Antimicrobial usage in farm animals

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It’s time to reduce, replace and re-think the use of antimicrobials in animals

SCIENTIFIC OPINION

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EMA and EFSA Joint Scientific Opinion on measures to reduce the need to use antimicrobial agents in animal husbandry in the European Union, and the resulting impacts on food safety (RONAFA)

EMA Committee for Medicinal Products for Veterinary Use (CVMP) and EFSA Panel on Biological Hazards (BIOHAZ),

Key take-home message

The need for a *multifaceted, integrated* approach, adapted to local conditions
The Netherlands

During 2007-12
- 56% reduction
- Dramatic decline in CIA usage

http://www.autoriteitdiergeneesmiddelen.nl
The Netherlands

- **Objective measurement**
  - sDa, national agency
- **Changes to antimicrobial usage**
  - Veterinary prescribing guidelines
  - A shift away from:
    - Critically important antimicrobials (CIAs)
    - Preventive usage
    - Systemic use of β-lactams antimicrobials and aminoglycosides

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Selective dry cow therapy

Evaluation of the use of dry cow antibiotics in low somatic cell count cows

*GD Animal Health, PO Box 9, 7400 AA Deventer, the Netherlands
†Department of Animal Health, Utrecht University, PO Box 80151, 3508 TD Utrecht, the Netherlands

Evaluation of selective dry cow treatment following on-farm culture: Milk yield and somatic cell count in the subsequent lactation

M. Cameron,*¹ G. P. Keefe,* J.-P. Roy,† H. Stryhn,* I. R. Dohoo,* and S. L. McKenna*
*Department of Health Management, Atlantic Veterinary College, University of Prince Edward Island, Charlottetown, Prince Edward Island, Canada C1A 4P3
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The Netherlands

Distribution for rosé veal starter farms

- 2012-2015 signaling threshold
- Action threshold

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The Netherlands

The proportion of livestock farms in various benchmarking zones

<table>
<thead>
<tr>
<th>Livestock sector</th>
<th>Type of farm/type of animal</th>
<th>Target zone %</th>
<th>Signaling zone %</th>
<th>Action zone %</th>
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<td>Veal farming</td>
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<td>33 49 48 46</td>
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<td>Sows/suckling piglets</td>
<td>56 66 72 85</td>
<td>24 24 19 11</td>
<td>20 11 8 4</td>
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<td>Weaner pigs</td>
<td>- - - 73</td>
<td>- - 20</td>
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<td>16 6 6 3</td>
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<td>52 68 66 70</td>
<td>31 25 21 20</td>
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<td>4 3 1 1</td>
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<td>Rearing farms</td>
<td>81 83 84 85</td>
<td>3 6 6 6</td>
<td>16 11 9 9</td>
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<td>Suckler cow farms</td>
<td>82 80 84 80</td>
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<td>10 14 9 10</td>
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<td>Beef farms</td>
<td>- 79 79 82</td>
<td>- 10 10 5</td>
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</table>

http://www.autoriteitdiergeneesmiddelen.nl
# The Netherlands

The proportion of veterinarians in various benchmarking zones

<table>
<thead>
<tr>
<th>Livestock sector</th>
<th>Target</th>
<th>Signaling (0.10 &lt; VBI ≤ 0.30)</th>
<th>Action (VBI &gt; 0.3)</th>
<th>Target</th>
<th>Signaling</th>
<th>Action</th>
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<tbody>
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<td>Veal farming sector</td>
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<td>66</td>
<td>6</td>
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<td>Pig farming sector</td>
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<tr>
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<td>1</td>
<td>3</td>
<td>2</td>
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<td>174</td>
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<td>32</td>
<td>0</td>
<td>2</td>
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</table>

http://www.autoriteitdiergeneesmiddelen.nl
The Netherlands

- Farmer obligations
  - A single veterinary practice per farm
  - Farm health/treatment plan
  - Central registration of all prescribed/delivered antimicrobials
Denmark
Of relevance ...
RONAFA in context ...

- A multifaceted approach
- The bigger picture
  - The critical role of objective measurement
  - Other RONAFA recommendations
- Antimicrobials & farmers
Objective measurement

- Critical assessment
  - Nationally
    - Of policies
    - Of targets
  - Of industries
  - Of veterinarians
  - Of farms
Other recommendations

- Development of **national strategies** implemented through action plans
- Development of harmonised systems for monitoring antimicrobial use
- Establishing **targets for reduction** of the use of antimicrobials, especially CIAs
- Increasing **the responsibility taken by veterinarians** for prescribing antimicrobials
- Increasing the availability and use of **rapid and reliable diagnostics and antimicrobial susceptibility tests**
# Farm health plan

## Option 4

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<tr>
<th>Animal Group</th>
<th>Animal Health Activities</th>
<th>Tick all Relevant Boxes</th>
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<td>Cows</td>
<td>Vaccinations</td>
<td>Jan-Feb</td>
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<td>Leptospirosis</td>
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<td>Respiratory</td>
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<td>Pre-calving scour</td>
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<td>Fluke</td>
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<td>Stomach Worms</td>
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<td>Hoose</td>
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<td>Lice</td>
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<td>Parasite Control</td>
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<td>Check for Summer mastitis</td>
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<td></td>
<td>Check for mastitis</td>
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<td>Check/treat lameness</td>
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<td>Take precautions against Red water</td>
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<td>Take precautions against grass tetany</td>
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<tr>
<td></td>
<td>Take precautions against bloat</td>
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</tbody>
</table>
Farm health plan

Option 4

A need to clearly distinguish:

- **Performance**
  - What is being achieved?

- **Activity**
  - What is being done?
Farm health plan
Option 4

A need to clearly distinguish:

- Performance
  - What is being achieved?
- Activity
  - What is being done?
Farm health plan
Option 4

- Critical elements
  - Professional input
  - Interventions guided by measurement/benchmarking
  - Regular review

- Potential dangers
  - A tick-box exercise
  - Little more than an audit
  - No meaningful professional engagement
Training and education
Option 7

● Training strategies
  ● Group-level discussion (KT)
    ● A focus on best-practice
  ● Individual discussion (farmer/veterinarian)
    ● A focus on farm-specific problem-solving

(Objective measurement, ongoing review)
Improved husbandry and management

Option 9

- Primary prevention
  - Bio-exclusion
- Secondary prevention
  - Bio-containment
- Tertiary prevention
  - Housing, management, breeding ...
- Vaccination
In situations where farm-level biosecurity is not sufficient

... a broader response
- National/regional disease control/eradication

... a farm-level response
- Vaccination plus tertiary prevention
  - Housing, management, nutrition ...

Improved husbandry and management

Option 9

NL

IE

FR

AHI
Animal Health Ireland.ie

BVDFree
Animal Health Ireland.ie

CellCheck
Animal Health Ireland.ie

Johne's Control
Animal Health Ireland.ie

Beef Health Check
Animal Health Ireland.ie

GDS
France

UCD
Dublin
European Food Safety Authority

efsa
Improved husbandry and management

Option 9

Six indicators for sustainable development

- **Life span**: Healthy cows live longer.
- **IBR**: Working towards IBR-free status.
- **BVD**: Working towards BVD-free status.
- **Cell count**: Low cell count equals good udder health.
- **Energy**: Reduce use of energy.
- **Nature & Landscape**: Conservation of biodiversity.

Private animal health and welfare standards in quality assurance programmes: a review and proposed framework for critical evaluation

S. J. More, A. Hanlon, J. Marchewka, L. Boyle

Rethinking production systems

Option 10

Increased level of industry integration
Improved treatment protocols
- Reducing metaphylaxis
- Correct (rather than over-) dosing
Vaccination, correct housing, disinfection, preconditioning
Rethinking production systems

Option 10

Of farms

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Rethinking production systems

Option 10

Organic production

- Challenges to primary prevention
  - Potential for contact with wildlife
- Benefits to secondary & tertiary prevention
  - Improved housing and management
- A need for robust research
  - Critical evaluation of impact on AMR
Alternatives to antimicrobials

Option 11

Alternatives may be valuable

- Organic acids, probiotics, bacteriophages, teat sealants ...
- Evidence of efficacy in controlled trials is very limited

Key recommendations

- The need for further research (efficacy, mode of action)
- Regulatory framework (not veterinary medicinal product [therapeutic], not feed additive [for healthy animals])
It’s time to reduce, replace and re-think the use of antimicrobials in animals