

Evonik Analyst & Investor Field Trip Animal Nutrition 2015

Antwerp, 1 October, 2015



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Agenda

Field Trip Animal Nutrition

11.30 – 12.15	Update on Evonik Group	Dr. Klaus Engel CEO	
	Update on Evonik Group	Ute Wolf CFO	
	<i>Q&A session</i>		
12.15 – 12.45	Evonik Nutrition Roadmap	Dr. Reiner Beste Head of Nutrition & Care Segment	
12.45 – 13.30	Leveraging the sustainable food chain as growth driver <i>Q&A session</i>	Dr. Christoph Kobler Vice President Global Account Management & Sales Strategy Animal Nutrition	
13.30 – 14.15	<i>Quick lunch</i>		
14.15 – 15.00	Building strong customer relations through value propositions <i>Q&A session</i>	Dr. Alfred Petri Senior Vice President Sales & Marketing Services Animal Nutrition	
15.00 – 15.45	The MetAMINO® success story <i>Q&A session</i>	Dr. Emmanuel Auer Head of Animal Nutrition Business Line	
15.45 – 17.00	Plant Tour	Dr. Hartwig Pohlmann Head of Global Production and Technology Animal Nutrition	Frank Daman General Manager Evonik Antwerp Site

Field Trip

Animal Nutrition

Update on Evonik Group

Klaus Engel
Chief Executive Officer
Antwerp, 1 October, 2015



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Consistent & reliable execution of our strategy



Strong operational performance

- Considerable improvement in **adjusted EBITDA** in H1 2015 (+40% yoy)
- **Outlook raised:** adj. EBITDA of around €2.4 bn expected for FY 2015

Portfolio profile sharpened

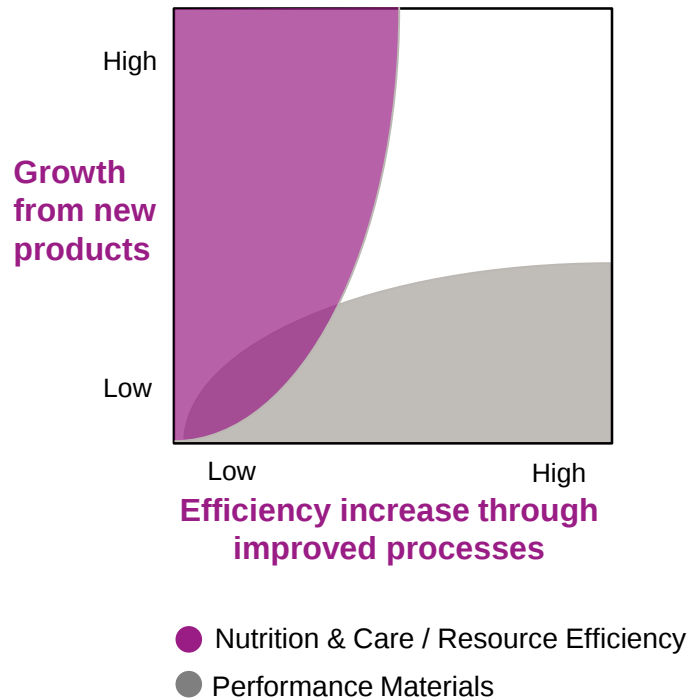
- New segment structure in place
- Management teams delivering on defined strategic roles

Innovation stimulating growth

- Innovation strategy aligned to new corporate structure
- Successful **rollout of innovation** enlarges market potential for our products

Innovation strategy aligned to new corporate structure

Strategic classification as basis for innovation strategies



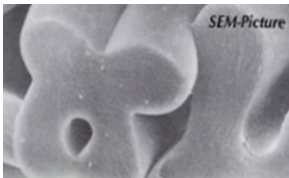
Nutrition & Care / Resource Efficiency

- Growth through innovations in new areas
- Incremental and disruptive innovations regarding products, processes and business models
- R&D/sales ratio above Evonik average

Performance Materials

- Maintaining competitive position
- Focus on incremental optimization of processes and products
- Below-average R&D/sales ratio

Example High Performance Polymers – Membranes for new markets



P84® Hot-gas filtration



SEPURAN® for biogas (2014)



**SEPURAN® Technical gases
(2015) and natural gas (2016)**

- Development of polyimide hollow fibre for hot-gas filtration started in 2010
- Improvement to hollow polyimide fibres membrane modules
→ marketed under the SEPURAN® brand in the biogas market
- Presentation of SEPURAN® for separation of technical gases at this year's AICHE trade fair
- Further expansion into other gases ahead, e.g. fostering significant market potential in recovery of helium from natural gas

Further investment projects coming on stream

New oleochemical plants



Shanghai (China)

Capacity: 80 kt/a
Start-up: Q1 2014

Americana (Brazil)

Capacity: 50 kt/a
Opening: Fall 2014

- Production of ingredients for cosmetics and personal care products as well as fabric softeners
- Local customer base successfully established
- Tailor-made innovative products for customers
- Strong focus on R&D and application technology

Expansion of oil additives plant



Singapore

Capacity nearly doubled
Start-up: Spring 2015

- Expansion addresses rising demand for high-performance lubricants
- Growth drivers:
 - Increasing mobility in Asia
 - Stronger focus on resource efficiency
- Strengthens competitiveness of Asian customers locally with individual solutions

Emerging Regions as growth drivers: Evonik well positioned in China's "New Normal"

China's "New Normal"

- Medium-high growth rate
- Innovation-driven growth instead of factor-driven growth
- Change of economic structure and upgrading of industry
- Focus on value creation and sustainable development

**Continuing
Evonik
growth track
record in
China**

Evonik in Greater China

- Wide ranging products and solutions geared to megatrends and sustainable solutions
- Well established local productions with high environmental standards
- Local innovation facilities, competencies and network
- Fully-fledged local organization with skilled and motivated employees



Local R&D activities support our growth in Asia

R&D activities in Asia

Rationale:

- Specific regional customer needs require development of product applications in Asia as well as tailor-made technical service
- Attract and leverage top-quality know-how locally

Open innovation:

- Partnership with University of Shanghai, Tokyo and A*STAR in Singapore
- “Evonik Meets Science” Conferences (8 times)

Major R&D Centers:

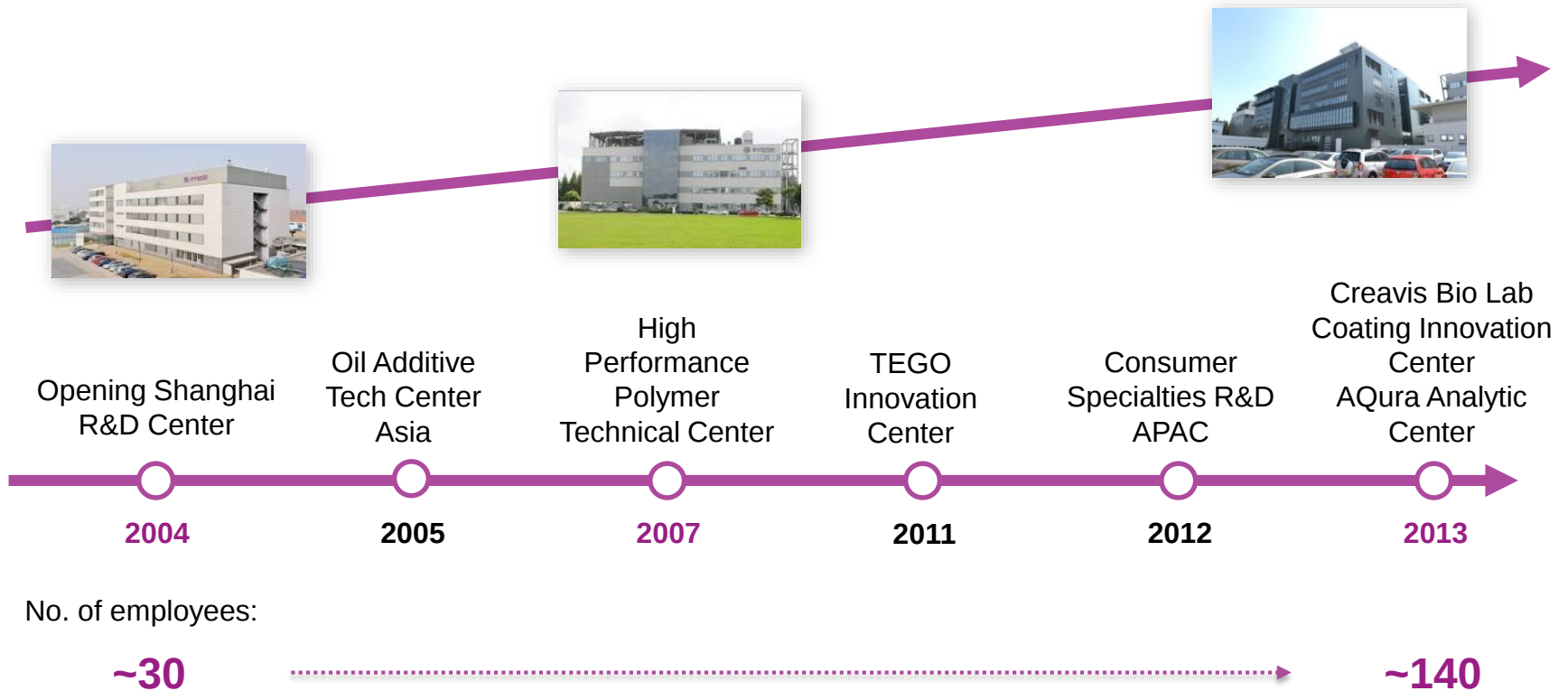
- Hsinchu (Taiwan): Center for Light & Electronics
- Singapore: SEAANZ hub
- Shanghai: 3 expansions since 2004



- Research & Development
- Technical services

Shanghai R&D center as an innovation hub

Shanghai R&D – Three expansions within ten years





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Animal Nutrition

Update on Evonik Group

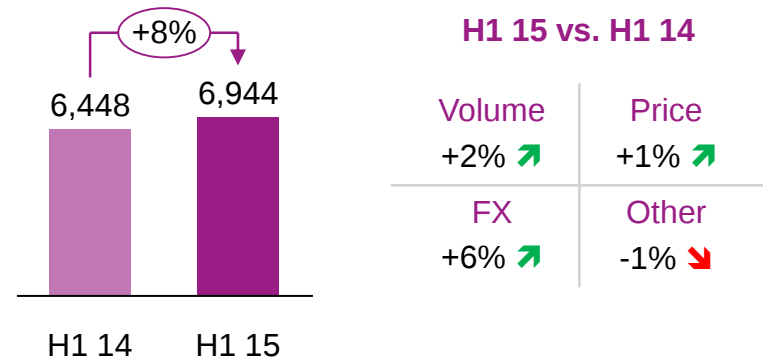
Ute Wolf
Chief Financial Officer
Antwerp, 1 October, 2015



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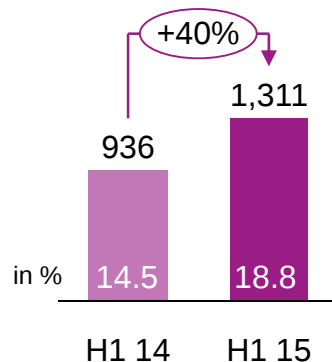
Strong financial performance in H1 2015

Sales (in € m)



- Strong organic growth of 3%
- Driven by growth segments Nutrition & Care (+19%) and Resource Efficiency (+4%)

Adj. EBITDA (in € m) / margin



- Strong increase in adj. EBITDA to €1,311 m (+40%)
- Attractive margin of 18.8%
- Three quarters of our Business Lines contributed with higher earnings (yoy)

Progressing in our growth-to-value-transformation



Efficiency gains and cost savings

- On Track 2.0 on the finish line – measures with savings potential of €450 m being implemented
- Admin Excellence well advanced, measures with ~ €150 m savings potential in implementation

Strong balance sheet and strict financial policy

- Strong operating cash flow generation (€612 m in H1 2015; €279 m in H1 2014)
- Solid investment grade rating as sustainable objective

Disciplined employment of funds

- Capex 2015 expected below prior year
- Attractive dividend policy to be continued

Spotlight Asia: Asia is more than China

South East Asia (SEA) as attractive growth region for Evonik

- Already strong presence in SEA core countries like Singapore, Indonesia and Thailand
- Strong footprint and market positions with core products like Amino Acids, Silica, Crosslinkers and Methacrylates
- Continuous expansion of production footprint, e.g. Methionine and Oil Additives in Singapore
- Demand growth in SEA supports ramp-up of new Chinese facilities, e.g. Oleochemicals or Crosslinkers in Shanghai
- Innovation center in Singapore with tangible results



Opening ceremony
Methionine plant, Singapore

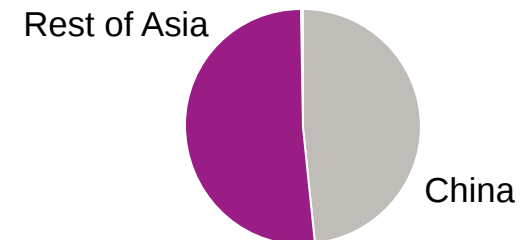


Opening ceremony Beauty & Care
Innovation Center, Singapore

Key Figures South East Asia

- 800 employees
- 7 production sites
- 2 representation offices
- 1 innovation hub

Sales split Asia



Spotlight Asia: Well-balanced business supported by structural growth drivers

PLEXIGLAS®

PMMA for noise barriers, design



Performance Materials

SIPERNAT®

Precipitated silica for battery separators, Pigments, Food Industry



Resource Efficiency

DL-METHIONINE

Amino Acids as essential nutrients in animal feed



Nutrition & Care

Emollients

Care Specialties for Cosmetics Industry



Oil Additives

Lubricant Additives for improved viscosity



Consistent & reliable execution of our strategy – Wrap up



Strong operational performance

- On the finish line for significant earnings improvement in 2015

Portfolio profile sharpened

- Management teams delivering on defined strategic roles

Further value creation stimulated

- Innovation power and focused investments as levers for sustainable growth



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Field Trip Animal Nutrition

Evonik Nutrition Roadmap

Dr. Reiner Beste
Head of Nutrition & Care Segment
Antwerp, 1 October, 2015



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Segment Overview

The Nutrition & Care playing field



Segment Nutrition & Care

Consumer Goods



Cosmetics
Body Care
Hygiene
Laundry Care

Nutrition



Animal Nutrition
Human Nutrition

Health Care



Pharmaceutical
Ingredients
Controlled Drug
Release

Specialties



Insulation for home
appliances
Furniture & bedding
Release Coatings

Segment Overview

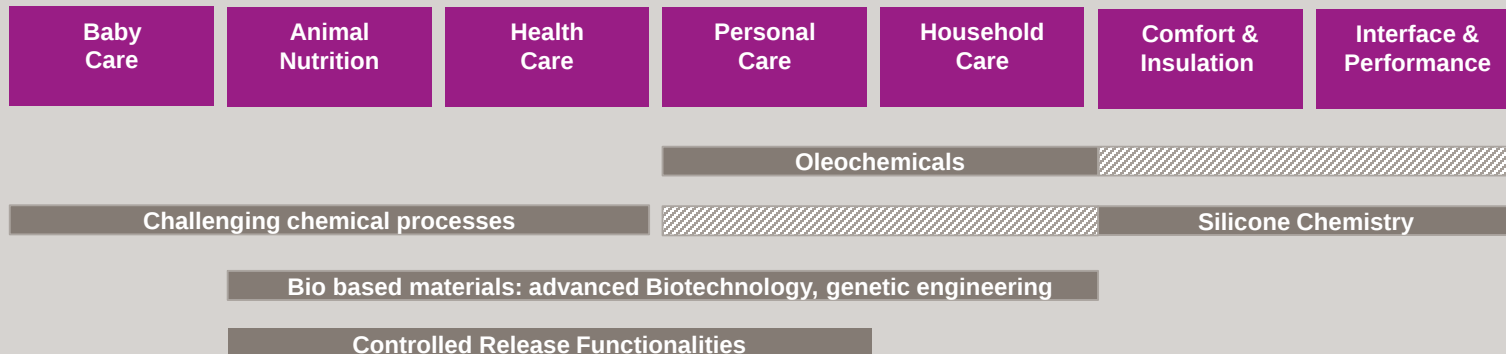
Shared technology platforms to create innovative solutions for our customers



Nutrition & Care:

- We are the home of **strong technology platforms**
- We create extraordinary solutions from a **huge and diverse skill-set**
- We enable our customers for **differentiating solutions** in their markets

Examples for enabling technology platforms of Nutrition & Care



Animal Nutrition: Business at a glance

Preferred partner for sustainable and healthy animal nutrition products and solutions



Top
#1

Market, technology and innovation leader in amino acids for animal nutrition

Global production setup on

4

continents

>90%

direct sales to customers

>6%

market growth of feed amino acids

~23t

CO₂ emission is avoided for each ton that is consumed in the Methionine production

Amino acids

The building blocks of life



All organisms (human or animal) consist of

- Water (~60%)
- **Protein (~17%)**
- Fat (~17%)
- Minerals (~5%)
- Carbohydrates (~1%)

Proteins

- Fulfill vital tasks in the body
- e.g. building up muscles tissue, digesting food, contracting muscles, enabling immune system, etc.

made up from

20 amino acids

8 essential amino acids

→ e.g. Methionine, Lysine, Threonine

12 nonessential
amino acids

**Have to be ingested
as part of a healthy diet**

Produced by
the body

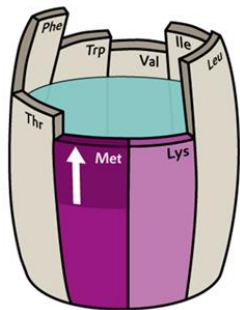
Law of the minimum

Amino acids help to utilize feed efficiency

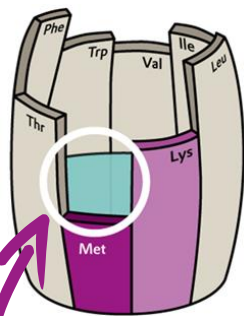
Example poultry nutrition

Supplementing
DL-Methionine

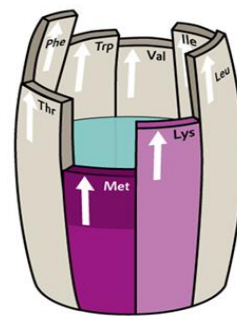
Using only
conventional feed
resources
(e.g. soybeans)



Selective
= Efficient



The amino acid
methionine limits
the growth of
poultry



Unselective
= Inefficient



Law of the minimum

Growth is controlled not by the total amount of resources available, but by the scarcest resource

Amino acids

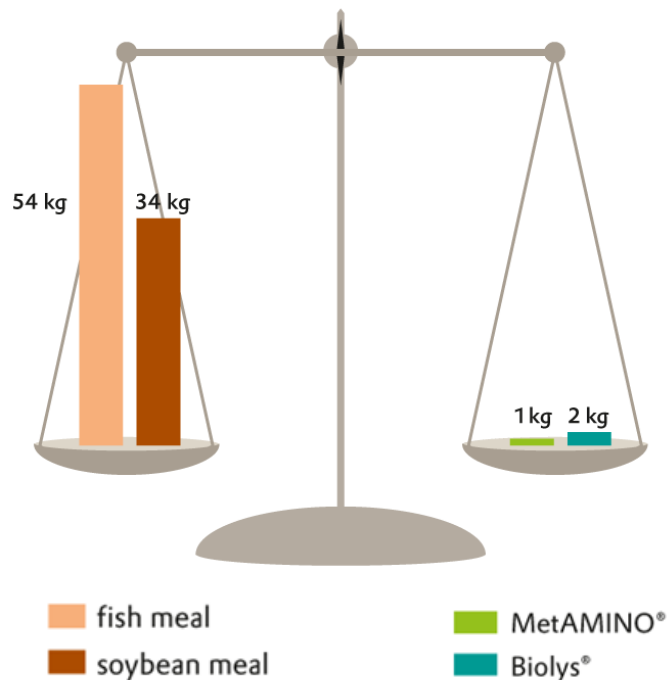
balance animal feed for the ideal composition of amino acids and thereby maximize the utilization by livestock

Balanced nutrition

- Healthier livestock
- Reduced waste
- Reduced amount of feed needed (cost)

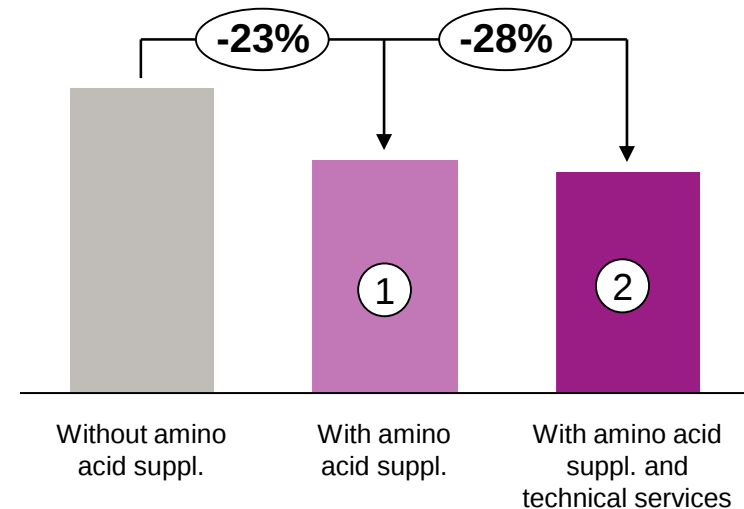
Amino Acids significantly increase efficiency and improve our customer's P&L

Significant increase in efficiency



Significant savings potential

Feed costs to produce poultry meat



- ① Low protein diets with full range of Evonik amino acids
- ② Balanced amino acid and nutrient profiles via Evonik's Animal Nutrition service offering

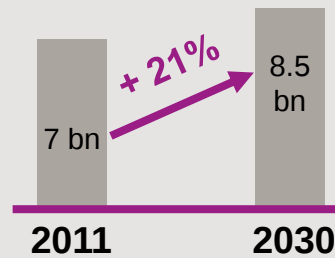
Socio-demographic megatrends drive growing meat demand

The Challenge - Meeting the needs of the growing population for healthy and safe food

World Population

Higher meat consumption:

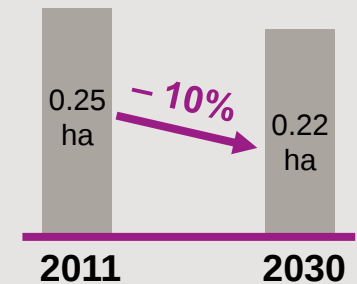
- Increasing population
- Urbanization



Technology

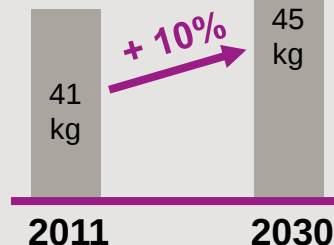
Decreasing land per capita

Technology needs to cope with limited resources



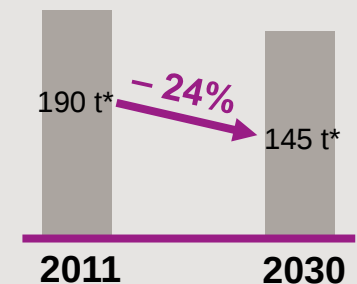
Standard of living (affluence)

Higher meat consumption per capita



Sustainability of Food Chain

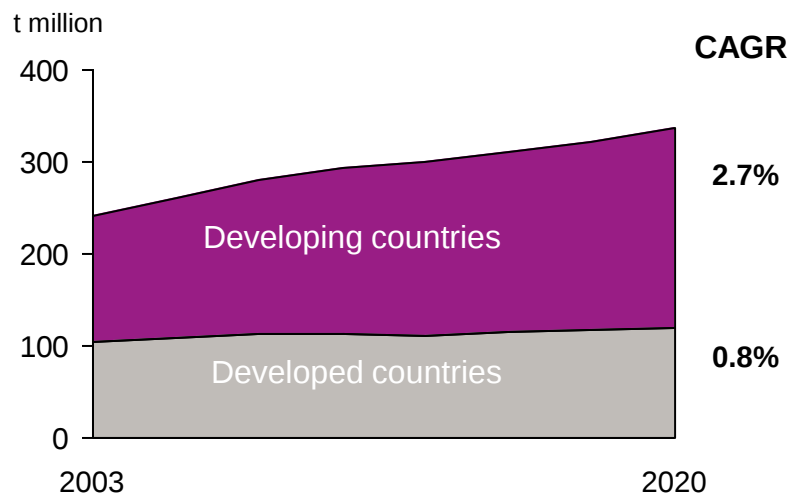
Stronger focus on reduction of emissions e.g. China



* Tons CO₂ emission in China per one million RMB GDP

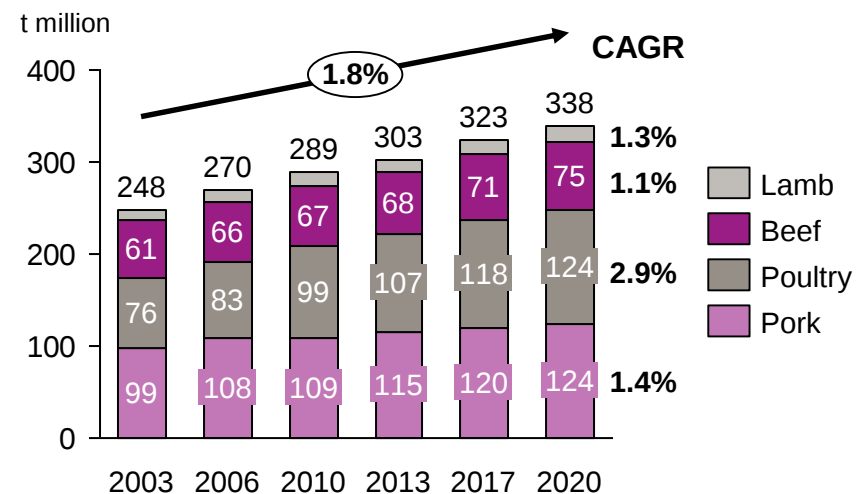
Improving standard of living in developing countries drives worldwide meat demand

Meat consumption by region



- Consumption habits and demand level are key drivers for meat market growth
- Global meat markets grow twice as fast as population (0.9% p.a.) due to increasing demand in developing countries

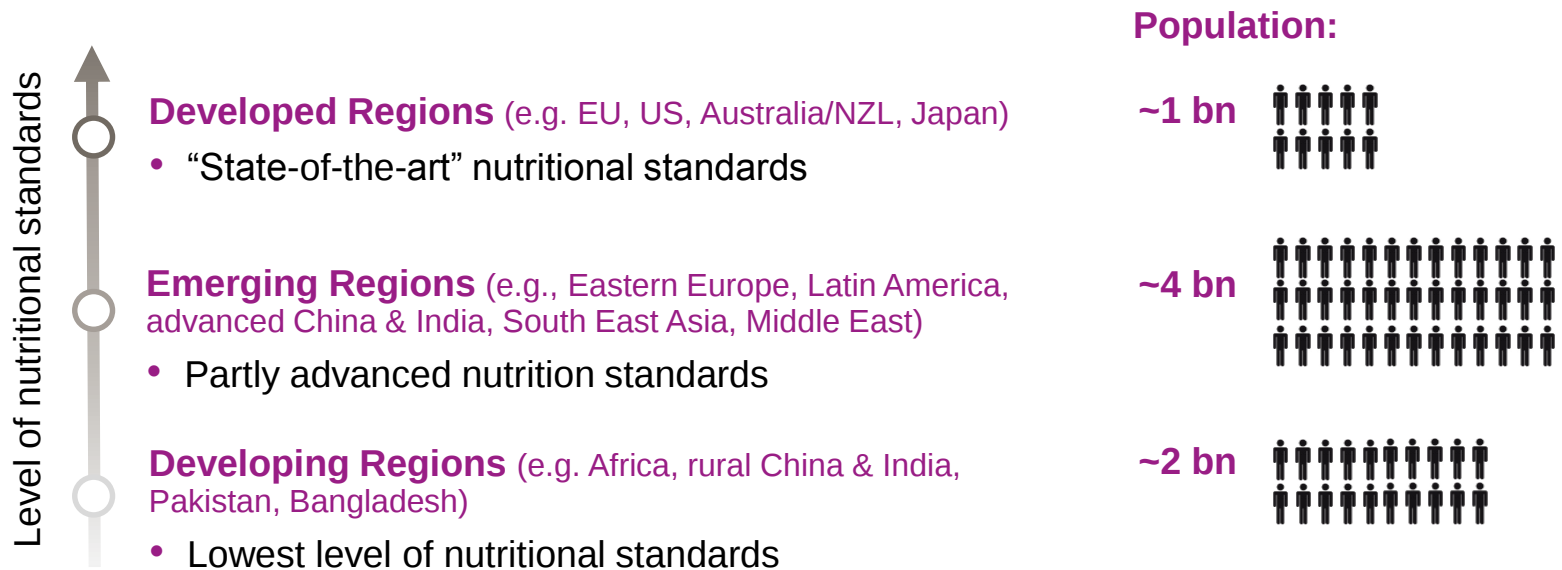
Global meat market development



- Poultry with highest growth rate due to ease of industrial production, affordability, health image (lean) and unrestricted cultural fit
- Pork still the most preferred meat, especially due to importance in China

Globally improving standards in animal nutrition drive growth for high-performance feed

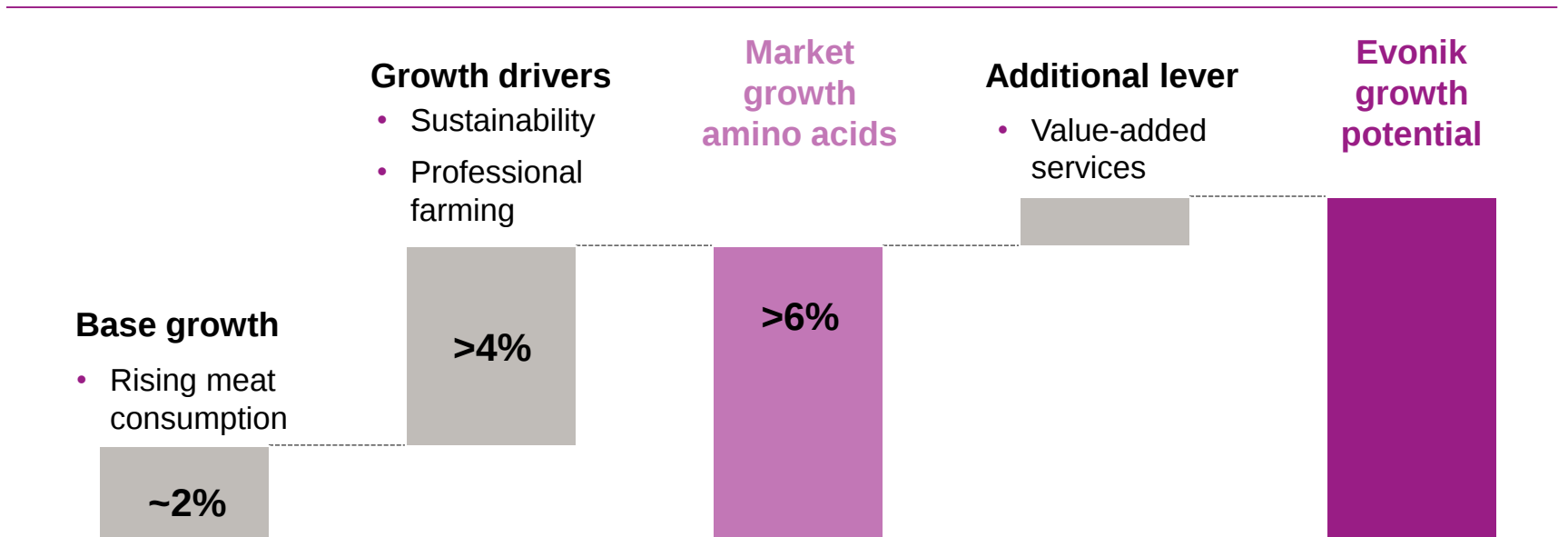
Nutritional Standards by Region



 **Increasing use of advanced nutrition concepts** factored with **growing population** as key growth drivers for feed markets in developing regions

Sustainability, professional farming and value-added services as growth drivers

Components of annual amino acid market growth



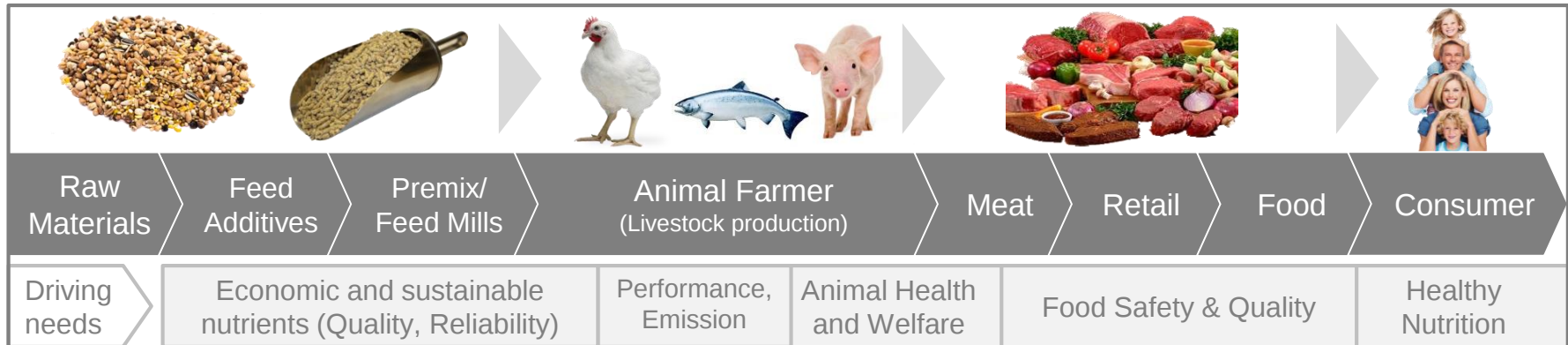
Evonik growth potential in amino acids significantly outpacing meat consumption due to:

- **Sustainability:** Significant ecological advantages, healthier livestock
- **Professionalization of farming:** Clear efficiency and performance improvements; consolidation trend in agricultural sector
- **Value-added services:** Additional growth driver for Evonik

Strategic perspective: Expand portfolio to broaden our participation in the food value chain



Utilizing our technology platforms to grow the amino acid core and expand beyond

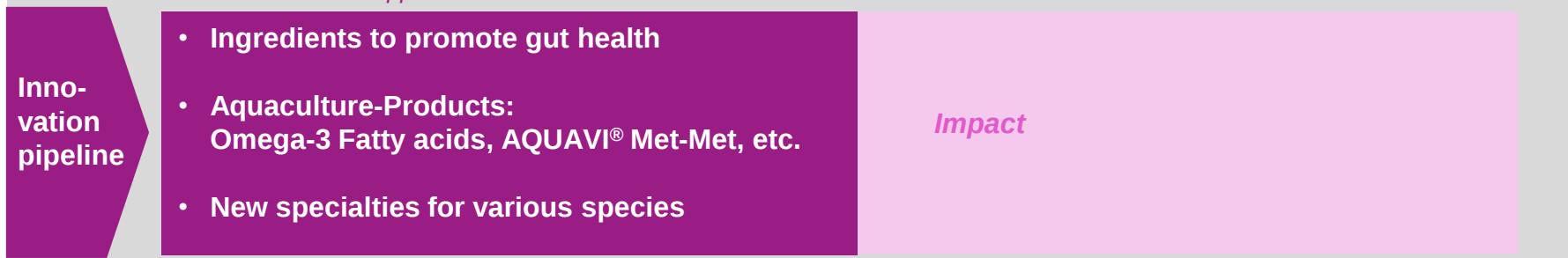


Customer Access / Application



Apply our technology platforms to broaden portfolio in the field of sustainable nutrition

Customer Access / Application



JDA with DSM to develop algae-based omega-3 fatty acids for animal nutrition



- Long-established biotechnology capabilities in development and operations
- Expertise in cultivation of marine organisms
- Focus on industrial amino acid biotechnology
- Expertise in large-volume fermentation

Announcement focused on four strong core messages



Joint Development Agreement:

DSM Nutritional Products and Evonik Nutrition & Care GmbH sign a Joint Development Agreement

Aim:

To meet increasing demand for omega-3 fatty acids by harnessing naturally occurring marine algae, using sustainable, biotechnological processes based on natural, non-marine resources

Scope:

Algal omega-3 fatty acids for animal nutrition applications, in particular aquaculture and petfood applications

Why Evonik and DSM?:

DSM has expertise in the cultivation of marine organisms and long-established biotechnology capabilities in development and operations while **Evonik's** focus for decades has been on amino acid biotechnology executing large-volume fermentation processes



Press release

July 29, 2015

DSM Nutritional Products Ltd. and Evonik Nutrition & Care GmbH to develop algae-based omega-3 fatty acids for animal nutrition

Press contact
Evonik Nutrition & Care GmbH
Dr. Jürgen Krauter
Phone +49 61 81 59-6247
juergen.krauter@evonik.com

DSM Nutritional Products Ltd. (Kaiseraugst, Switzerland) and Evonik Nutrition & Care GmbH (Essen, Germany) today announced they have entered into a joint development agreement for algae-based omega-3 fatty acid products for animal nutrition, in particular in aquaculture and pet food applications. The aim is to meet the increasing demand for omega-3 fatty acids by harnessing naturally occurring marine algae using sustainable, biotechnological processes based on natural, non-marine resources.

Press contact
DSM Nutritional Products
Herman Batten
Phone +31 45 5762017
herman.batten@dsm.com

Under the agreement, the companies will jointly work on the development of products and explore opportunities for commercialization. The competencies that DSM and Evonik bring to the development partnership complement each other: DSM has expertise in the cultivation of marine organisms and long-established biotechnology capabilities in development and operations, whilst Evonik's focus for decades has been on industrial amino acid biotechnology executing large-volume fermentation processes.

The envisioned algae-based omega-3 fatty acid products will be high value, natural and sustainable alternatives to fish oil, whose supply is finite. This will help the animal nutrition industry keep up with increasing demand without endangering fish stocks and will contribute to healthy and sustainable animal nutrition. Just like humans, animals also need their daily intake of essential, long-chain polyunsaturated fatty acids in their diet to ensure healthy growth. Until now, these fatty acids have been added to aquaculture feed almost exclusively from marine sources such as fish oil and fishmeal. By using algae, DSM and Evonik are looking to contribute to a more sustainable aquaculture industry.

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Markus Schöller

Registered office Essen
Registered court
Essen local court
Commercial registry B 25784
HR no. FN 481887 v

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Status and Progress of Joint Development Agreement



- Project is running at full speed.
- Evonik and DSM aim to contribute to filling the **future supply/ demand gap for high value omega-3 fatty acids**, which cannot be filled by fish oil.
- Evonik and DSM aim to set a **new industry standard** for omega-3 fatty acids based on performance, uniqueness, quality and reliability.
- Market development approach **along the entire value chain** from Feed Producers through Retailers



**Growth
Agenda**

The diagram features a central purple circle with the text 'Growth Agenda' in white. Three lines radiate from the right side of the circle to three separate text blocks on the right. The top block is connected by a line that goes up and then right. The middle block is connected by a line that goes right. The bottom block is connected by a line that goes down and then right.

Leveraging our strength of the amino acid core

Drive Differentiation – Adding value to customer, markets and Evonik

**Leveraging leading technology platforms
– Expand further into solutions for
“Sustainable Nutrition”**

Following presentations

Field Trip Animal Nutrition			
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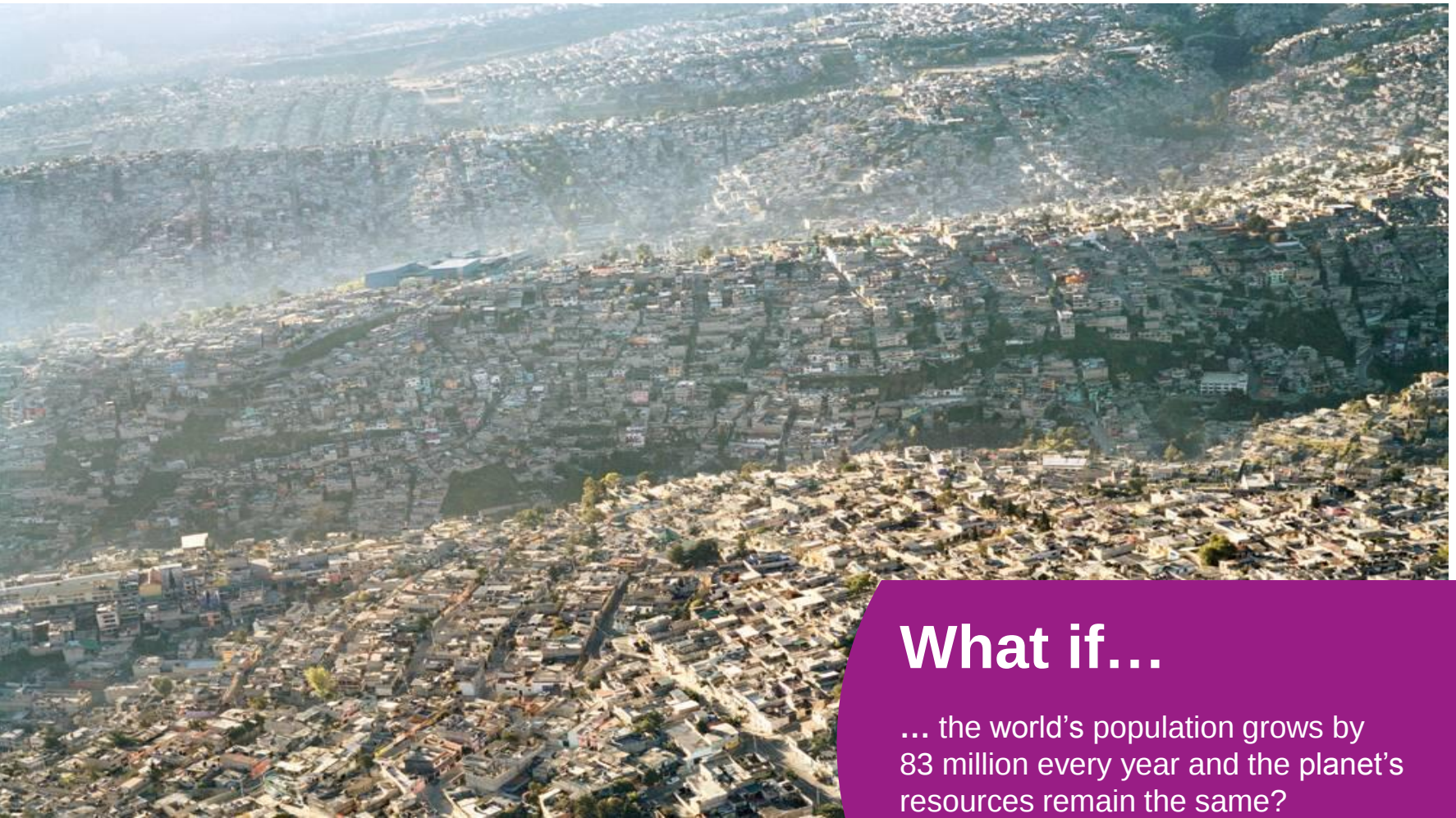
Field Trip Animal Nutrition

Leveraging the sustainable
food chain as growth driver

Dr. Christoph Kobler
**Vice President Global Account Management &
Sales Strategy Animal Nutrition**
Antwerp, 1 October, 2015



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What if...

... the world's population grows by 83 million every year and the planet's resources remain the same?

>9 billion people need healthy and affordable food with scarcer land and water resources by 2050

Population growth



Available income for food



Resource efficiency, less landscape

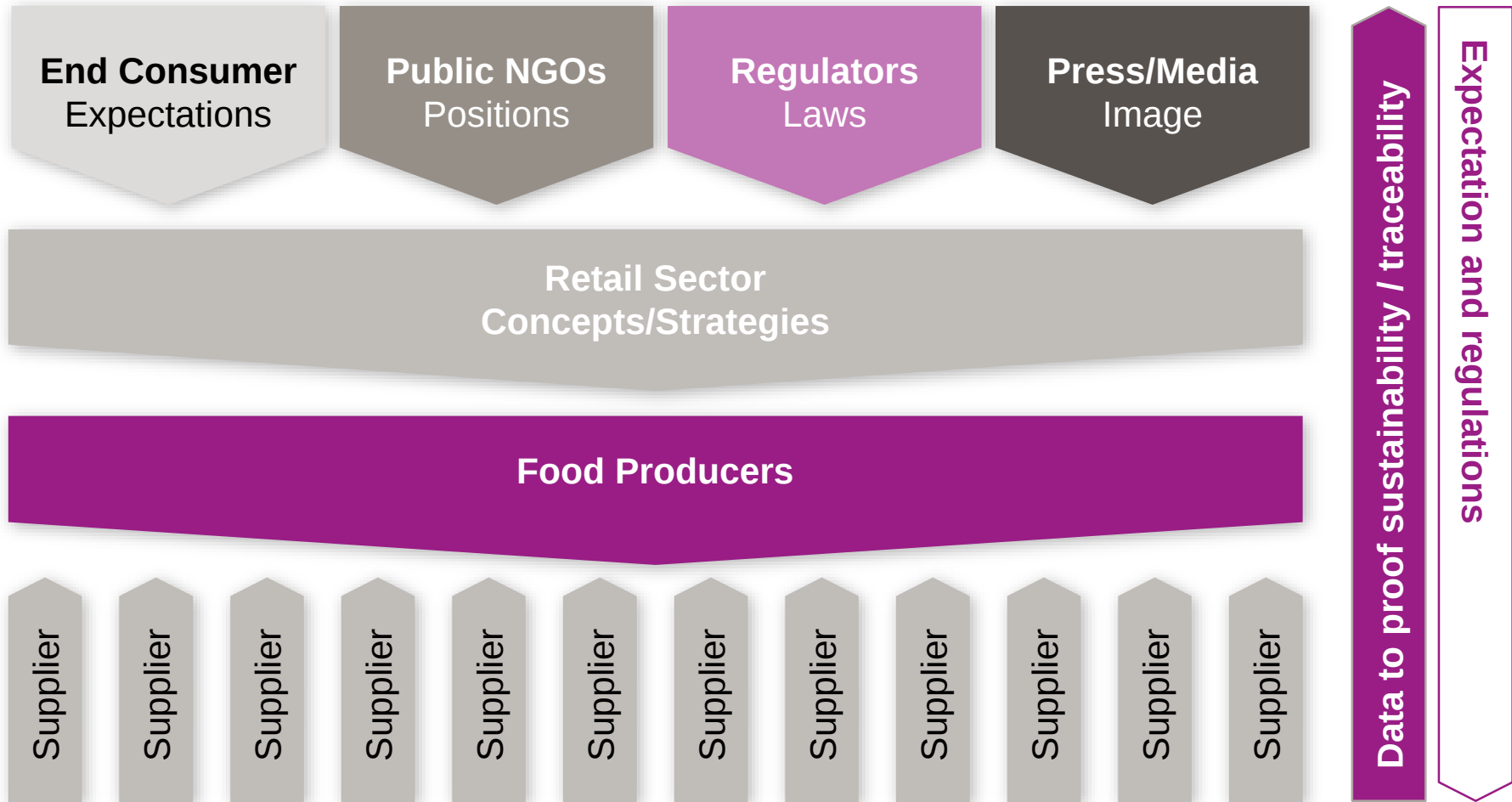


Reduce ecological footprint



Higher consumption of animal protein sources, i.e. meat, eggs, milk and fish

This creates a major challenge and pressure in feed-to-food chain on food producers



Example retailers and NGOs: Clear expectations and various sustainability initiatives



Sustainability Initiatives in the Feed to Food Chain

- Casino Group Carbon Index (France)
- Tesco Carbon footprint (UK)
- REWE Pro Planet (Germany)
- Frosta Product Carbon Footprint (Germany, but supply chain from South Asia)
- Edeka and WWF Cooperation (Germany)
- Findus Group (Scandinavia)
- CP (Thailand)
- Walmart (USA)
- Tyson (USA)
- McDonald's
- Nutreco
- Cargill

Nutritional sustainability as answer to challenges in the food system

“Nutritional sustainability is the ability of a food system to **provide sufficient energy and the amounts of essential nutrients required** to maintain good health of the population **without compromising the ability of future generations** to meet their nutritional needs.”

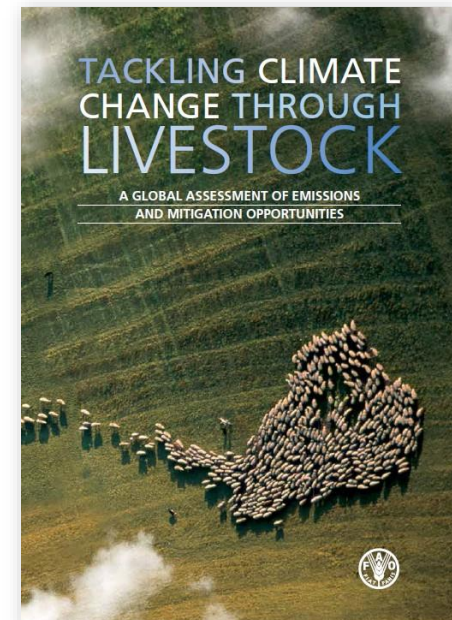
Journal of Animal Science Accepted paper, December 2015

“**Feed additives (...) play an essential role** in improving animal performance and animal health.”

LEAP 2015*

United Nations / FAO Report on Climate change

- Improving production efficiency
- Improving breeding and animal health
- Using manure management practices to recycle and recover nutrients and energy contained in manure
- Sourcing low emission inputs such as feed
- **Use of modern feed additives like amino acids, enzymes and gut modulating products**



* Source LEAP, 2015. Environmental performance of animal feeds supply chains: Guidelines for assessment. Livestock Environmental Assessment and Performance Partnership. FAO, Rome, Italy
1 October, 2015 | Field Trip Animal Nutrition | Leveraging the sustainable food chain as growth driver

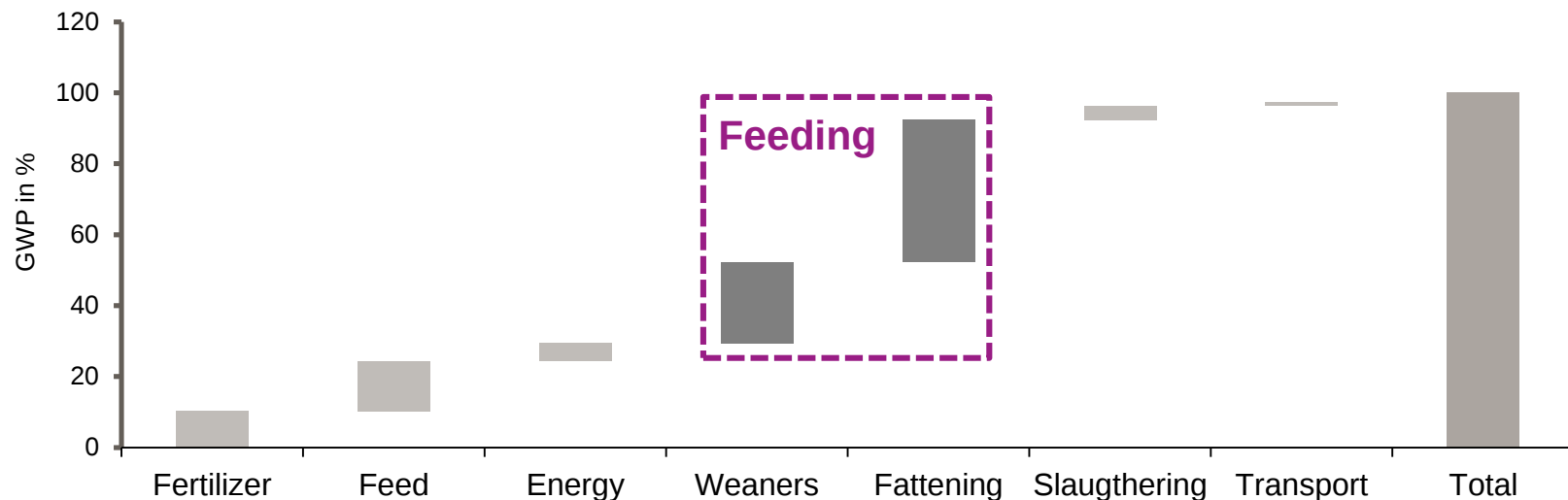


Challenge accepted

Evonik produces all four of the amino acids essential for resource-efficient animal feed.

Biggest environmental impact of meat production originates from feeding

Global Warming Potential (GWP) of Meat Production Components



The highest contribution to the environmental burden of meat production originates from feeding the pigs on the farm

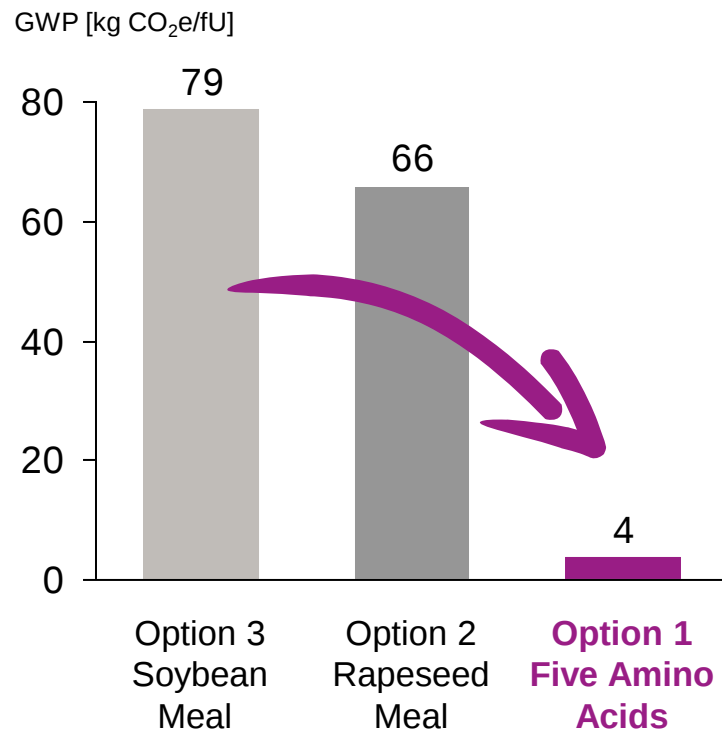
(GW global warming, EU eutrophication, AC Acidification)

Source: The environmental impact of pork production from a life cycle perspective, University of Aarhus Faculty of Agricultural Sciences Department of Agroecology and Environment, 2007

1 October, 2015 | Field Trip Animal Nutrition | Leveraging the sustainable food chain as growth driver

Amino acids greatly reduce the environmental impact of livestock due to low protein diets

Global warming potential of swine production



The intelligent combination of amino acids is key for economic, ecological and sustainable animal production

Example Methionine: Substantial benefit on resource consumption and emissions

With 1 kg of DL-Methionine, up to 260 kg of soybean meal can be replaced in feed.

The use of 100,000 t DL-Methionine¹ means:

– 1,000,000 t



Less consumption of resources (**crude oil equivalents**)

– 790,000 t



Reduced nitrates (**NO₃ emissions**) into ground waters

– 800,000 t



Reduced ammonia (**NH₃ emissions**) into the air

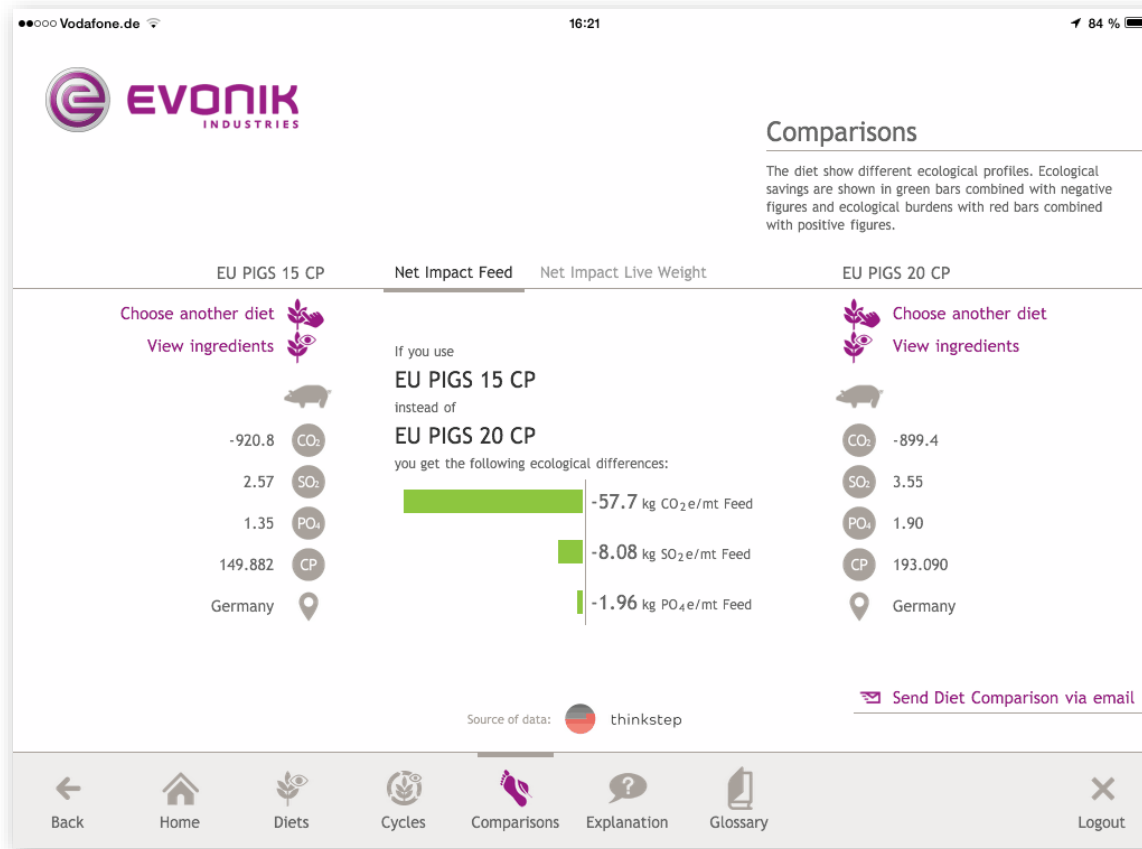
¹ The calculation is based on the “Ökobilanz –Methionin 2003” – 1 kg of DL-methionine replaces 260 kg soybean meal.



**Our Service Tool:
AMINOFootprint®**

**Realize your sustainability
potential!**

AMINOFootprint® supports the fact-based decision making on ecological performance



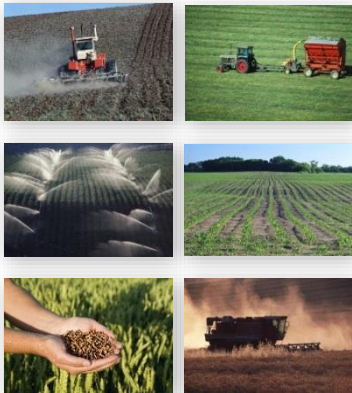
Data to proof sustainability / traceability

With AMINOFootprint® 2.0 it is possible to compare diets as well as feeding cycles with each other and choose the ecologically most friendly solution

AMINOFootprint®: The scientific backbone

Certified Input

All processing steps are included



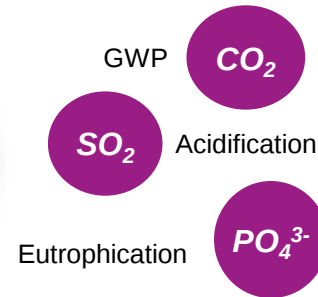
Certified data

For all feed ingredients



Certified Information

Sound decision



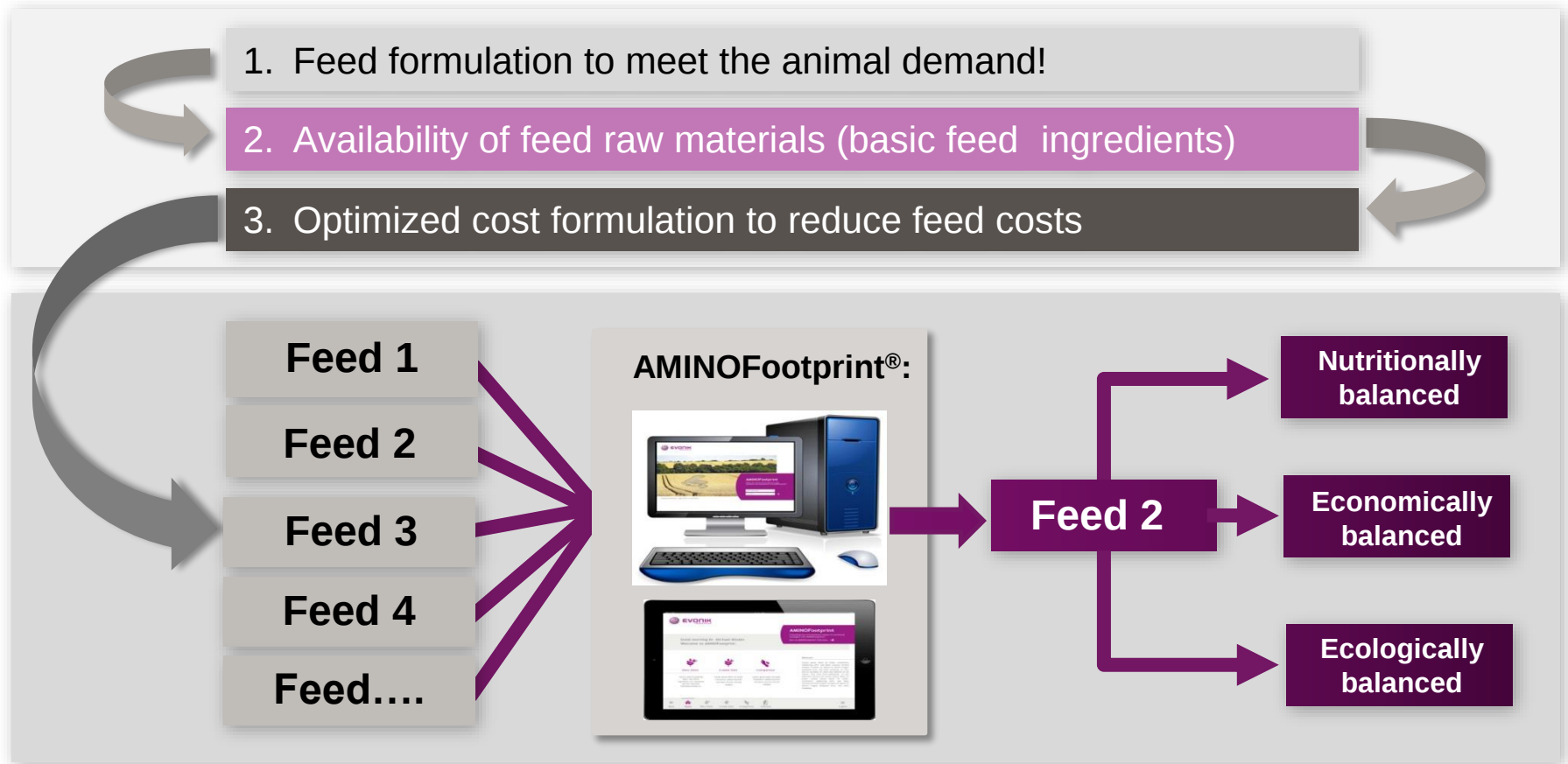
Values of AMINOFootprint® 2.0

One solution, multiple benefits

- Certified results
- Live weight calculations
- Differentiation
- One-to-one use in further processing steps
- Easy-to-use software



The steps towards a sustainable diet

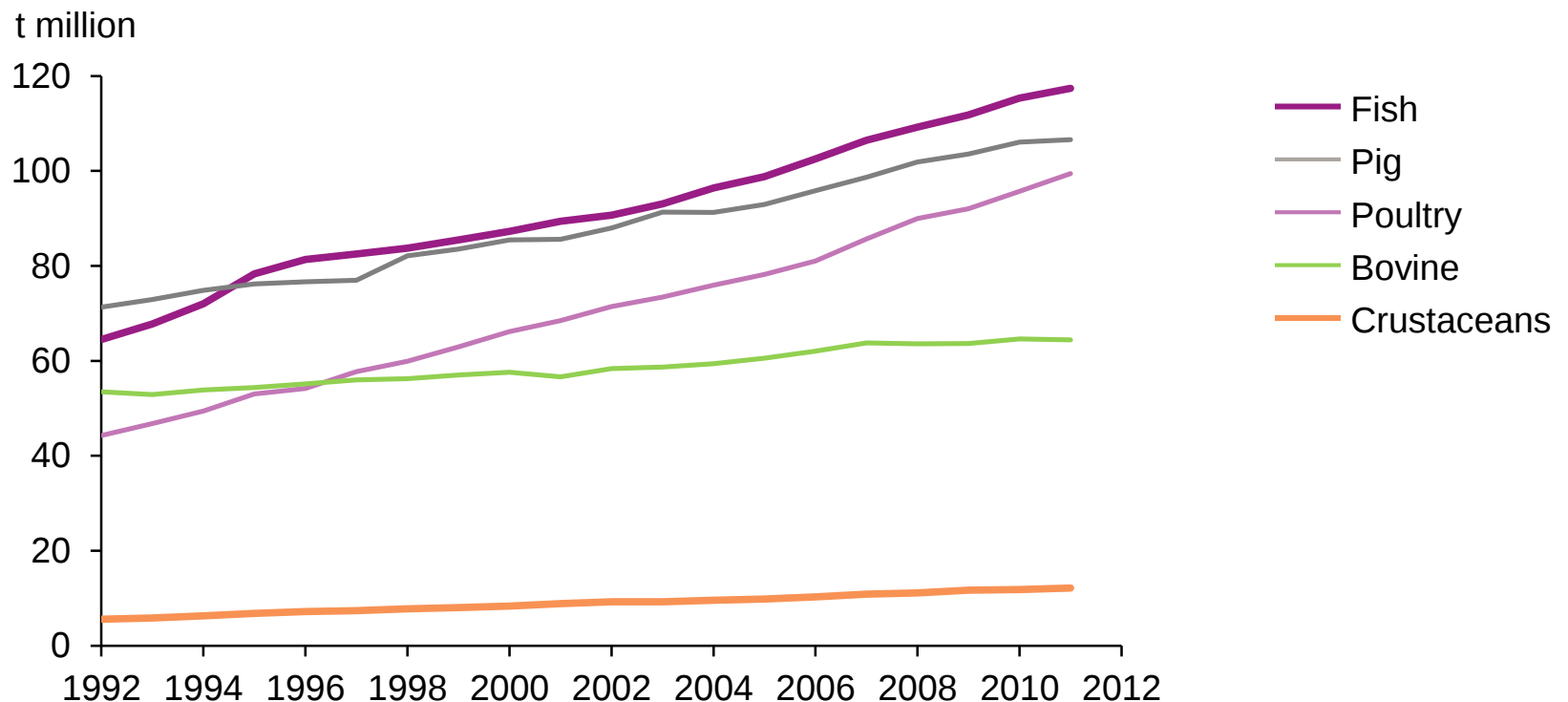




**The potential of aquaculture
in the feed industry**

World fish consumption is steadily increasing - outpacing other meats

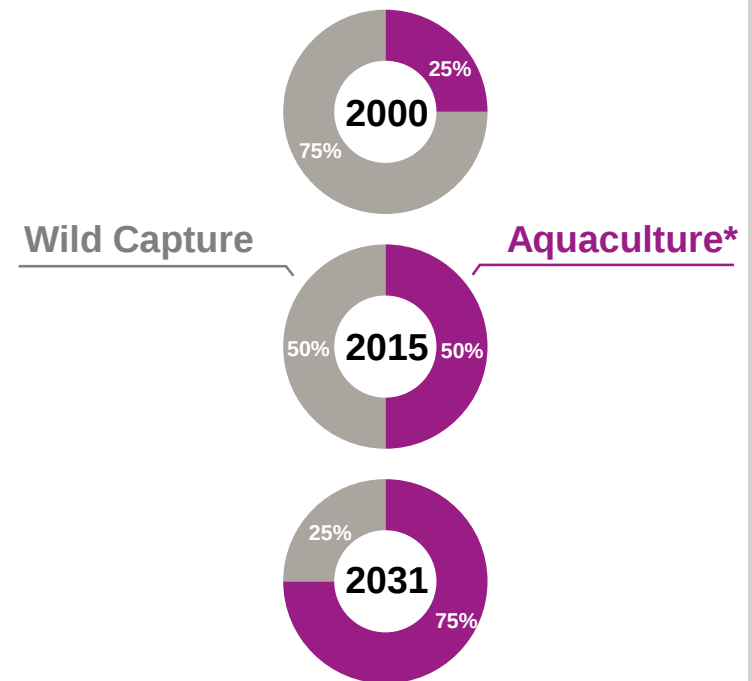
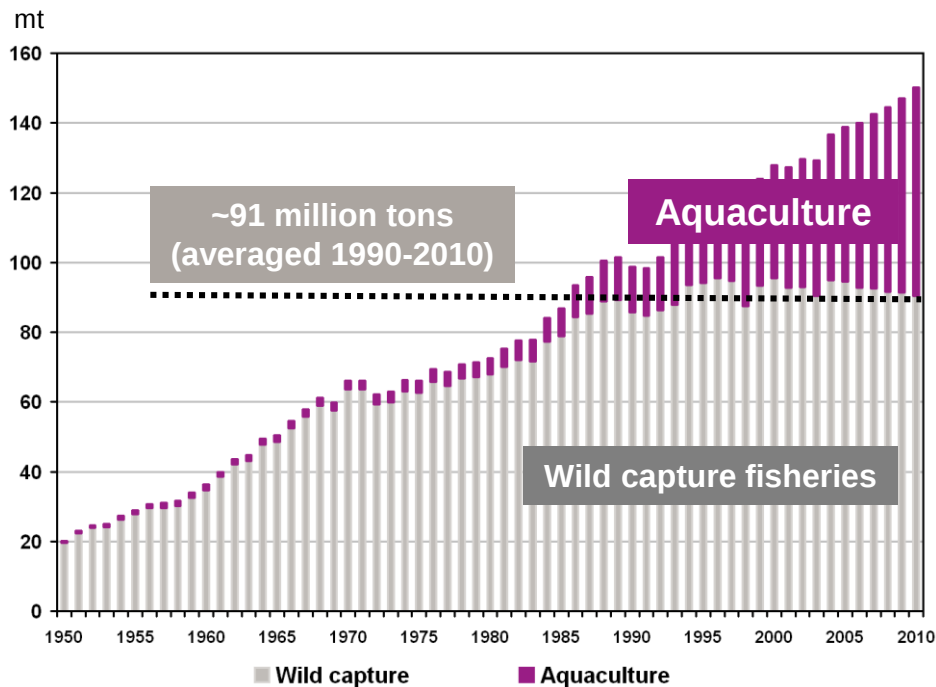
Development of global meat consumption



*Source: FAO 2015

Aquaculture production is required to cover the increasing global demand

Development of wild capture vs. aquaculture



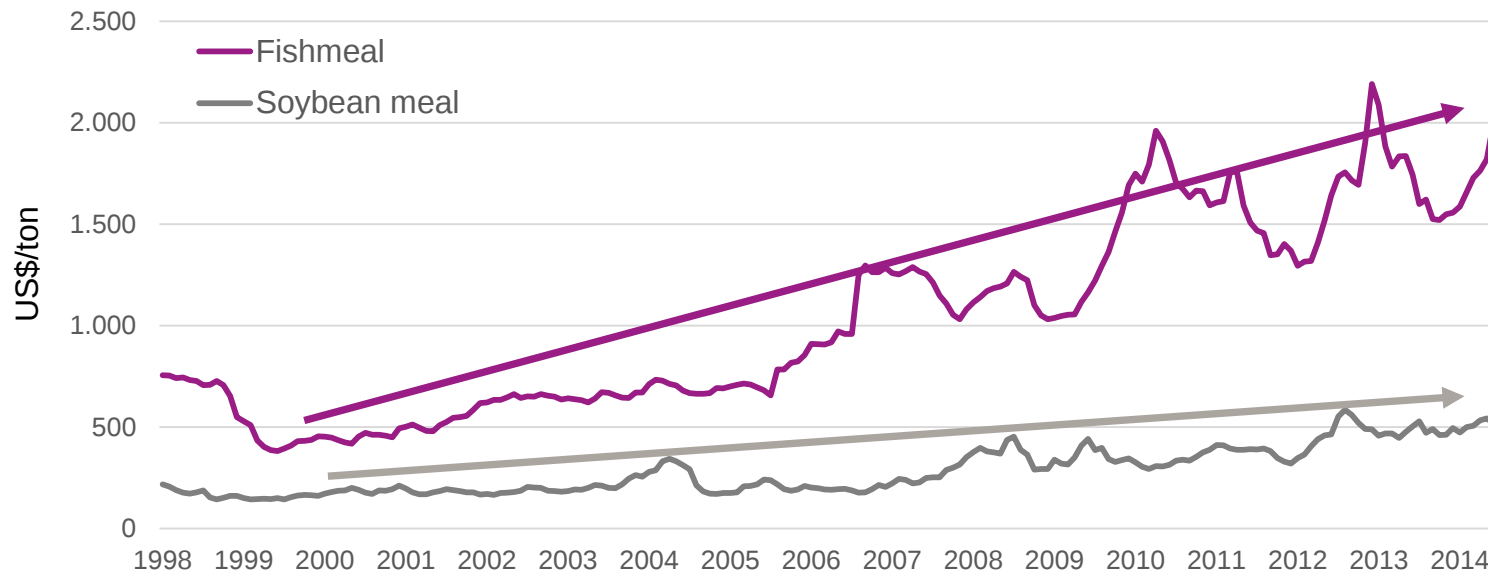
Aquaculture gaining significant importance due to limited natural marine resources

* Based on FAO stats 2014 w/o aquatic plants

1st problem: Fish meal

Fish meal prices increased sharply over last decade

Price development of fish meal and soybean meal



- **Scarcity of fish meal** as important crude protein source for aquaculture
- **Overfishing is not sustainable and destroys biodiversity in our oceans**
- **Expected increase of fish meal : soy meal ratio in the future**

1st solution step (modern diet): Replacing fish meal with amino acids

Lower fish meal by using amino acids

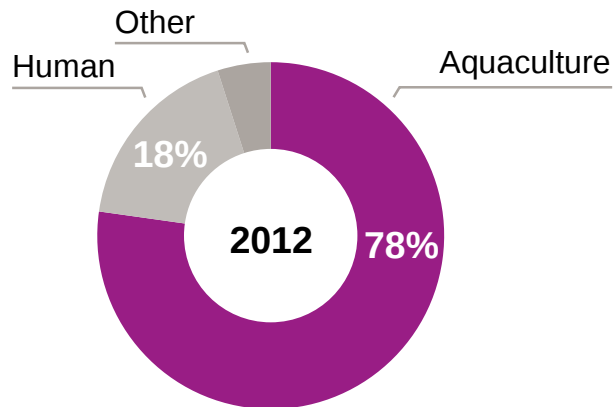


**Less than 1% of supplemental amino acids
reduces fish meal usage by more than 50%**

2nd problem: Fish oil

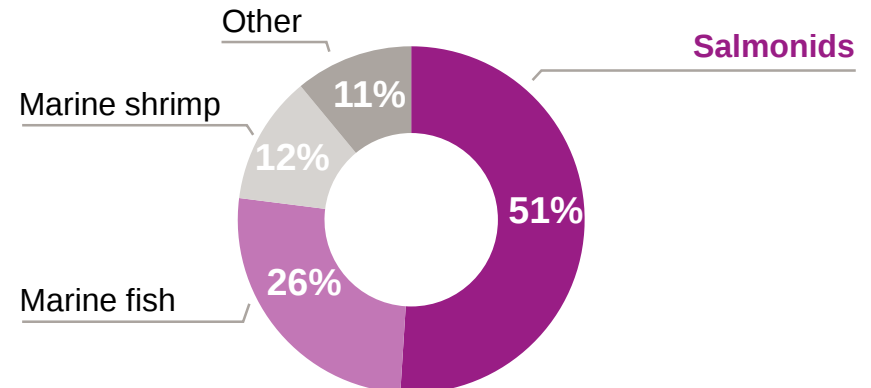
Aquaculture industry as biggest consumer of fish oil

Global fish oil consumption



Total fish oil production
in 2012: ~ 1,000 kt

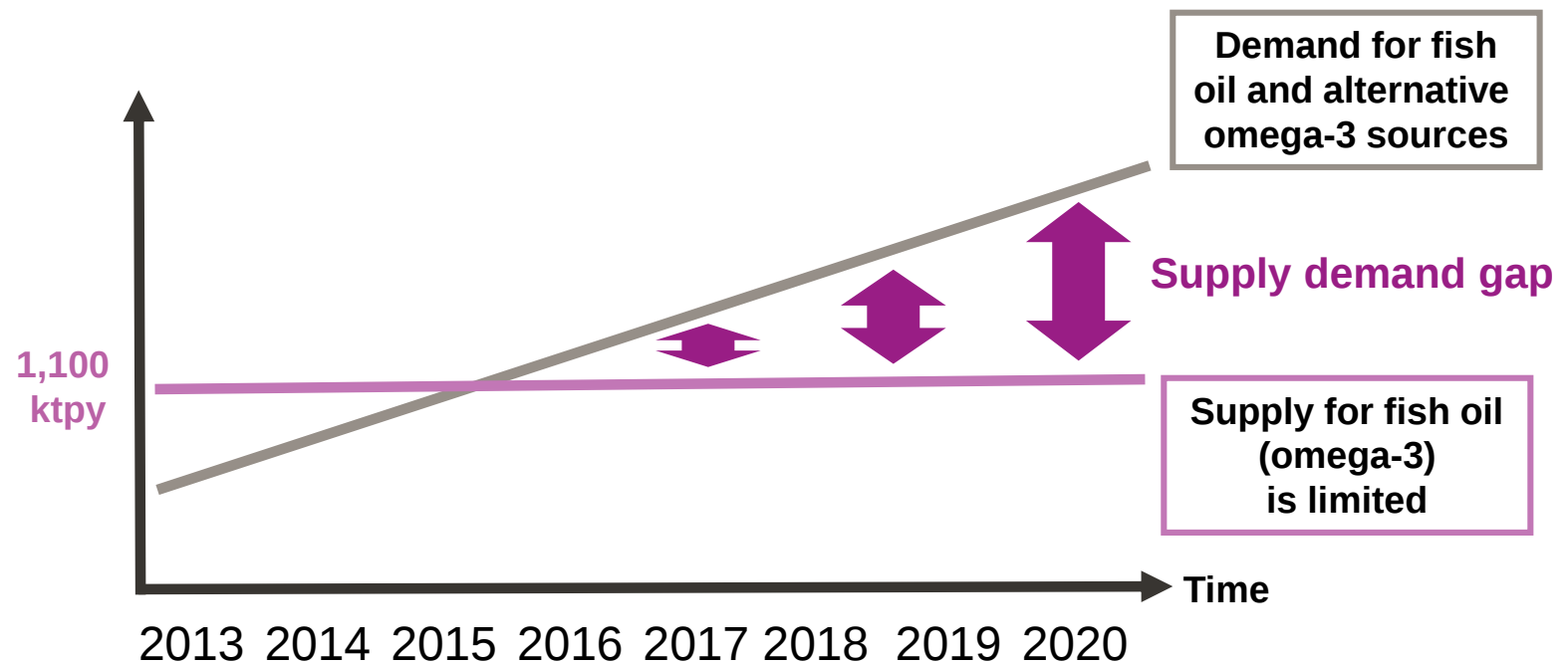
Fish oil consumption in aquaculture



400 kt fish oil used
by farmed salmonids

Expected supply/demand gap for fish oil

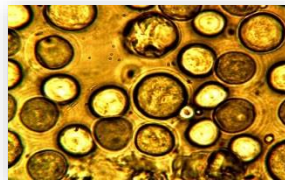
Market size of fish oil and alternatives



Micro algae

Natural solution for sustainable omega-3 fatty acids supply in the future

**Natural
food chain**
(example salmon)



Micro algae (100x)



Krill

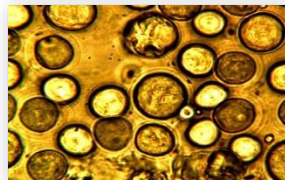


Small herbivorous
fishes



Salmon

**Current
practice in
aquaculture**



Micro algae (100x)



Krill



Small
herbivorous
fishes

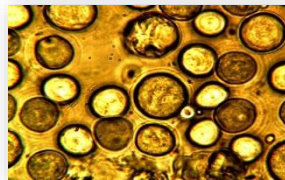


Fish feed
production



Salmon

**Future practice:
algal omega-3
fatty acids**



Micro algae (100x)



Fermentative
production of algal
omega-3 product



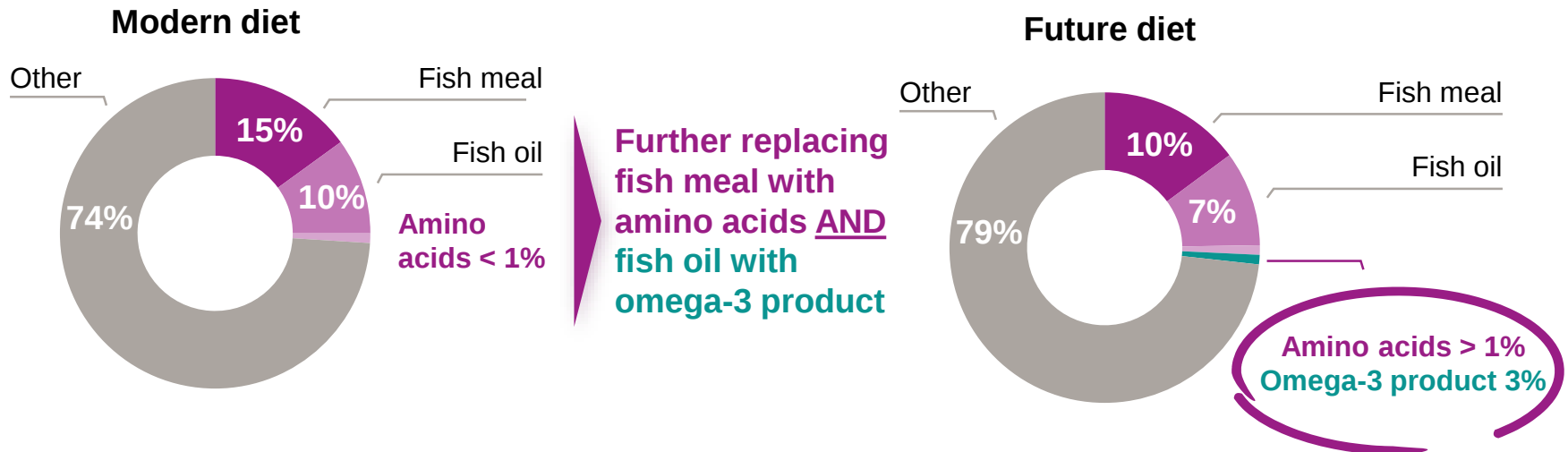
Fish feed
production



Salmon

2nd solution step (future diet): Replacing fish oil with algal omega-3 product

Lower fish meal and fish oil by using amino acids AND omega-3 product



The salmon aquaculture industry will finally become a net fish producer
(today: net fish consumer!)

JDA with DSM to develop algae-based omega-3 fatty acids for animal nutrition



- Long-established biotechnology capabilities in development and operations
- Expertise in cultivation of marine organisms
- Focus on industrial amino acid biotechnology
- Expertise in large-volume fermentation

- Nutritional sustainability as answer to pressure in feed-to-food chain
- Intelligent combination of amino acids is key for economic, ecological and sustainable animal production
- Evonik service tools like AMINOFootprint® help our customers to realize full sustainability potential
- Evonik is actively addressing the significant potential of aquaculture in the feed industry



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Field Trip

Animal Nutrition

Building strong customer
relations through value
propositions

Dr. Alfred Petri
Senior Vice President Sales &
Marketing Services Animal Nutrition
Antwerp, 1 October, 2015



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Agenda

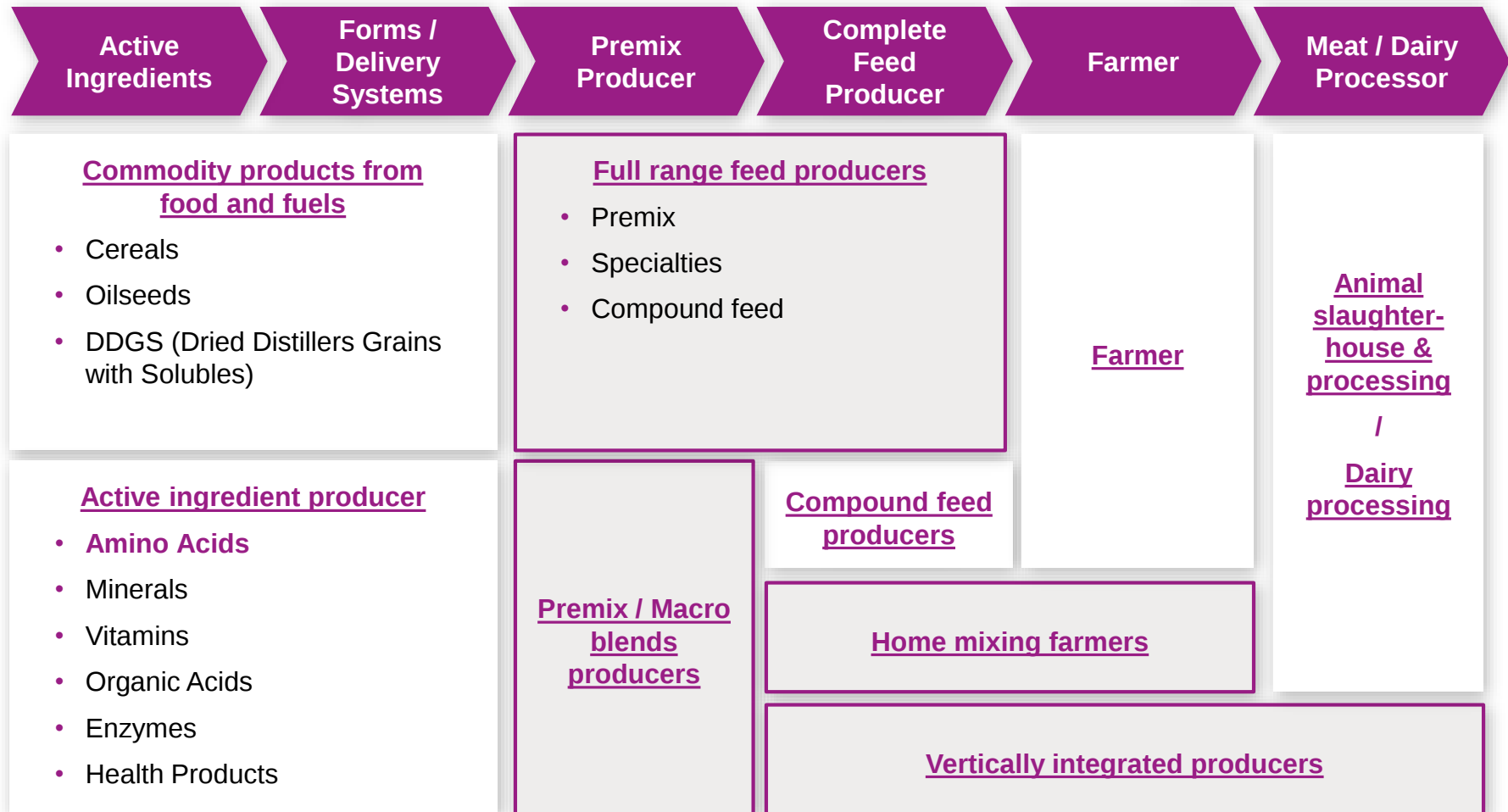


1	Our markets and customers
2	Our value proposition
3	Value selling features
4	Value pricing
5	Summary & Outlook

We provide products and services to the complete value chain of animal feed producers



Evonik Customer



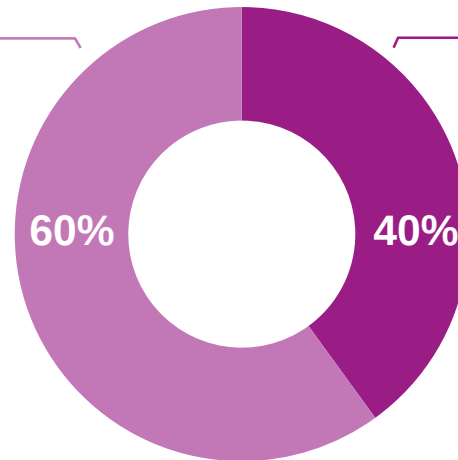
**We are serving globally the needs of
end markets with high growth dynamic**



Evonik Animal Nutrition Sales Split 2014

Emerging Countries

- **Volume growth of 7-8% p.a.***
- Sales evenly distributed between regions Asia North, Asia South and Latin America
- Highest growth rates in region Middle East / Africa



Developed Countries

- **Volume growth of 4-5% p.a.***
- Strong sales volumes in Europe and North America

- **Global customer reach – only producer with significant sales and technical resources in Europe, US, Asia and Latin America**
- **Strong growth of more than 6% p.a.* globally**
- **>90% direct sales to end customers**

* Average Annual Volume Growth 2010 – 2014

Our asset footprint and supply chain enables us to deliver in a reliable and timely manner globally

Global production and warehouse footprint



- 5 production sites on three continents
- 12 regional hubs
- 60 warehouses in 20 countries
- Strong logistic teams in all regions
- >70,000 deliveries / ~35,000 container loads shipped to ~2,000 end customers in 115 countries

- **Global production footprint – only producer with production site on three continents**
- **Warehouse and R&D network offer high flexibility and reliability to serve our customers**
- **Global supply chain management**

Agenda



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Our value proposition is tailor-made to customer needs - we call it “Value Selling”

Value Selling

Meaning

Providing products and services according to customer needs. That is what customers value and honor.

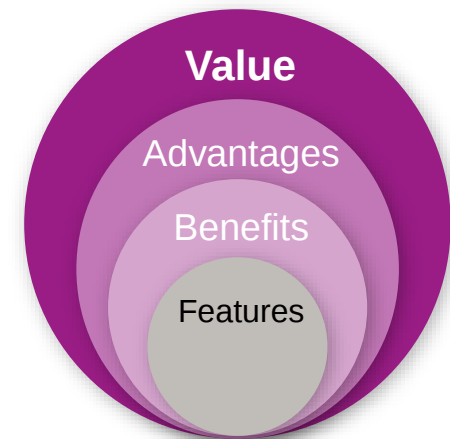
Mission

Giving the right value to the right customer at the right time

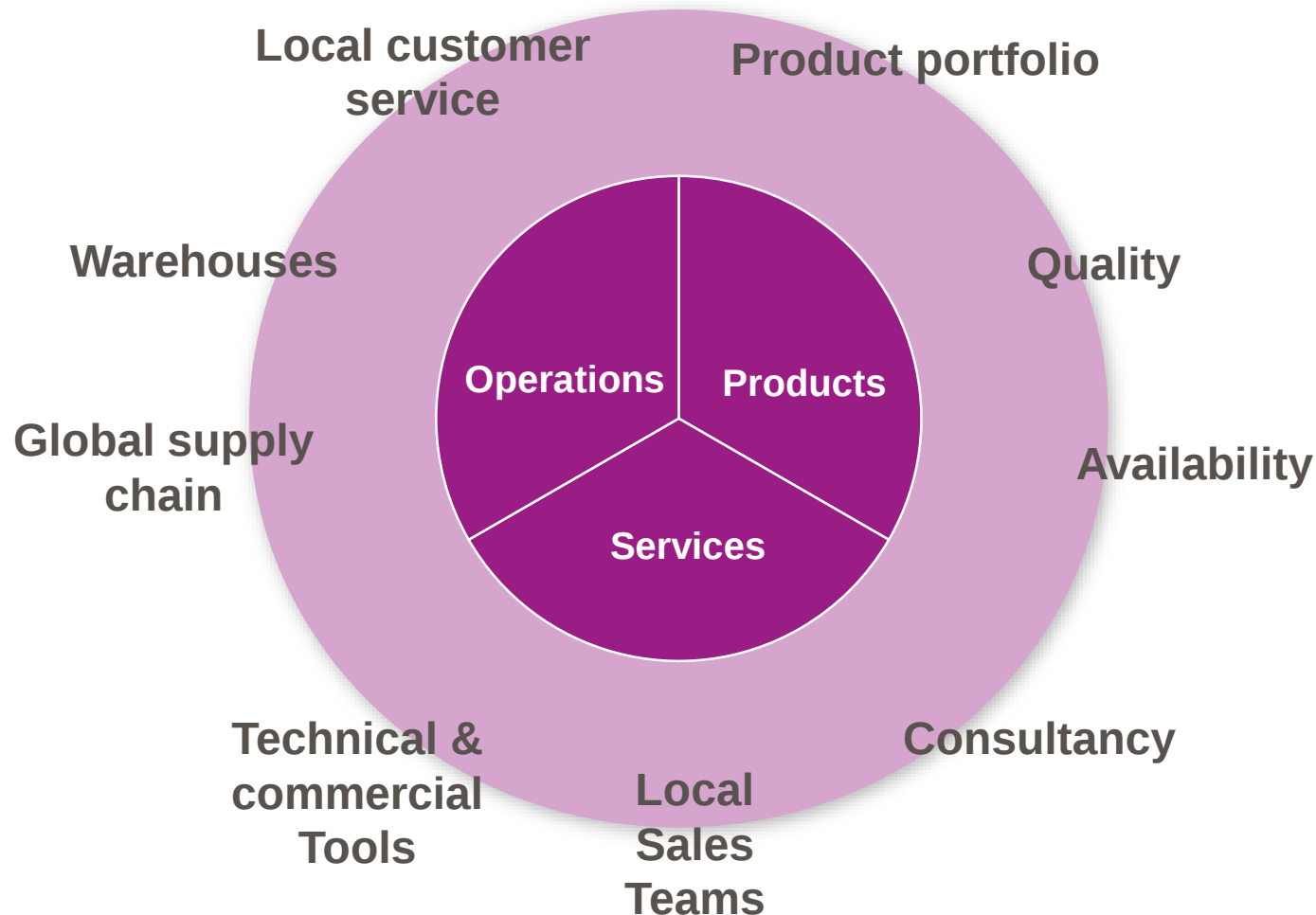
Vision

Being first choice value provider for our customers

Elements of value selling



**“Value Selling” is not a one-dimensional,
but a holistic approach towards customer needs**



Agenda

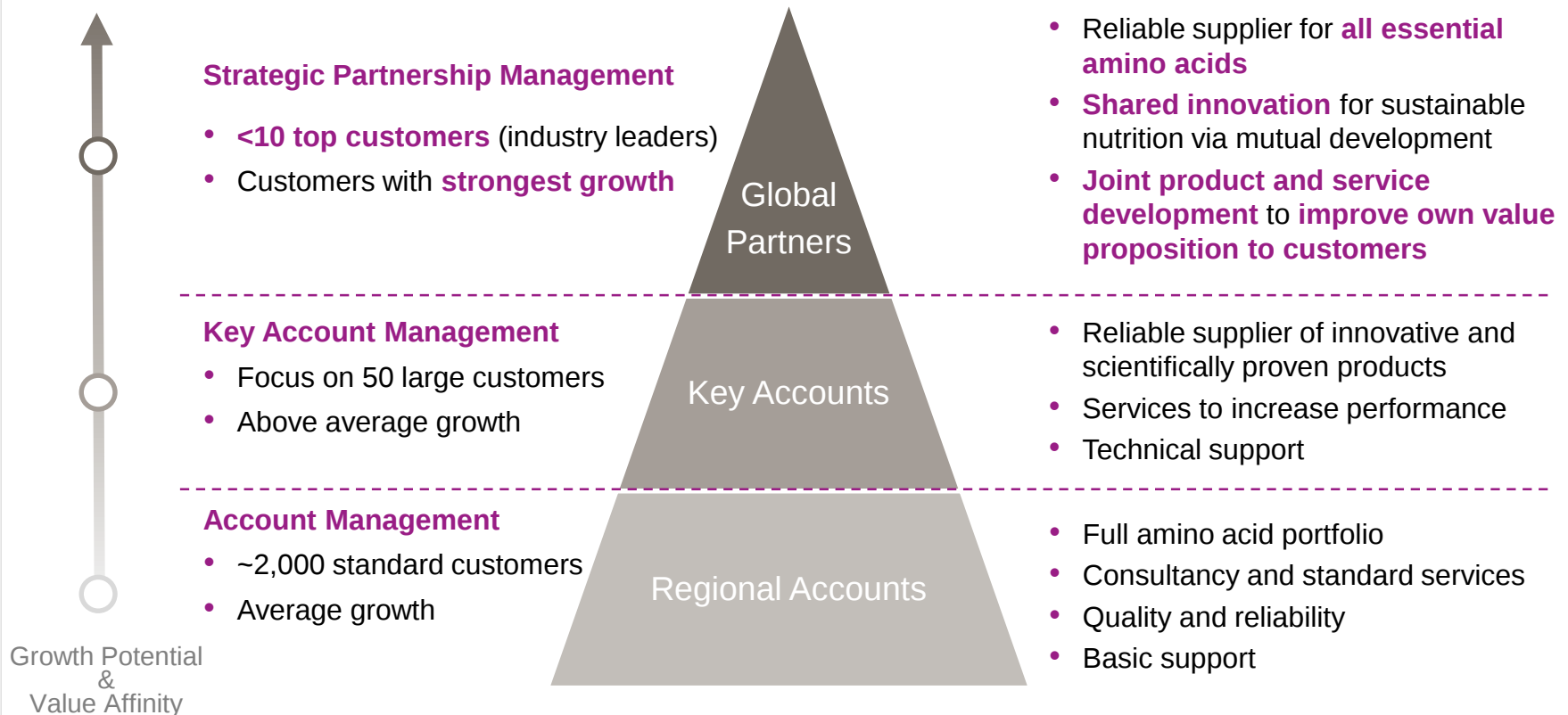


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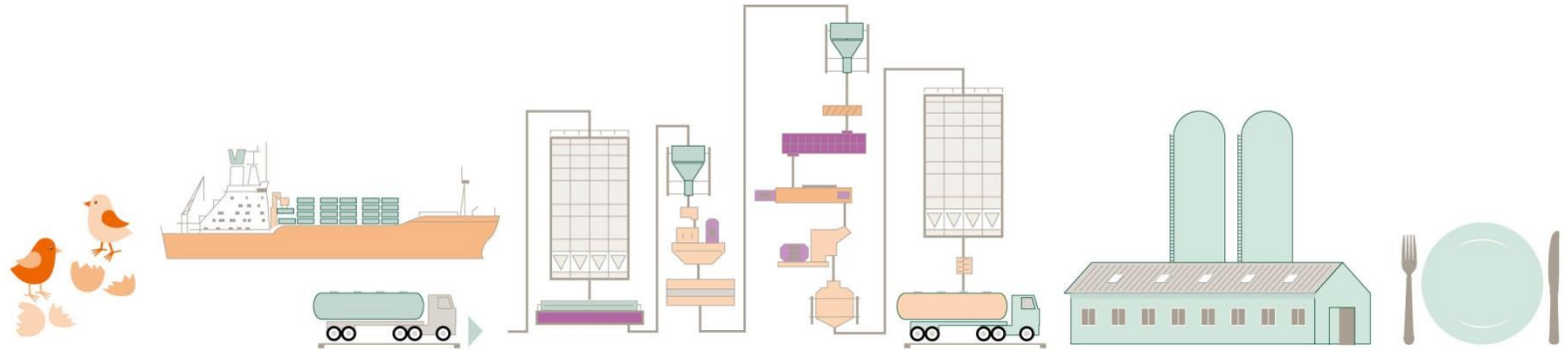
Segmentation of customers according to their specific service expectation

Our sales approach

Our value propositions



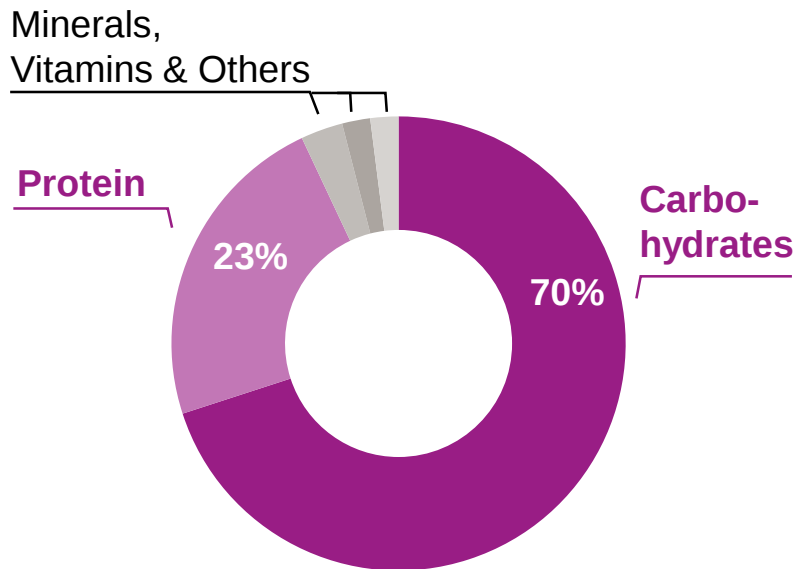
Our service portfolio is geared towards our customers' value chain



Process	Genetics/ Reproduction		Quality management		Feed manufacturing			Livestock production	Consumption
Departement	Hatchery	Breeding	Purchasing	Quality control	Feed formulation	Feed mill management/ Quality control	Nutrition/ Quality control	Livestock production management	Retail/Consumer
A broad offering of individual solutions and tailor-made services	AMINO ^{Lab} [®]		AMINO ^{NIR} [®]		AMINO ^{Chick} [®]			AMINO ^{Sys} [®]	
	AMINO ^{Dat} [®]		AMINO ^{Prox} [®]		AMINO ^{Swine} [®]			AMINO ^{Batch} [®] WPT	
					AMINO ^{Cow} [®]			AMINO ^{Batch} [®]	
					AMINO ^{Carp} [®]			AMINO ^{News} [®]	
					AMINO ^{NEC} [™]			AMINO ^Q [®]	
								AMINO ^{Footprint} [®]	

Why is analytics of feed ingredients so important for cost efficient animal production?

Typical variable feed costs split



- Feed makes up **for 2/3 of the variable production cost** in animal production
- **Carbohydrates and proteins** are the most important cost factors in feed

- 
- An **accurate and quick determination of raw material composition** is essential for cost efficient feed
 - **Amino NIR** instantly analyzes energy content and amino acids as protein building blocks

Evonik NIR Analytics: Quick raw material evaluation for cost-efficient animal production



AMINO^{NIR}

Analytical Report

CMF CHLIM (040110), Chonburi, Thailand
 Description: Soybean meal 48% protein
 Lot: 1015-000015-001
 Date of delivery: 22 September 2015
 Date of analysis: 22 September 2015
 Code product: 101-47-13
 Dry matter (% a.s.): 47.39
 Dry matter (% a.s.): 48.38

Results of amino acid analysis

Protein	Content (%)	AA (%) a.s.	AA (%) a.s.
Arginine	0.815	1.387	0.815
Cysteine	0.488	1.405	0.488
Glutamine + Glutamic acid	1.296	2.751	1.296
Proline	2.742	2.306	2.742
Threonine	1.889	2.849	1.889
Tryptophan	0.657	1.331	0.657
Valine	1.456	1.795	1.456
Aspartic acid	2.146	4.554	2.146
Leucine	2.893	5.425	2.893
Isoleucine	1.373	4.884	1.373
Alanine	1.387	1.719	1.387
Phenylalanine	2.483	5.143	2.483

* Figures are calculated on a dry matter content of 88%
 AA: Amino acid, GP: Glycylproline
 Values are calculated with respect to the dry matter
 Further information about the report
 Web: www.evonik.com

 **EVONIK**
 Evonik Nutrition & Care GmbH | AminoNIR
amino-nir@evonik.com | www.evonik.com
 Evonik. Power to create.


 Evonik Nutrition & Care GmbH | Analytical Report AminoNIR®

Evonik NIR Analytics: Quick raw material evaluation for cost-efficient animal production

NIR Analytics offers various benefits for our customers



Purchasing

- Comparison of contracted vs. analyzed parameters
- Claims for out of spec material

Quality Control

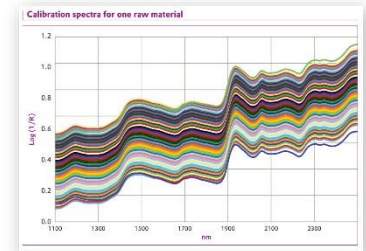
- Form of delivery
- Contamination

Feed Formulation

- Comparison to matrix values (upper/lower action limit)

Storage

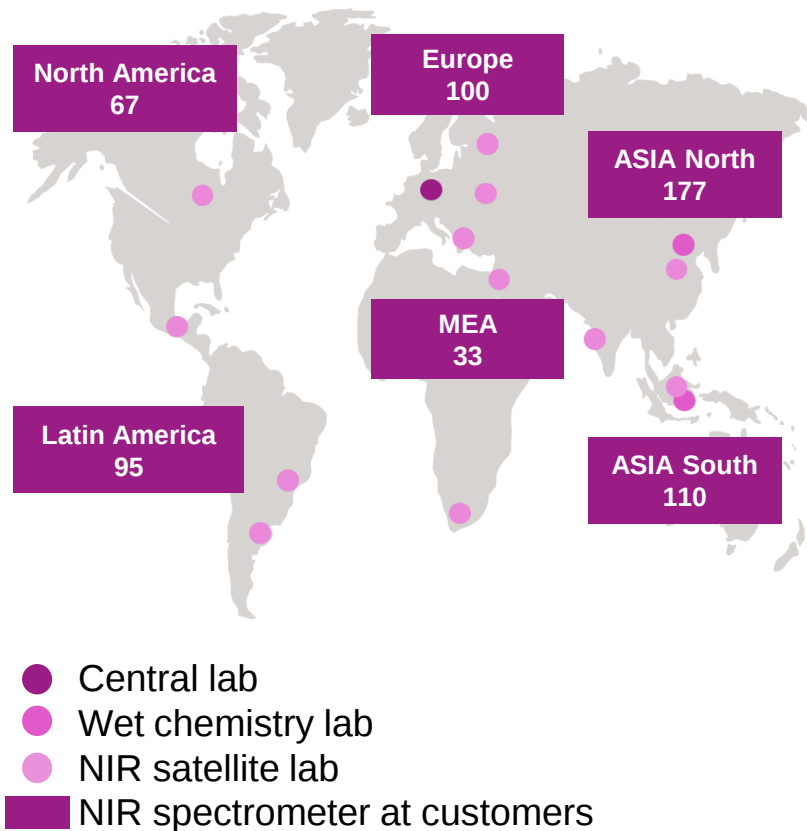
- According to quality average per silo



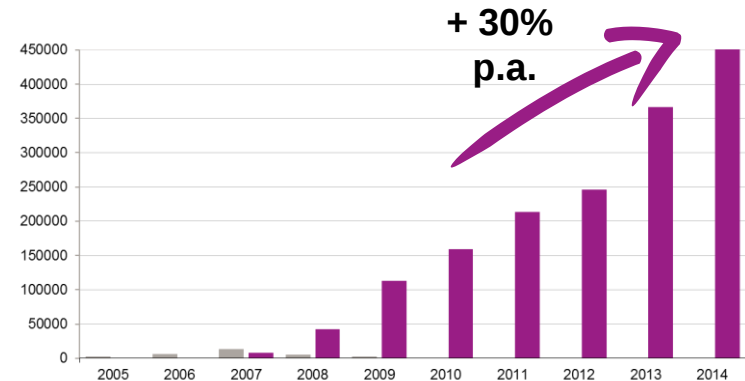
A powerful customer binding tool with an unparalleled database for feed composition and formulation

NIR Analytics: Connection to our customers in a global analytical network on a daily base

Global laboratory network



Development of NIR Analytics

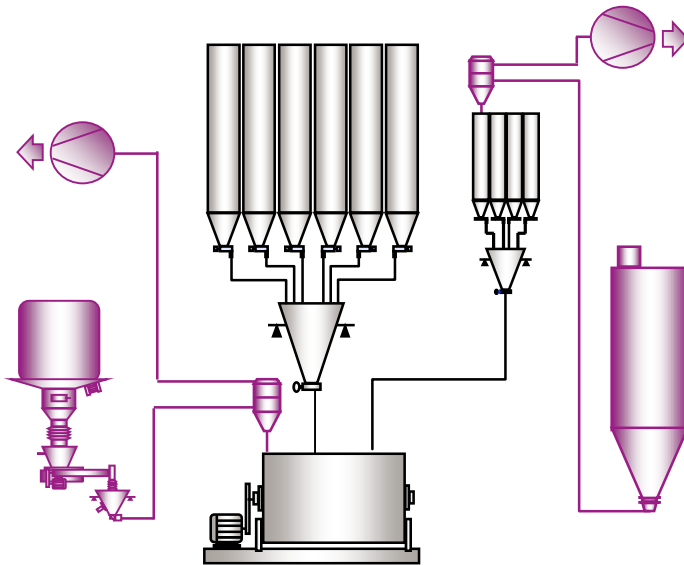


- **>500 NIR spectrometer at customers**
- **>50,000 samples** analyzed in Evonik Labs
- **>500,000 NIR spectrometer datasets** from customers analyzed in Evonik labs

AMINOSys®: Our solutions for handling supplemental amino acids

AminoSys®

Dosing system



Conveying system

Cost saving potential

- reduced handling costs and product losses
- lower formulation costs due to accurate dosing

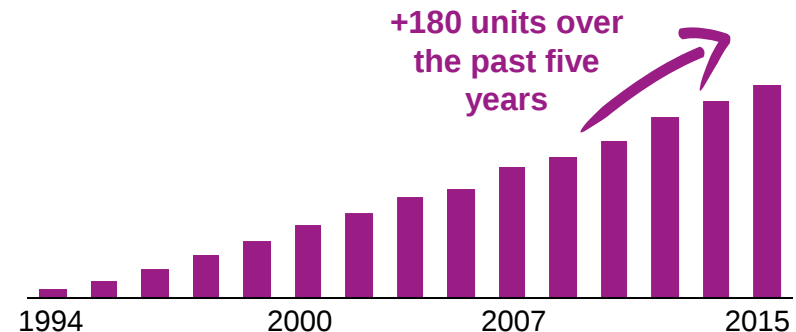
Improved process quality and flexibility

- optimized mixing time
- more flexibility during the feed process (e.g. batch protocols and QM documentation)

Long-term customer relationships

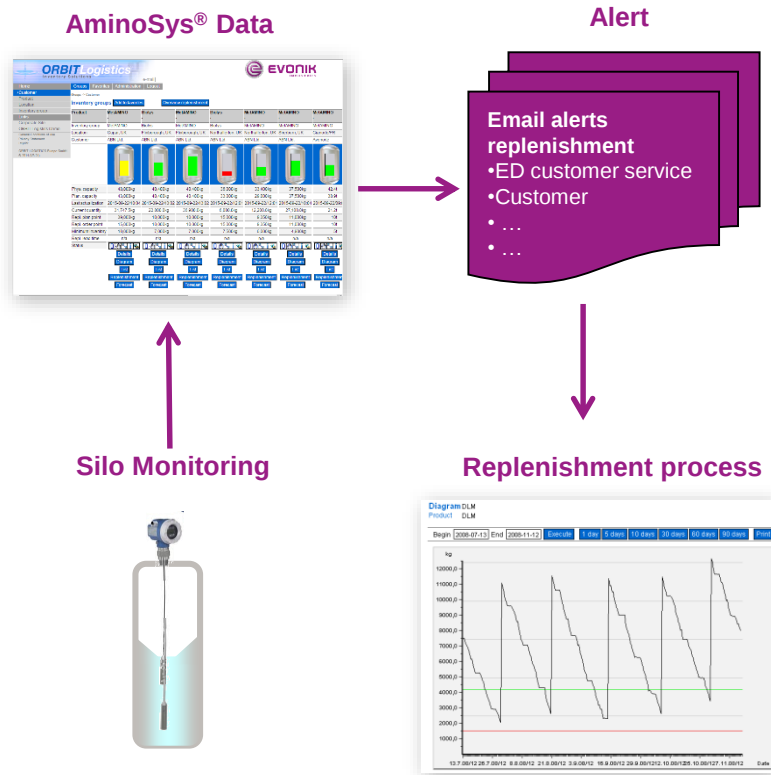
- ~550 AMINOSys® installed in total since 1990

- Crucial hardware and proprietary control software delivered and installed by Evonik



AMINOTrak®: Automated replenishment planning

AminoTrak®



- Evonik dosing system (AminoSys®) offer quick analysis of stock levels
- AminoTrak®, the vendor managed inventory system from Evonik ensures on-time replenishment
- Filling levels of silos remotely monitored and alerts are triggered to ensure timely deliveries

► Direct access to customers' stock level as service and binding tool

Agenda



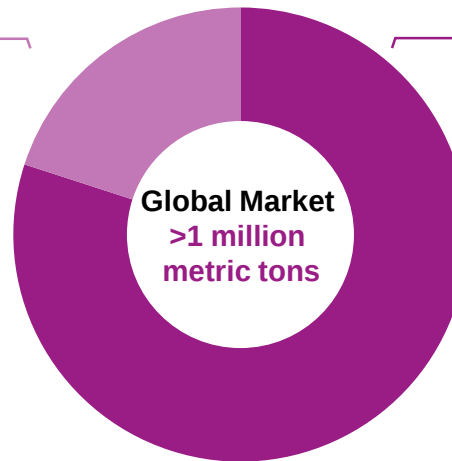
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Typical purchasing patterns of feed amino acid market

Contract vs. Spot Pricing

Spot Business ~20%

- Contract frame 1-7 days
- Longer-term framework contracts which also include service features
- Evonik prices not comparable to publicly quoted spot prices



Contract Business ~80%

- Contract frame 1-3 months
- MoUs for several years
- Full range of service offerings included
- Normal procedure with strategic partners and key accounts

Components of price negotiations

- **No benchmark** - negotiated with each customer individually
- **Contract duration** (contract vs. spot) **and volumes**
- **Customer level:** Strategic partnerships vs. regional accounts
- **Specific customer needs** and general market trends
- **Request for additional solutions and services**

What do published spot prices reflect?

Publically quoted spot prices

- Publically quoted spot prices mainly represent **“residual volumes”** after contract and consistent spot business is fixed in direct negotiations with customers
- Only very small underlying volumes often representing speculative options of trading channels
- Exact source of information and underlying conditions not transparent (mix of prices amongst distributors, customers and producers)



Published spot prices are no adequate basis to assess and forecast actual market conditions and are significantly more volatile than contract and spot prices

Agenda



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Value proposition of Evonik Animal Nutrition

Our aspiration:

Remaining the preferred partner for the development of solutions for sustainable animal nutrition enabling for an improved human food chain

- Value definition with holistic focus on operations, products and technical as well as commercial services (multi- dimensional)
- Technical and commercial tools in a „continuous learning“ environment
- Highly competent, people-driven approach
- We see us now and in the future as a global, reliable, and highly innovative “Best Value Provider“



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Field Trip Animal Nutrition

The MetAMINO® Success Story

Dr. Emmanuel Auer
Head of Animal Nutrition Business Line
Antwerp, 1 October, 2015



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What we have heard so far ...



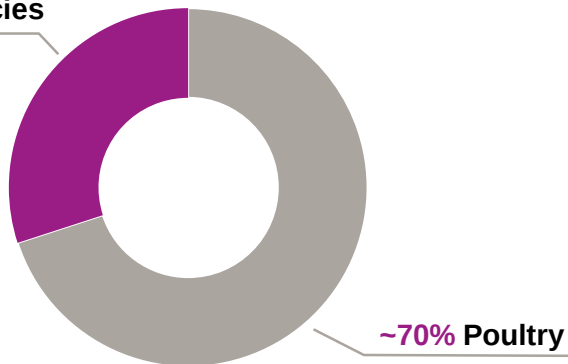
- Strong market growth for amino acids remains unchanged
- Efficiency and sustainability are major growth drivers
- Competences of Evonik Animal Nutrition are well set for further growth in the methionine business
 - ✓ Customer intimacy through direct sales presence in more than 120 countries
 - ✓ Unparalleled global reach and excellence in global supply chain management
 - ✓ Continued innovation in service offers
 - ✓ Differentiation in new markets and animal species such as aquaculture and ruminants
 - ✓ Aspiration to generate additional growth beyond strong amino acid core



Methionine at a glance: Much more than just chicken

Global sales by applications 2014

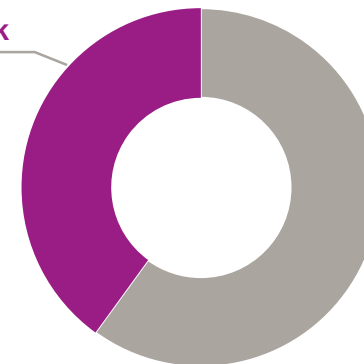
~30% Swine, Aquaculture
and other species



- Growth in methionine varies by regions, species, customers

Global Market Share 2014

Evonik



Major Competitors

- Novus
- ChemChina (Adisseo)
- CUC Unisplendour
- Volzhsky
- Sumitomo

- Evonik clear market leader with ~40% of global market share

Methionine at a glance: Bio-efficacy is key regarding the available product-forms

Methionine Product Types 2015

	DL-Methionine (solid)	MHA (Methionine Hydroxy-Analogue, liquid)	L-Methionine (solid)
Market Share 2014	~70%	~30%¹	0%
Supplier	Evonik, ChemChina, Sumitomo, CUC, Volzhsky	ChemChina, Sumitomo, Novus	CJ Cheil Jedang
Market Positioning	- Industry standard established for more than four decades - Easy to ship and to handle	- De facto not an amino acid - Liquid product as alternative to solid DL-methionine	- New product launch 2015 - Combination of biotech and chemical synthesis
Relative product bio-efficacy²	100% scientific 100% claimed	65% scientific 88% claimed 80% used for capacity calculations	- approx.100% scientific - at least >100% claimed

¹ Based on total volume output

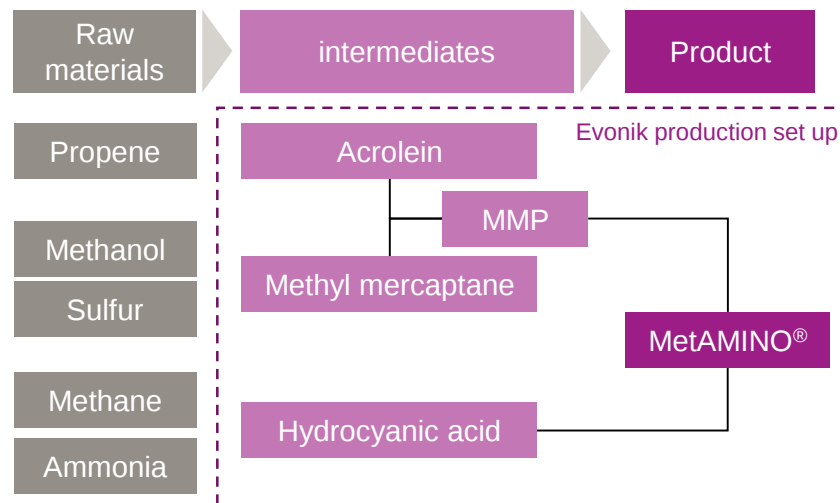
² Relative bio-efficacy: comparison of relevant performance parameter per kg methionine product used in feed formulations

Excellence in technology is one of our key strength for reliable and sustainable supply

Advantages of Evonik

- *“The Right to Play”*: 60 years of experience and process know-how
- *“Setting standards”*: Continuous innovation leadership for cutting-edge safety technology
- *“Best in Class”*: Continuously optimized manufacturing and technology position
- Fully backward integrated production complexes
- Economies of scale with world-scale plants to meet market growth timely

Setup of Methionine complex



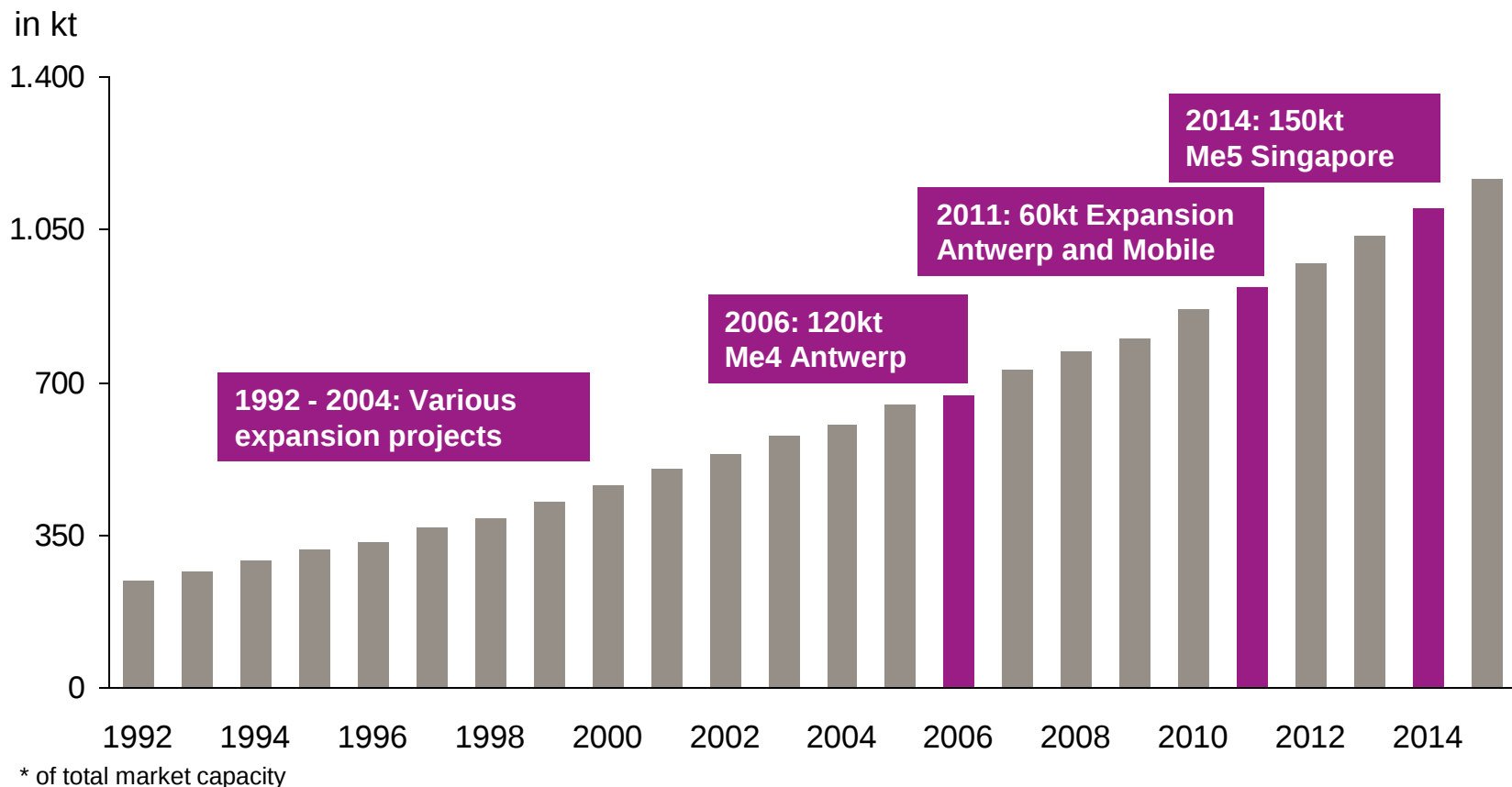
Implemented innovations 2014 in Singapore:

- ✓ Further minimization of toxic intermediates
- ✓ Realization of economy of scale (150 kt)
- ✓ New highly efficient energy integration concept

Evonik has demonstrated its commitment to customers over the years by investing considerable funds both in additional capacity and supply chain



Methionine market supply development



Me4 investments and expansions build world's largest methionine complex and global export hub



2006 Me4 Investment -- 2011 Expansion of Methionine Complex Antwerp

- Significant investments made in Antwerp to meet growing global market demand
- All investments in the Antwerp methionine complex completed on time and budget
- Embedding of Evonik supply chain into harbor infrastructure of Antwerp: A globally reliable export and distribution hub for methionine

Features

- Long methionine history with first production in 1975
- Two methionine plants
- Well-integrated logistic hub of site and harbor
- Best cash cost delivered

Largest methionine complex worldwide today

**Me4 Complex:
260 kt capacity**



Me5 investment complemented asset footprint and established production capacity in fast growing Asian market



Me5 Investment

- Backward integrated Me5 complex constructed as greenfield plant and executed on time and budget
- Successful ramp-up from November 2014 onwards as per plan and according to Evonik market commitments made by press release in 2010
- Favorable export logistics to secure supply to Subcontinent, Asia and Australia/Oceania

Features

- Placed in growth region
- World-scale capacity
- Further advanced integration of production complex
- State-of-the-art safety technology
- In the center of the leading Asian logistic hub
- Start-up in H2/2014

Largest world-scale plant in Asia

**Me5: 150 kt plant
in Singapore**



Further implementation of sustainable nutrition concepts drive growth



Lever of sustainable feed formulations on global methionine demand



Me6 investment answers future market needs on reliable and sustainable global supply

Rational of Me6 Decision

- Evonik will reliably meet customer and market demand for methionine, indispensable for efficient and sustainable animal nutrition
- The recent plant in Singapore took up its operations at the time Evonik had announced in 2010
- New project to be completed in the same timely manner to secure supply to Asia

Requirements

- Start-up in H1/2019
- World-scale plant (150 kt/a)
- Again well placed in growth region
- Fast-track project mandates existing methionine sites

Decision

**Construction
of Me6 Complex
in Singapore**





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Site Tour Antwerp: The Methionine Complex

Safety Requirements for Guided Tour:

- ✓ Personal Protection Equipment (PPE) required
- ✓ No food and beverages
- ✓ Smoking prohibited
- ✓ All electrical devices to be left in the meeting room (ex-zone!!)
- ✓ Escort required for outside walking
- ✓ In case of emergency: please follow instructions of your guides:

Dr. Hartwig Pohlmann

Head of Global Production and Technology Animal Nutrition

Frank Daman

General Manager Evonik Antwerp Site



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