



Crop Science



**Nuffield International CSC
Tangalooma Island**

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Advancing





Agriculture's *Paradox*

Growing Population



+2.2bn
people¹



+50%
more food and feed required to meet growing demand and changing diets²

Limited Resources



1/3
of land used for agriculture



75%
of freshwater resources devoted to crop or livestock production.³

Pressure on Ecosystems



-17%
Harvest losses from climate change⁴



-20%
Significant loss in arable land per capita⁵ between 2016 and 2050

How to feed the world without **starving the planet?**

¹ UNDESA 2017 (United Nations Department of Economic and Social Affairs, Population Division (2017). World Population Prospects: The 2017 Revision)
² FAO 2017 (FAO Global Perspective Studies); ³ Nelson et. al. (2104); ⁴ FAO 2016 "Climate change and food security"; ⁵ FAOSTAT (accessed Oct 30, 2018) for 1961-2016 data on land, FAO 2012 for 2030 and 2050 data on land, and UNDEDA 2017: World Population Prospects for world population data.



Bayer's Crop Science Division at a glance

The world's leading agricultural company across product segments and geographies



Global
Footprint



~€ 14 bn

generated in
sales in 2018



€ 2,4 bn

Projected R&D budget 2019



>38K

Employees 2018



Active in

>143

countries*

Status: December 2018

We seek to deliver world-class innovation, set new standards in sustainability and pioneer digital transformation

* countries in which business is performed with >100K€ sales performance



Bayer holds the leading market position

We're also working to advocate for the industry at a global level – in partnership with you

No.1 position in...



Corn

~€20bn
market²



Soybean

~€15bn
market²



Horticulture

~€15bn
market²



Cereals

~€10bn
market²



Digital Farming

**Climate FieldView
Digital Platform**

¹ Includes fruits, vegetables, flowers and nuts

² Includes seeds, traits, crop protection chemistries and environmental science; does not include fertilizer

Note: Reflecting BCS¹ portfolio after divestments. Market sizes rounded to nearest \$5bn.

Source: Pro-forma calculations Bayer; Bayer CS market model



Living up to Our Responsibility

through transformational commitments in sustainability

> **Advancing a carbon-zero future for agriculture**

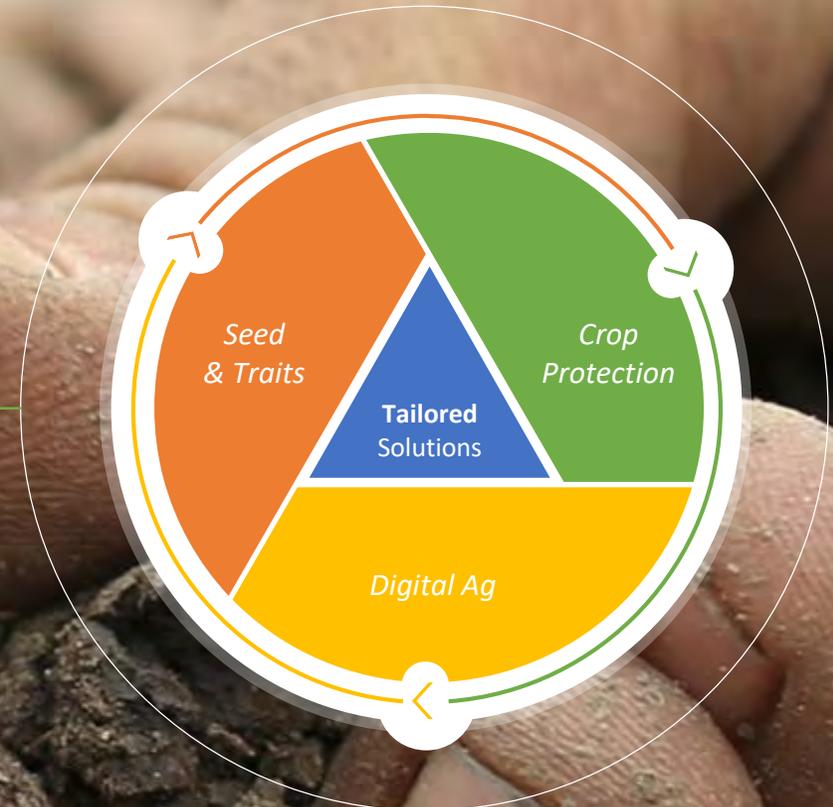
30% *Reduction in field greenhouse gases emitted per kg of crops produced*

> **Produce higher-yielding crops with fewer natural resources and inputs**

30% *Reduction in impact on the environment*

> **Empowering smallholder farmers to access sustainable agricultural solutions**

>100_M *Smallholders benefit e.g. access to education, products & partnerships*





Advancing a Carbon Zero Future for Agriculture

Carbon Framework

*Collaborating with others based on
The latest science*

Expect to start in the U.S. with corn

*Find ways to make 'sustainability'
profitable and viable*



Reducing Environmental Impact

Bayer Intacta RR2-PRO™ Soybeans

Increased Soybean Production



20M

Incremental tons

Reduced Greenhouse Gas



equivalent of

3.3M cars

Reduced Use of Chemistry



> 2

Application of Insecticides



Empowering Smallholder Farmers

Climate FarmRise™

*Serves ~100K monthly
active users*

*Focuses on local agronomics,
credit and crop marketing*

*Aims to have daily conversations
with our smallholders and be the
digital companion*

Early success in India

Focus on unique smallholder challenges

Available in 10 states, 6 languages

Agronomic info for 10 key crops

Marketing info for 64 crops

Scales by geography, crop, and partner

The Advocacy SPACE

*Where
We Need
Farmer Voices*



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