The “Dutch approach” to reduce the AMR in food producing animals


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CONTENTS

• Information about the Netherlands
• Ground for AMU reduction plan (2004 - 2010)
• Plan of Action, implementation, results
### THE NETHERLANDS

#### Number of agricultural livestock (x1,000)

<table>
<thead>
<tr>
<th>Livestock Type</th>
<th>Quantity (x1,000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chickens</td>
<td>106,000</td>
</tr>
<tr>
<td>Pigs</td>
<td>12,600</td>
</tr>
<tr>
<td>Dairy cattle</td>
<td>2,958</td>
</tr>
<tr>
<td>Beef cattle</td>
<td>252</td>
</tr>
<tr>
<td>Veal calves</td>
<td>909</td>
</tr>
<tr>
<td>Beef bulls</td>
<td>13</td>
</tr>
</tbody>
</table>

#### People

| Quantity | 17,000 |

(Source: Statistics Netherlands, 2015)

**Worlds 2nd exporting country of agricultural products**
WHAT HAPPENED 2004-2010

Q-fever
Livestock MRSa

ESBL's
usage of AM in animals

Party for the animals
USAGE OF ANTIMICROBIALS IN EUROPE 2005-2009 (sales in kg)

In animals

In humans
WHAT HAPPENED 2004-2010

Livestock MRSa

Q-fever

ESBLs

usage of AM in animals

Party for the animals

Licence to produce?
For farmer and government
ACTIONS TAKEN

• Ministry of Health: asks for advice of the Health Council on use of AM in production animals

• Ministry of Agriculture

You take your own measures, or I have to make new laws!
RESULTS OF THEIR ACTIONS

Health Council

• Ban Critically Important Antimicrobials for human use (WHO-list) – cephalosporines, fluoroquinolones
• Redefine 1st, 2nd, 3rd choice antimicrobials (selection for ESBLs)
• Reconsider formularia

Covenant with private parties

• All antimicrobial use on farms transparent by end of 2011
• Bench marking allowing identification of high users/prescribers
• 1 to 1 relationship between a vet and a farmer
• farm health and farm treatment plan
<table>
<thead>
<tr>
<th>Topic</th>
<th>Action/actor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-medicated feed</td>
<td>Forbidden (private)</td>
</tr>
<tr>
<td>Preventive use of antibiotics</td>
<td>Forbidden (public)</td>
</tr>
<tr>
<td>AM only administered by vets (exception possible for administering of AM by farmers themselves)</td>
<td>Rules set by our gouvernement</td>
</tr>
<tr>
<td>Supervision for ‘correct’ use of antibiotics</td>
<td>Carried out by the NVWA</td>
</tr>
</tbody>
</table>
Reduction goals

- 2011 - 20%
- 2013 - 50%
- 2015 - 70%

(reference to 2009 and based on sales data)
ACTION PLAN

- Implementation
- Who takes action...
- Results
- Effects on AMR
- Looking ahead
• government and livestock production sectors (cattle, veal, pigs, poultry)
• analysis of anonymised data, calculations and setting benchmark values
An DDDA/Y of 1 means that the average animal in the population was exposed to an antimicrobial unit for one day per year.

Method is similar to that proposed by ESVAC.
SETTING BENCHMARK VALUES

ACTION ZONE
Direct measures required which reduce use of antimicrobials immediately

SIGNALING ZONE
Use of antimicrobials requires attention

TARGET ZONE
No action required
## CURRENT BENCHMARK VALUES

<table>
<thead>
<tr>
<th>Species</th>
<th>Target zone</th>
<th>Signaling zone</th>
<th>Action zone</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Poultry</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Broilers</td>
<td>0 - 15</td>
<td>&gt; 15 - 30</td>
<td>&gt; 30</td>
</tr>
<tr>
<td>- Turkey</td>
<td>0 – 19</td>
<td>&gt; 19 - 31</td>
<td>&gt; 31</td>
</tr>
<tr>
<td><strong>Cattle</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Dairy</td>
<td>0 - 4</td>
<td>&gt; 4 - 6</td>
<td>&gt; 6</td>
</tr>
<tr>
<td>- Suckling cows</td>
<td>0 - 1</td>
<td>&gt; 1 - 2</td>
<td>&gt; 2</td>
</tr>
<tr>
<td>- Beef</td>
<td>0 - 1</td>
<td>&gt; 1 - 2</td>
<td>&gt; 2</td>
</tr>
<tr>
<td>- Rearing</td>
<td>0 - 1</td>
<td>&gt; 1 - 2</td>
<td>&gt; 2</td>
</tr>
<tr>
<td><strong>Pigs</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Sows/suckling piglets</td>
<td>0 - 10</td>
<td>&gt; 10 - 20</td>
<td>&gt; 20</td>
</tr>
<tr>
<td>- Weaner pigs</td>
<td>0 - 22</td>
<td>&gt; 22 - 60</td>
<td>&gt; 60</td>
</tr>
<tr>
<td>- Fattening pigs</td>
<td>0 - 10</td>
<td>&gt; 10 - 13</td>
<td>&gt; 13</td>
</tr>
<tr>
<td><strong>Veal</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- White veal</td>
<td>0 - 23</td>
<td>&gt; 23 - 39</td>
<td>&gt; 39</td>
</tr>
<tr>
<td>- Rosé veal starter</td>
<td>0 - 67</td>
<td>&gt; 67 - 110</td>
<td>&gt; 110</td>
</tr>
<tr>
<td>- Rosé veal fattening</td>
<td>0 - 1</td>
<td>&gt; 1 - 6</td>
<td>&gt; 6</td>
</tr>
<tr>
<td>- Rosé veal combination</td>
<td>0 - 12</td>
<td>&gt; 12 - 22</td>
<td>&gt; 22</td>
</tr>
</tbody>
</table>
• Benchmarking system voor vets
• First reported 2014
• Based on DDDA of the farms the vets have a 1-to-1 relationship with
• Implementation
• **Who takes action**…
• Results
• Effects on AMR
• Conclusions and looking ahead
WHO TAKES ACTION

• SDa sets benchmark values
• Integral quality assurance systems of farmers and vets set their measures
• and if farmers and vets employ not enough effort

The NVWA (Food and Consumer Product Safety Authority) visits the farms and practices (similar to the Danish Yellow Card)
ACTION PLAN

• Implementation
• Who takes action…
• Results
• Effects on AMR
• Conclusions and looking ahead
RESULTS SO FAR

2015: 58.4% reduction compared to usage levels of 2009

Developments in sales of antimicrobial agents between 1999 and 2015, in number of kilograms of active substances sold (x1000) (source: FIDIN), by main pharmacotherapeutic group in 2015
RESULTS BY SECTOR SO FAR

Usage in DDDA_F in **veal calves**, **broilers**, **pigs**, **cattle**
ACTION PLAN

- Implementation
- Who takes action…
- Results
- Effects on AMR
- Conclusions and looking ahead
Usage in DDDA_F in veal calves, broilers, sows/piglets, fattening pigs.
## Usage versus Resistance

<table>
<thead>
<tr>
<th>Species</th>
<th>AMU (%)</th>
<th>AMR (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Veal calves</td>
<td>-/- 37</td>
<td>-/- 28</td>
</tr>
<tr>
<td>Pigs</td>
<td>-/- 54</td>
<td>-/- 22</td>
</tr>
<tr>
<td>Poultry</td>
<td>-/- 57</td>
<td>-/- 8</td>
</tr>
<tr>
<td>Cattle</td>
<td>-/- 43</td>
<td>-/- 79</td>
</tr>
</tbody>
</table>
• Implementation
• Who takes action...
• Results
• Effects on AMR
• Conclusions and looking ahead
Critical success factors of the Dutch approach

• Farmers were personally confronted with MRSa positivity
• Public pressure
• Clear targets defined by the government
• Measures initiated by private animal production sectors and veterinary association
• Usage fully transparent: from > 42,000 farms DDDAs available
• Independent institution (SDa) accepted by all parties involved
WHAT HAS CHANGED AT FARM LEVEL

Reduction in usage:

• Preventive measures (eradication of specific diseases, vaccination)
• no preventive use, more individual treatments; antimicrobial stewardship!
• Transition towards new husbandry systems
• Research into alternatives
LOOKING AHEAD

- Analysis of critical success factors at farms and of vets
- New benchmark values
- Get insight in the AMU in other sectors (companion animals, rabbits, horses,...)
- Effect of reduced AMU on AMR in humans?
THANKS FOR YOUR ATTENTION

www.autoriteitdiergeneesmiddelen.nl/en
WHAT’S CALCULATED: THE ANIMAL DAILY DOSE/Y

• To calculate ADDD/Y, two variables are needed.
  1. the amount of animal (kg) that can be treated with the amount of antimicrobials supplied to the farmer, which is derived from the DG-standard (numerator).
  2. the mean total weight (kg) of animals present on the farm during a year (denominator).

• By dividing these numbers, the number of animal daily dosages per year is obtained