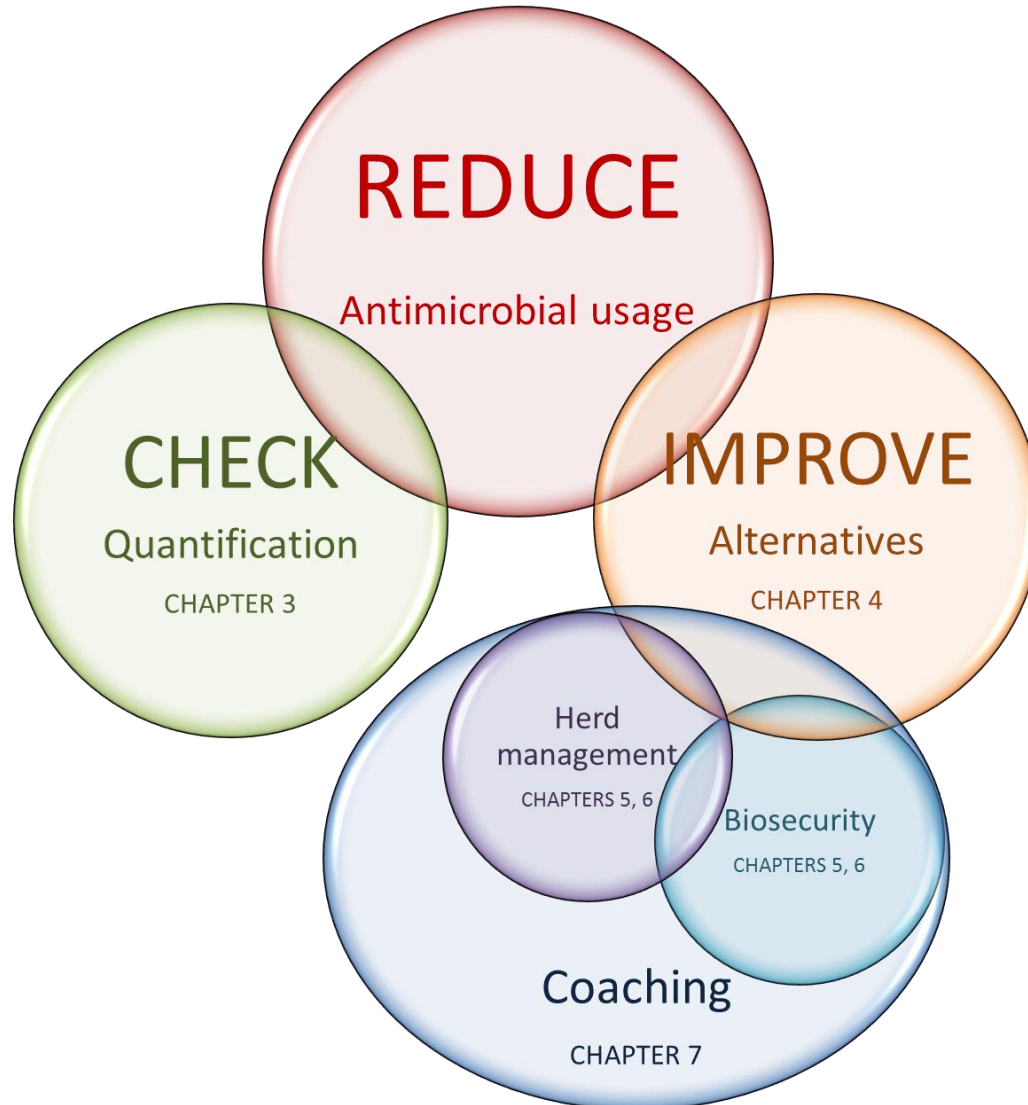
€ 2,67 per finisher/year

(Rojo-Gimeno C. and Postma M. et al., 2016)

Conclusions

- Coaching of farmers & team work
- 52% reduction in AMU
- Important reduction critically important antimicrobials
- Improved technical results & economically beneficial

Take home





Het bedrijfsgezondheidsplan

Samen afspraken maken voor een beter resultaat

Brussel, 16 november 2016

Kraamstal: waarnemingen

Gezondheid/Behandeling	Huidig BGP	Vorig BGP	Datum vorig BGP	Streefwaarde
	<ul style="list-style-type: none"> Op dag 3 worden de biggen behandeld met oxytetracycline (en ijzer) Op dag 7 castratie en staartjes met 			
Voeding/Beschrijving	Biggen krijgen vanaf D2 snoepvoeder in kraamstal tot 1w voor spenen			
Bedrijfsvoering				
All-in / All-out	Ja			Ja
Score afdrukplaatjes	6			2

Kraamstal: acties

Bedrijfsvoering/Afdrukplaatjes	Omschrijving	Verantwoordelijke	Oplevering	% Realisatie
	Een score van 6 = niet uitgevoerd. Daarom afdrukplaatjes gebruiken om na te gaan hoe de reiniging en ontsmetting verlopen is	Veehouder	31/10/2016	0%

Batterij: waarnemingen

Stal en klimaat	Huidig bezoek	Vorige waarneming	Datum vorige waarneming	Streefwaarde
Oppervlakte/varken Laatste klimaatmeting	0.28 m ² 2/8/2013	0.28 m ²	1/9/2016	0.30 1/1/2016
Gezondheid		1.5 %		
% plotsse sterfte	1.5%			0
% dieren m. diarree	0%			0
% niezende dieren	20%			5%
Behandeling	<ul style="list-style-type: none"> Na spenen amoxicilline + zinkoxide Laatste fase batterij colijste in het voeder Sinds een jaar plotsse sterfte van 'goede' biggen 3weken na spenen tot van 20 kg. autopsie beeld van slingerziekte. Er is geen sprake van diarree. De sterfte treedt vooral op in de laatste fase van de batterij, dan zit er geen zink meer in het meel, wel colijste .			
Beschrijving				
Voeding				
Voerovergangen in orde	Ja			Ja
Beschrijving	Van 1w voor tot 1w na spenen fase 1 snoepvoeder , van 1w na spenen tot 15 kg fase 2 voeder. amoxicilline en ZnO. Van 15 kg tot 21 kg: fase 3, in laatste fase voeder colijste . Nu overschakeling van gruoch naar meel. Aanzuren vindt soms plaats, niet systematisch ...			

Batterij: acties

Gezondheid/Nieuwsk	Omschrijving	Verantwoordelijke	Oplevering	% Realisatie
	Nieuwsk nemen voor AR onderzoek	Dierenarts	21/11/2016	0%
Stal en klimaat				
Meting	Herhaling van klimaatmeting	Veehouder	6/12/2016	0%

Conclusie:

Uitbraken van slingerziekte zijn vaak stress gerelateerd. Alle stressfactoren dienen vermeden te worden.

- **Geen overbezetting: biggen mogen tot maximaal 20 kg per 18 blijven zitten, indien langer moeten er minder biggen per hok!**
- Optimaliseren van voeder en voederovergangen
- Optimaliseren van het klimaat:
 - o Minimumventilatie 30%
 - o Maximumventilatie 90%
 - o Werken met schulven, bij opzet: mogen schulven vrij dicht staan, geleidelijk aan verder open geschoven worden tot ongeveer 15 kg. Op dat moment: hoeven er geen schulven meer gebruikt te worden.
 - o Let op met compartiment 4: de ventilator draait harder op dezelfde minimumventilatie (is nieuwer): schulven iets langer dicht houden.

Antibioticumgebruik kan herbekeken worden: er zijn geen aanwijzingen voor ~~streptococcus~~ en E. coli is niet meer gevoelig voor amoxicilline. Het gebruik van amoxicilline kan afgebouwd worden. Ook het gebruik van ~~colijste~~ kan afgebouwd worden. Maar bij een uitbraak is een snelle reactie nodig, dus best mogelijkheid om een compartiment te behandelen via het drinkwater voorzien.

Optimale vraagtemperatuur (bron: klimaatplatform varkenshouderij)

	Insteltemperatuur	Insteltemperatuur
--	-------------------	-------------------

Vleesvarkens 80 kg	21	22
Vleesvarkens 100 kg	21	22

Optimale bezettingsdichtheid (bron: AMCRA)

Gemiddeld diergewicht (kg)	Minimaal (wettelijke) vereiste oppervlakte (in m ²) per dier ^a	Optimale oppervlakte (in m ²) per dier ^b
< 10 kg	0.15	0.17
10 tot 20 kg	0.20	0.27
20 tot 30 kg	0.30	0.35
30 tot 50 kg	0.40	0.49
50 tot 85 kg	0.55	0.70
85 tot 110 kg	0.65	0.83
> 110 kg	1	

Datamodel “Proof of concept” applicatie

▶ Verschillende datatypes

- Getallen (met hun eenheden)
- Meerkeuzelijsten
- Datums
- Vrije tekst

▶ Niet hard gecodeerd => te configureren door experts(team)

- Voor meerdere diersoorten
- Structuur van het bedrijfsbezoek (afdelingen, activiteitengroepen)
- Parameters
- Checklists

herman.deschuytere@dgz.be

Acknowledgements

- Funding companies
- Participating farmers & vets
- Colleagues and co-authors

