Animal Nutrition
David Blakemore - President Animal Nutritional & Health

ROYAL DSM
HEALTH NUTRITION MATERIALS
Safe harbor statement

- This presentation may contain forward-looking statements with respect to DSM’s future (financial) performance and position. Such statements are based on current expectations, estimates and projections of DSM and information currently available to the company. DSM cautions readers that such statements involve certain risks and uncertainties that are difficult to predict and therefore it should be understood that many factors can cause actual performance and position to differ materially from these statements. DSM has no obligation to update the statements contained in this presentation, unless required by law.

- A more comprehensive discussion of the risk factors affecting DSM’s business can be found in the company’s latest Annual Report, which can be found on the company’s corporate website, www.dsm.com
Animal Nutrition & Health

Feed value chain

- 25% of ANH Sales: Raw Materials
- 65% of ANH Sales: Application-based formulations
- 10% of ANH Sales: Nutritional Ingredients Solutions incl. feed premix

Sales related to ingredient (%):
- Fat-soluble vitamins
- Water-soluble vitamins
- Carotenoids
- Feed enzymes
- Minerals/DCP
- Other incl. premix

Sales by application landscape (%):
- Aqua
- Pet
- Swine
- Poultry
- Ruminant

Sales by region (%):
- EMEA
- North America
- Latin America
- Asia

€2.4bn sales (2016) diversified across species, geographies, channel and a complete portfolio
Key trends impacting the Animal Nutrition & Health market

<table>
<thead>
<tr>
<th>Macro-Economic</th>
<th>Growth &amp; Productivity</th>
<th>Sustainability</th>
<th>Value chain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Growing world population</td>
<td>Improve feed conversion</td>
<td>Antibiotic resistance</td>
<td>Emerging geographies</td>
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<td>GDP per capita growth</td>
<td>Innovation</td>
<td>Environmental impact</td>
<td>Direct to Farm Channel</td>
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<td>Overfishing</td>
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<td>Greenhouse Gas emissions</td>
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Market Growth | Organic Growth | New Market Opportunities | Forward Integration

Dynamic, growth market requiring new solutions for sustainable animal protein production
Auctus - Our strategy for profitable, above-market growth
Staying the course, accelerating execution
Continuing to deliver above-market growth

<table>
<thead>
<tr>
<th>Year</th>
<th>Organic Growth</th>
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<tbody>
<tr>
<td>2011</td>
<td>6%</td>
</tr>
<tr>
<td>2012</td>
<td>2%</td>
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<tr>
<td>2013</td>
<td>7%</td>
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<tr>
<td>2014</td>
<td>9%</td>
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<tr>
<td>2015</td>
<td>8%</td>
</tr>
<tr>
<td>2016</td>
<td>7%</td>
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<tr>
<td>H1 2017</td>
<td>7%</td>
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</tbody>
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**ORGANIC GROWTH 2011-15**

-5% p.a.\(^1\)

\(^1\) excluding Vit E effect, growth in Animal Nutrition & Health would have been 9%

Business performance supports the strategic direction
Strategic growth plans aligned to market segments

- **Market Growth (CFE\(^1\))**
  - **Poultry**
    - 2-3%
  - **Swine**
    - 1-2%
  - **Ruminants**
    - 0-1%
  - **Aqua**
    - 5-6%
  - **Pet**
    - 4-5%
  - **Total**
    - 2-3%

- **AUCTUS STRATEGY**
  - **Premix**
    - Asia
  - **Enzymes + Eubiotics + Others (Hy-D)**
    - Clean Cow
  - **Green Ocean**

- **New Business Model (ChuKe)**

Leveraging our strengths and focusing on growth segments and new space to drive ~5% organic growth

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\(^1\) CFE: Complete Feed Equivalent
Supporting Business Model drives above-market growth

GLOBAL PRODUCTS

Complete Product Portfolio
- Vitamins
- Carotenoids
- Enzymes
- Clean Cow
- Green Ocean
- Eubiotics
- Tortuga minerals

LOCAL SOLUTIONS

Full Value Chain Player
- B2F - incl ChuKe, (part) Tortuga
- Premix - forward integration
- Enzymes & Eubiotics solutions
- Application-based formulations

% of sales
- ~10%
- ~50%
- ~15%
- ~25%

LEADING COST POSITION
RADICAL INNOVATION
DEMAND CREATION
MARKET SEGMENT NEEDS

The best of both worlds: economies of scale AND local market insights & customer intimacy
Market-back approach for incremental and breakthrough innovation

Intersection of species and regions drives our global innovation priorities
Innovation driving growth: Enzymes and Eubiotics in Poultry and Swine

Improved Feed Utilization
Feed Enzymes

Improved Gut Health
Eubiotics

- Well positioned to lead in developing the solutions space, with a renewed focus on nutritional solutions, eubiotic ingredients and innovation

Enzymes: market potential €1bn, growing >5%/yr | Eubiotics: market potential €2-3bn, growing ~10%/yr
Innovation driving growth: Sustainable Omega-3 solution for aquaculture

- Omega-3 fatty acids (EPA and DHA) from natural algae for animal nutrition without using fish oil from wild-caught fish
- Build new facility in the US, scheduled to open in 2019
- Investing US$200m for a new facility in the US; scheduled to open in 2019 (investment of ~US$100m for each party, over 2 years)
- Initial annual production capacity: ~15% of current annual demand for EPA and DHA in salmon aquaculture

1 kg of our EPA and DHA algal oil can replace 60 kg of wild catch fish

Attractive market potential of €1-2bn
Innovation driving growth: clean cow reducing methane emission

- Cows produce significant amount of methane, a potent greenhouse gas that causes climate change
- Trials with Clean Cow show >30% reduction in emissions
- Focused on markets with highly developed dairy and beef production
- Launch after 2019

Attractive market potential of €1-2bn
Confident on continued organic growth in Animal Nutrition for coming years

- Organic growth supported by ~2-3% market growth and....
  - Expansion of core premix footprint
  - New products and solutions
  - Growth in underpenetrated species
  - New business models