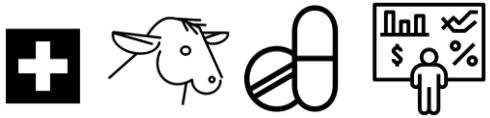
Economic assessment of policy options to reduce antibiotic prescribing in veal calf production in Switzerland



Anaïs Léger, Isabel Lechner, Katharina Stärk
SAFOSO AG
AACTING conference
July 2019, Bern

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The “Calf project”

2 years project conducted by Swiss Bovine Health Service in Zurich (CH)

Funded by the Swiss Federal Food Safety and Veterinary Office

Objectives of the project:

- Identification of policy options for AM use reduction (workshop)
- Assessment of income of large animal practices due to AM disposal (data collection through questionnaire survey)
- Partial budgeting at practice level to evaluate options to compensate losses of revenues

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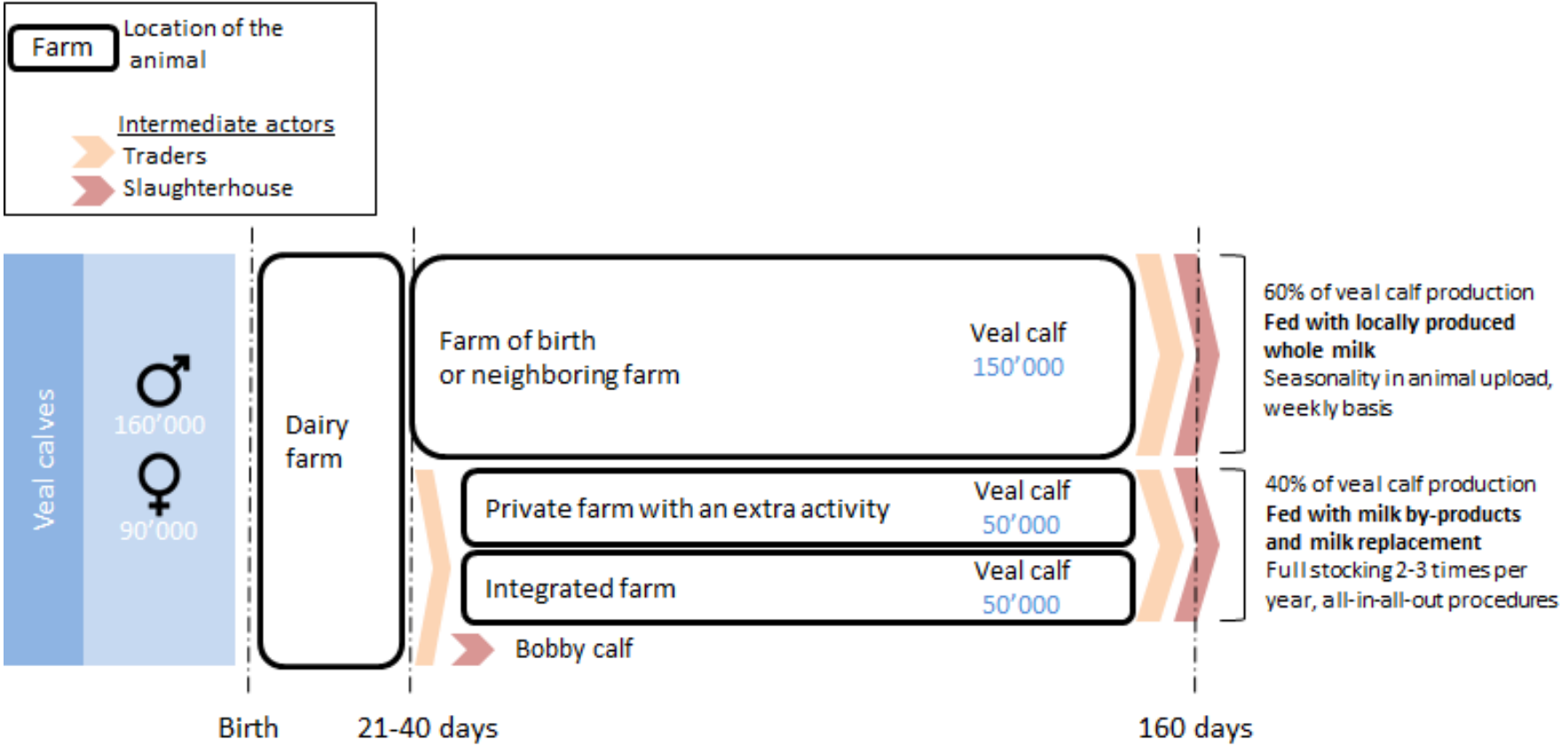
KGD Schweizer Kälbergesundheitsdienst
SSV Suisse Service Sanitaire Veau

RGD Rindergesundheitsdienst
SSB Service Sanitaire Bovin



Organisation of the veal production in Switzerland

Partial budgeting

What has changed/would change in one year at practice level after the implementation of a national intervention?

Added incomes	Added costs
• General herd health planning • New vaccination programmes implemented • Prescription fees for AM prescription	• Phone calls for reminders to farmers • Team meeting about practice management
Reduced costs	**Reduced incomes**
• Administration for AM (registration in database) • Management of AM stock at practice	• Margin from AM sales • Consultations for AM prescription

Net change in profit (CHF/year) = (added income + reduced costs) − (added costs + reduced income)

Scenarios tested

Danish Veterinary and Food Administration, 2017
Speksnijder *et al*. 2015
Postma *et al.* 2016
Aarestrup *et al.* 2010

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Impact of the Scenario 1- vet benchmarking

- General herd health planning
- New vaccination programmes implemented
- Prescription fees for AM prescription

Added incomes

Added costs

- Phone calls for reminders to farmers
- Team meeting about practice management

Reduced costs

Reduced incomes

- Administration for AM (registration in database)
- Management of AM stock at practice

- Margin from AM sales
- Consultations for AM prescription

4h for specific strategy planning with all rural employees of the practice about AMU reduction per year

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Impact of the Scenario 1- vet benchmarking

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Added incomes

Added costs

- Phone calls for reminders to farmers
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Reduced costs

Reduced incomes

- Administration for AM (registration in database)
- Management of AM stock at practice

- Margin from AM sales
- Consultations for AM prescription

25% losses of consultations because no AM would be prescribed

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Model building

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Collineau *et al.* 2014
Postma *et al*. 2015 and 2016
Dewulf *et al*. 2018
Visshers *et al.* 2015
Speksnidjer *et al.* 2015a and b
Jensen *et al.* 2014

@

Stochastic approach

- Uncertainties from the consortium
  - lack of data
  - difficulty to assess the real impact of only one intervention
- Variability
  - in the success of scenarios e.g. decrease of AM prescription after the implementation of Sc1
  - between the practices: distribution adapted from the 29 veterinary practices and 84 calf operations

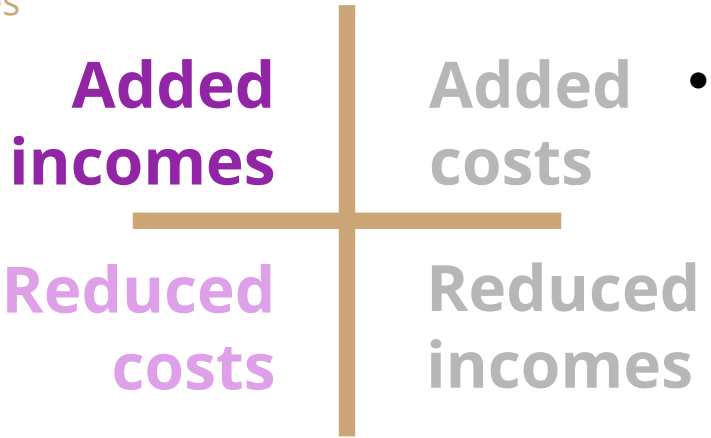
Best vs worst management scheme

- Willingness to change
  - veterinarians and farmers
  - changing habits
  - potential economic impacts in production and animal health
- Capacity to adapt from the practice
  - number of employees
  - other sources of income
  - trust between farmer and veterinarian

Variables -stochasticity

- General herd health planning
- New vaccination programmes implemented @
- Prescription fees for AM prescription

Number of calf operations linked to the veterinary practice



- Phone calls for reminders to farmers
- Team meeting about practice management

- Margin from AM sales
- Consultations for AM prescription

- Administration for AM (registration in database)
- Management of AM stock at practice

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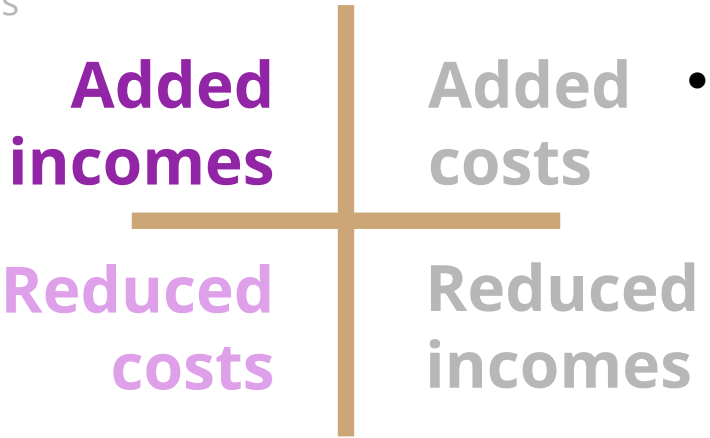
Variables – best/worst management scheme

- General herd health planning
- New vaccination programmes implemented
- Prescription fees for AM prescription

Percentage of change (increase) in general herd health planning consultations per year per practice
75% (best) or 25% (worst)



- Phone calls for reminders to farmers
- Team meeting about practice management

- Margin from AM sales
- Consultations for AM prescription

- Administration for AM (registration in database)
- Management of AM stock at practice

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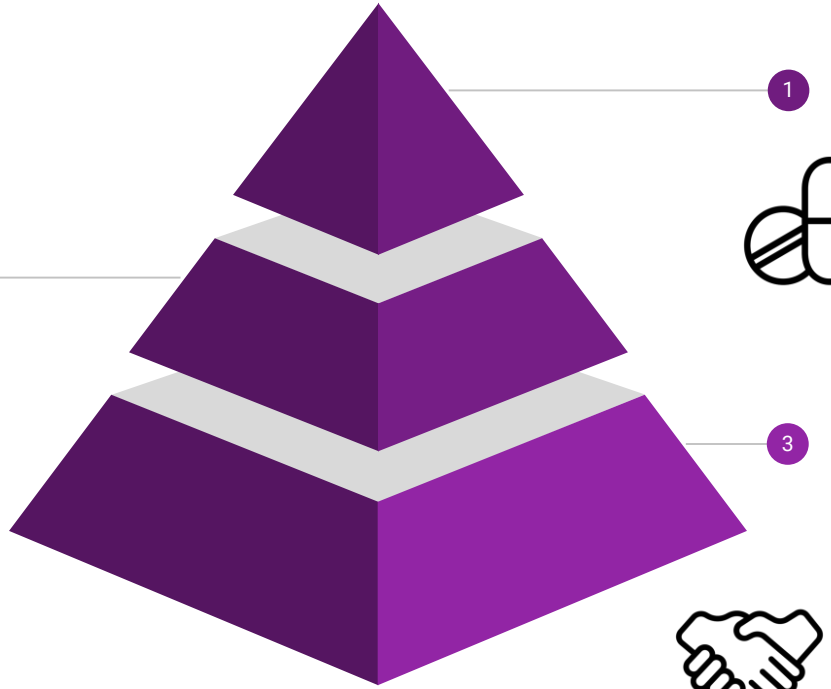
Assumptions for calculation

Bokma *et al.* 2019
Ducrot et al. 2019
Bos *et al.* 2015
Collineau *et al.* 2017
Alban *et al.* 2013
Bennedsgaard *et al* 2010
Doidge *et al*. 2019
Bourély *et al.* 2018



1 **50% for AM gross margin** (median value)

2 **Stable health status of the calf operation after AMU reduction**

3 **Exclusive relationship farmer/veterinarian**

- Changes (losses and gains) linked to the studied practice
- E.g. vaccination or herd health management consulting

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Data collection

Survey among veterinary practices

- Conducted by the Swiss Bovine Health Service (Vetsuisse-Faculty, Zürich)
- Survey conducted in January-February 2018
- 29 answers / 120 practices contacted

Data used for partial budgeting: **invoices for veal calf operations over 1 year (2017)**

29 practices

84 calf operations (~3 calf operations per practice with different health status)

2’152 invoices

9’119 positions on bills collected

Results

	Stochastic approach via @Risk (median of 10'000 iterations)	
(CHF/year)	Best management scheme	Worst management scheme
Scenario 1	52'215	3'723
Scenario 2	49'466	1'903
Scenario 3a	36'615	-7'419
Scenario 3b	35'293	-8'548

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Discussion

- Selection of scenarios
  - Based on previous interventions in Europe: Denmark, Finland, the Netherlands, Belgium, Germany, Austria, UK… (workshop)
  - Based on scientific literature (Postma *et al.* 2016, Speksnijder *et al.* 2015 *etc*.)
  - Swiss national interventions ongoing: benchmarking for calf operations and veterinarians, reduce need of traders

- Scenario 3a and 3b are the less successful scenarios
  - Loss of 8’500CHF per year, = 700 CHF/month
  - Conflict of interest of veterinarians with prescribing and selling AM?
  - Option the least liked from veterinarians, identified from previous studies (Postma *et al.* 2016, Speksnijder *et al.* 2015)
  - Access to AM from remote calf operations: Finland vs. Denmark

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Discussion

- Selection of alternative options to compensate loss of income
  - From consortium and literature review
  - Veterinarians as a herd health consultant
  - Education of veterinarians: from universities to continuous education

- Veal calf industry in Switzerland and AMU
  - Survey among veterinarians and AM experts: reduce by 50% the use of AM among veal calves in Switzerland (Carmo *et al.* 2018, Postma *et al*. 2016, Bos *et al.* 2015, Speksnijder *et al.* 2015, Dorado-Garcia et al. 2015)

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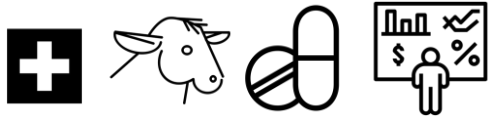
Thanks for your attention



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