



Knowledge grows

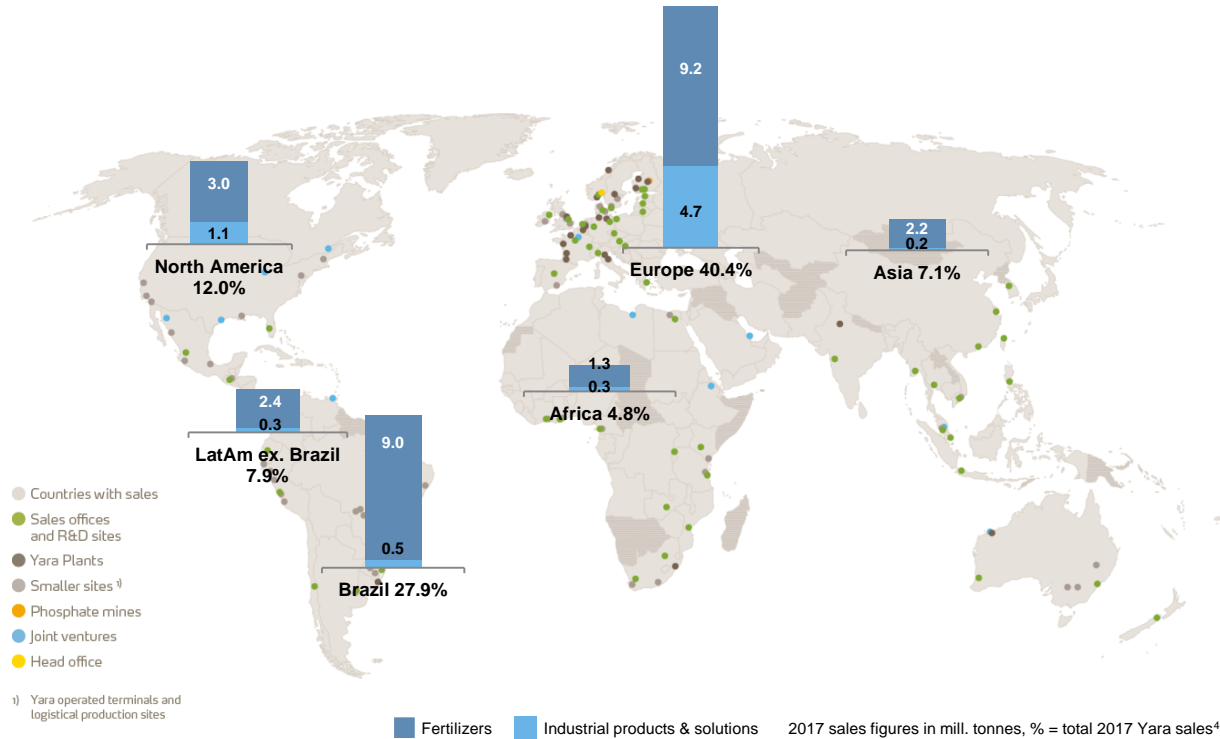
# Water use in agriculture – Yara's approach

Bent Axelsen

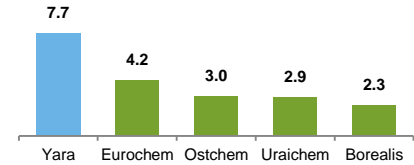
*CFO & SVP Global Business Excellence*



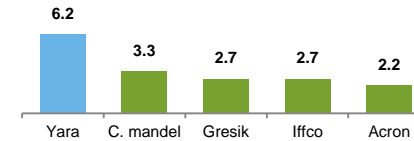
# Yara's leading global position and differentiated product portfolio represent key sources of competitive edge



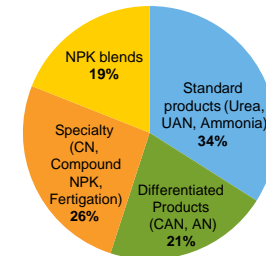
## Global #1 in Nitrates<sup>1</sup>



## Global #1 in NPK<sup>2</sup>



## Fertilizer product portfolio<sup>3</sup>



1) Including TAN and CN – Including companies' share of JVs 2016YE  
 2) Compound NPK, excluding blends  
 3) 2016/2017 season volume  
 4) Ammonia trade not included in chart above

## Our Mission

*Responsibly feed the world  
and protect the planet*

## Our Vision

*A collaborative society;  
a world without hunger;  
a planet respected*

# Responding to global challenges is an integral part of our business model and strategy



## Resources

Resource Efficiency



## Food

Sustainable Agriculture

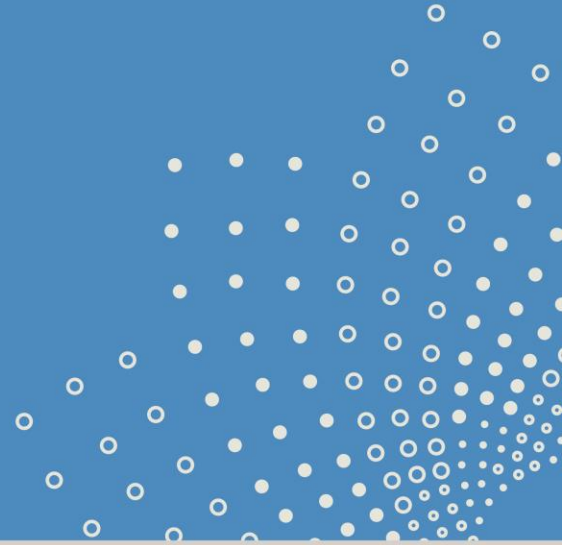


## Environment

Reduced Emissions

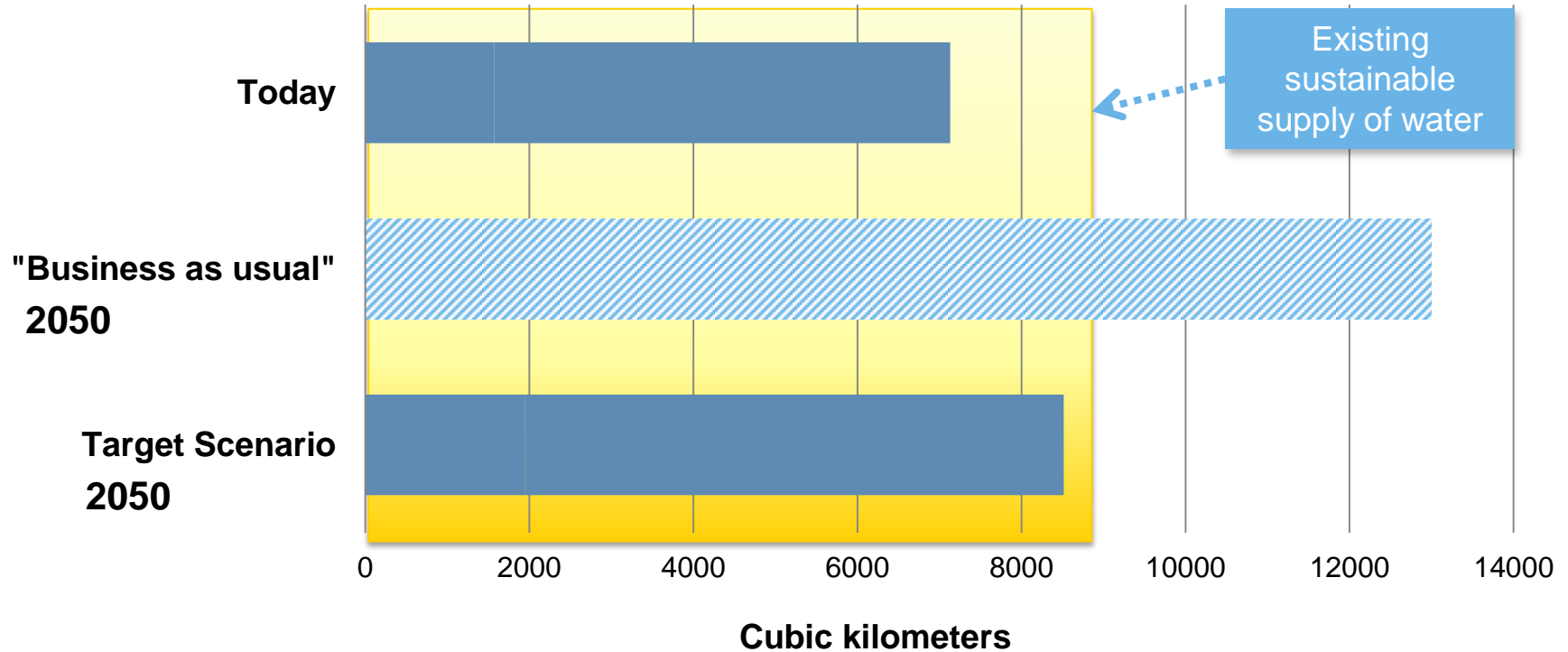
**Our business is uniquely positioned to provide shared value for shareholders and society**

# The challenge with water and agriculture

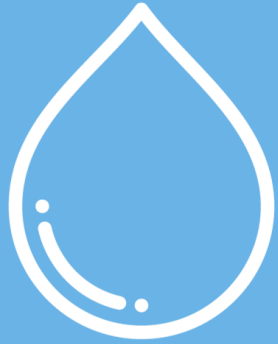


# Global annual Water use - today and projection into 2050

“Business as usual” is not an option







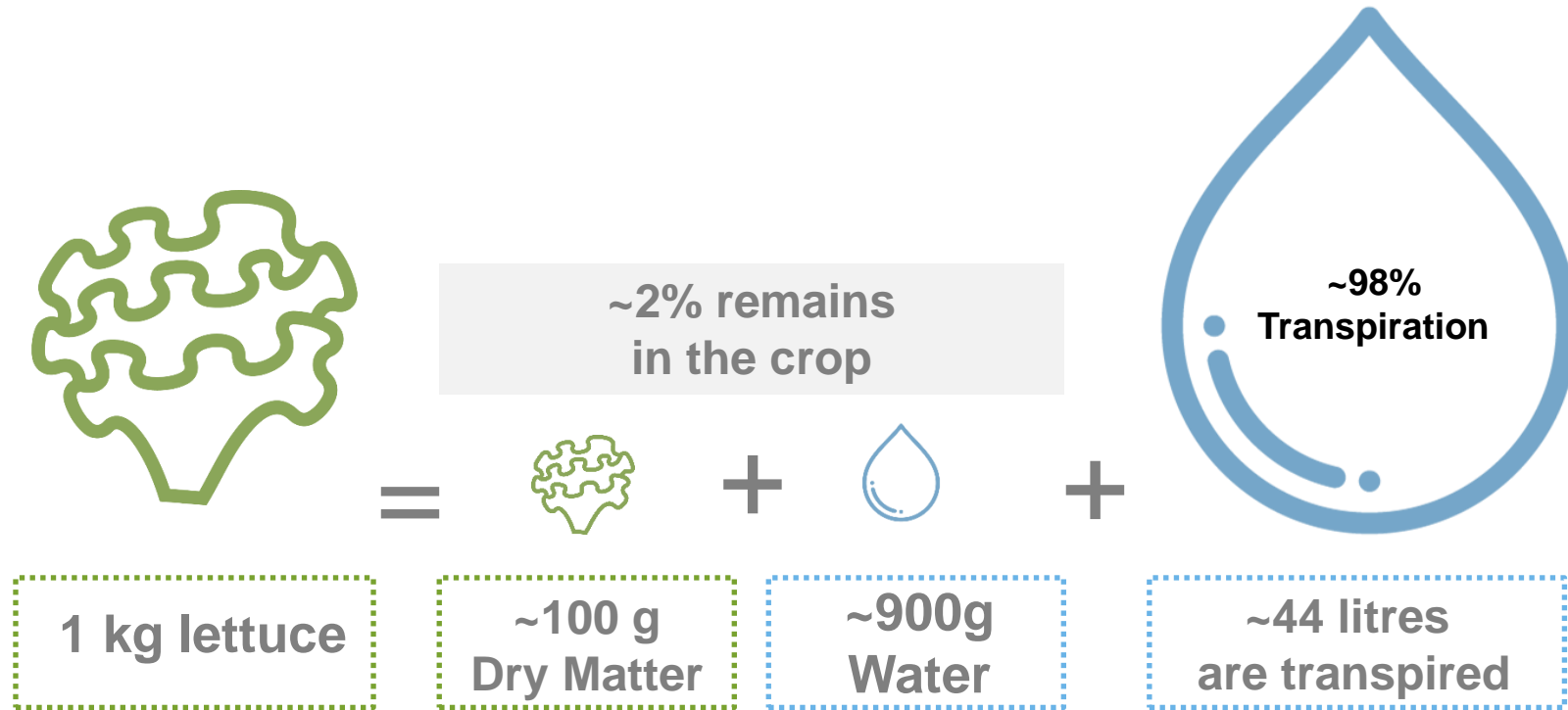
70%

of all water that is used today  
is used for agriculture



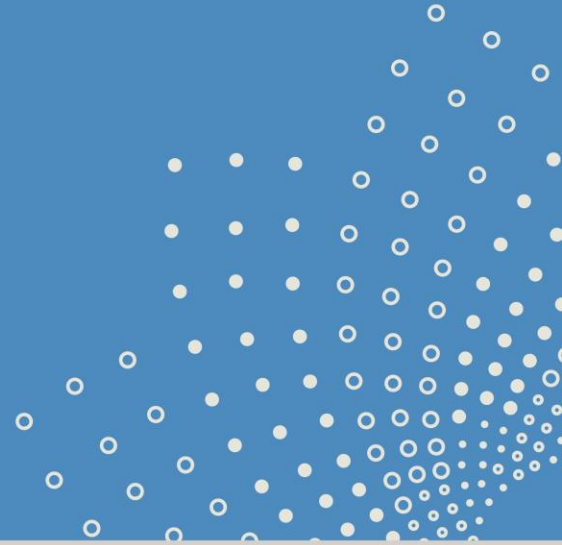
# Most of the water taken up by crops is lost through transpiration

Example - lettuce



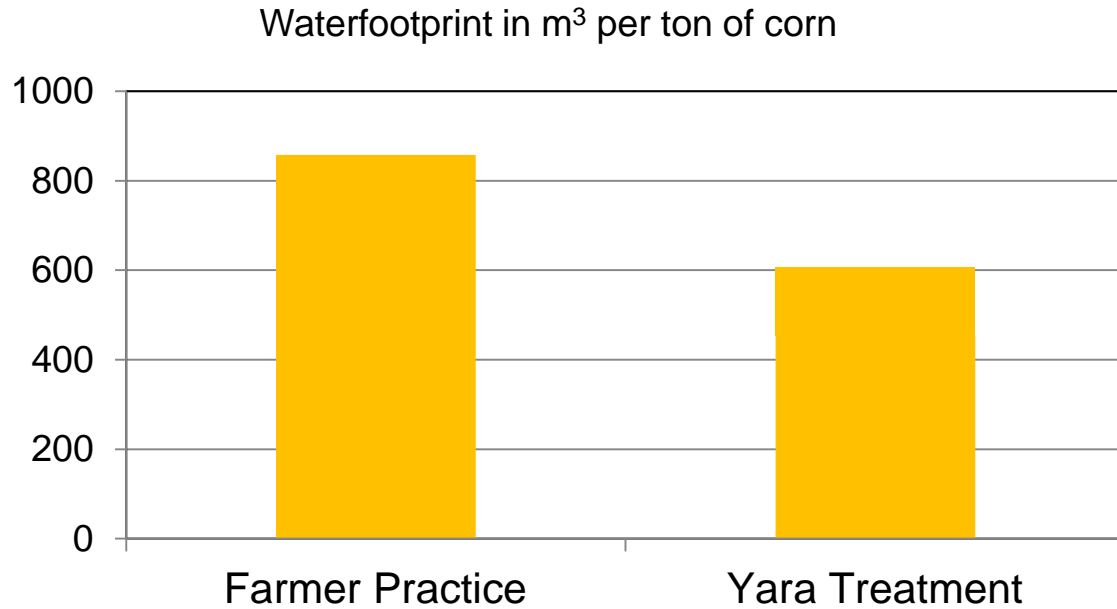


# Yara's approach improved crop nutrition



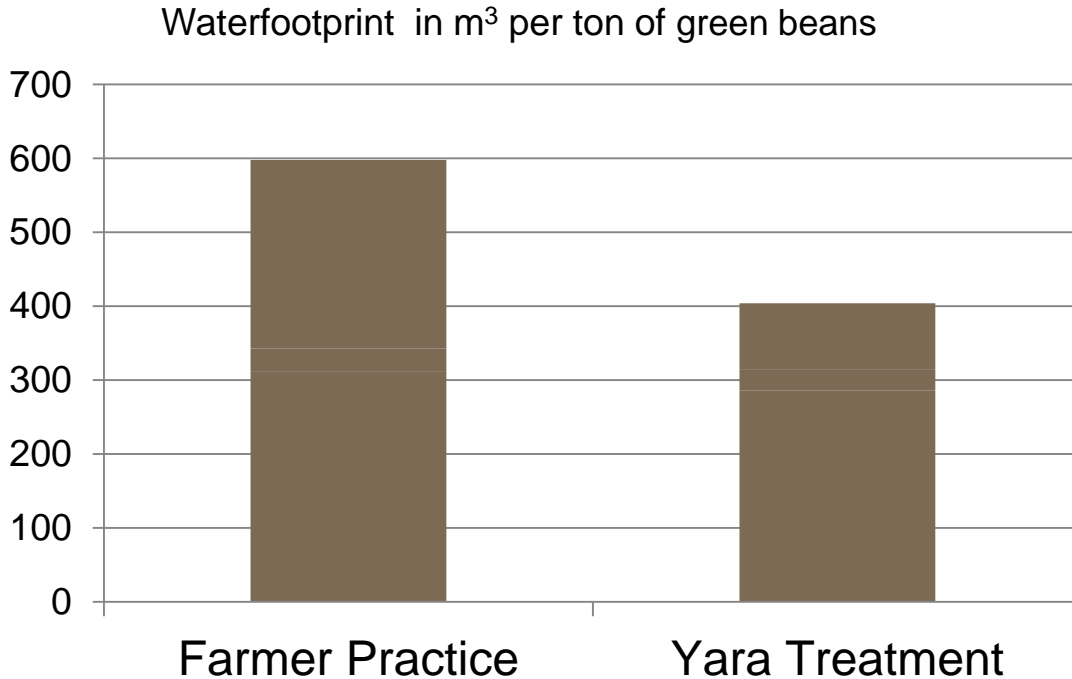
# Good crop nutrition enables the crop to use water more efficiently

## Example Maize, Tanzania



# Good crop nutrition enables the crop to use water more efficiently

## Example Coffee, Vietnam





# Yara Water Solution

*Solving big problems in water optimization*

# Yara fertigation solutions: profitable crops, satisfied growers.

More than 100 years of experience since first fertigation product development: calcium nitrate; now expanded to support grower's needs.



Trainings



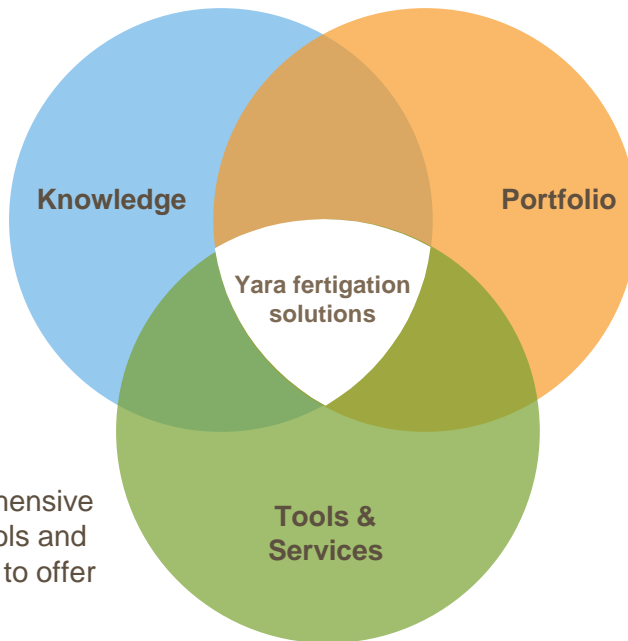
Demos



Literature



Experts



Comprehensive set of tools and services to offer



Crop Analysis



Software



Telemetry



Sensors



YaraTera EASYFEED

Yara offers a wide range of fertigation products for growers – both for greenhouses and open fields.





# Yara solutions helps to increase the water efficiency via better usage of resources in open field irrigation systems



**Flooding**  
30 - 40%



**Furrow**  
55 - 70%



**Pivots / Sprinkler**  
70 - 85%



**Drip**  
90 - 95%

Water efficiency:

Increased accuracy of irrigation application and reduced water per ton of crop

# Moving to fertigation creates value both for the farmer and for the environment: Example Potatoes

Treatment	Yield (t/ha)	Yield (€/ha)	Fertilizer cost (€/ha)	Water cost (€/ha)	Total costs (€/ha)	Profit (€/ha)
Pivot	59,1	8373	464	723	1187	7186
<b>Fertigation (drip)</b>	<b>71,1</b>	<b>10073</b>	<b>732</b>	<b>595</b>	<b>1327</b>	<b>8746</b>
Differences	12	1700	268	-128	140	1560



## Fertigation benefits



31% less water use / ton crop



36% less CO<sub>2</sub> eq. / ton crop



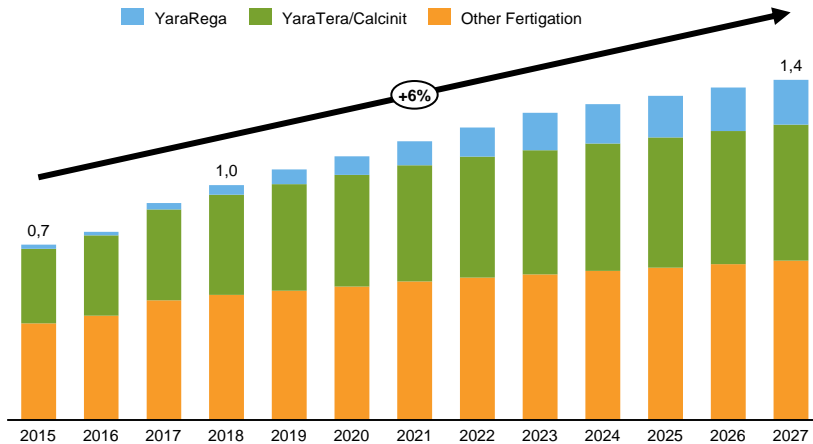
10.5% more profit (after drip investment costs)



# The significant growth potential of fertigation products & strong profitability above alternatives makes this segment highly interesting for Yara

## Growth potential of fertigation products

6% CAGR from 2015 to 2017



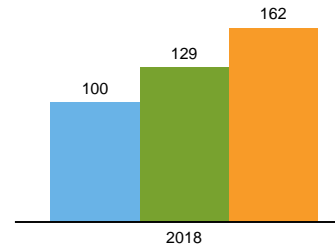
## Fertigation products are above the competition

Water soluble NPKs vs field grade NPKs compared to commodity values

Yara Tera Calcinit (soluble calcium nitrate) and nitrate premium above urea

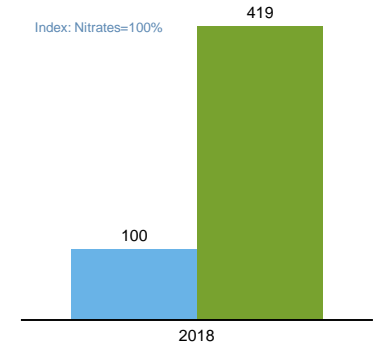
Legend: NPK (YaraMila and YaraBasa) (Blue), Semi-soluble NPK (YaraRega) (Green), Fully-soluble NPK (YaraTera) (Orange)

Index: NPK=100%



Legend: Nitrates (Blue), Calcinit (Green)

Index: Nitrates=100%





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