Nature helps nature: Use AI to improve global farming through nature-powered innovation

START Hack Case

St Gallen, 19 March 2025

One of the global challenges is to feed a growing population with the same amount of land and resources available

Source: UN, FAO, IntechOpen

Syngenta Group

We need more sustainable ways to feed the world

IMPROVE WATER USE EFFICIENCY

70% of global fresh water is used in agriculture

INCREASE PRODUCTIVITY FROM DEGRADED LAND

33% of the earth's arable land has been lost in the last 40 years

INCREASE CARBON STORAGE IN SOIL

23% of greenhouse gas emissions are caused by agriculture, forestry and other land use

Source: UNESCO; UN; IPCC

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Syngenta Biologicals ambition

To be the global leader in **biological plant and soil health technologies**, helping farmers improve farm productivity, while creating a sustainable future for **people** and **nature**

Our purpose

Farmers: The Unsung Heroes of Our Daily Lives, and they need an enhanced toolbox to help us sustain on this planet.

By 2050, farmers will need to grow 50% more crops, in an even more challenging time, to ensure enough, safe and affordable food for everyone.

However, farmers face several challenges in a bid to achieve this goal

1. **Climate change and unpredictable weather**
2. **Pest and disease outbreaks**
3. **Lower yields, high production costs**
4. **Land degradation and Soil Erosion**
5. **Water scarcity and irrigation issues**
6. **Public perception and changing policies, regulatory pressures**

Syngenta hack case

Hack for Farmers: Build an AI solution to accelerate Biologicals awareness & adoption.

What is the current problem?

Biologicals protect yields, improve soil, and support a growing population. However, lack of understanding, a crowded marketplace and data unavailability lead to suboptimal outcomes. Farmers need help finding the best solution.

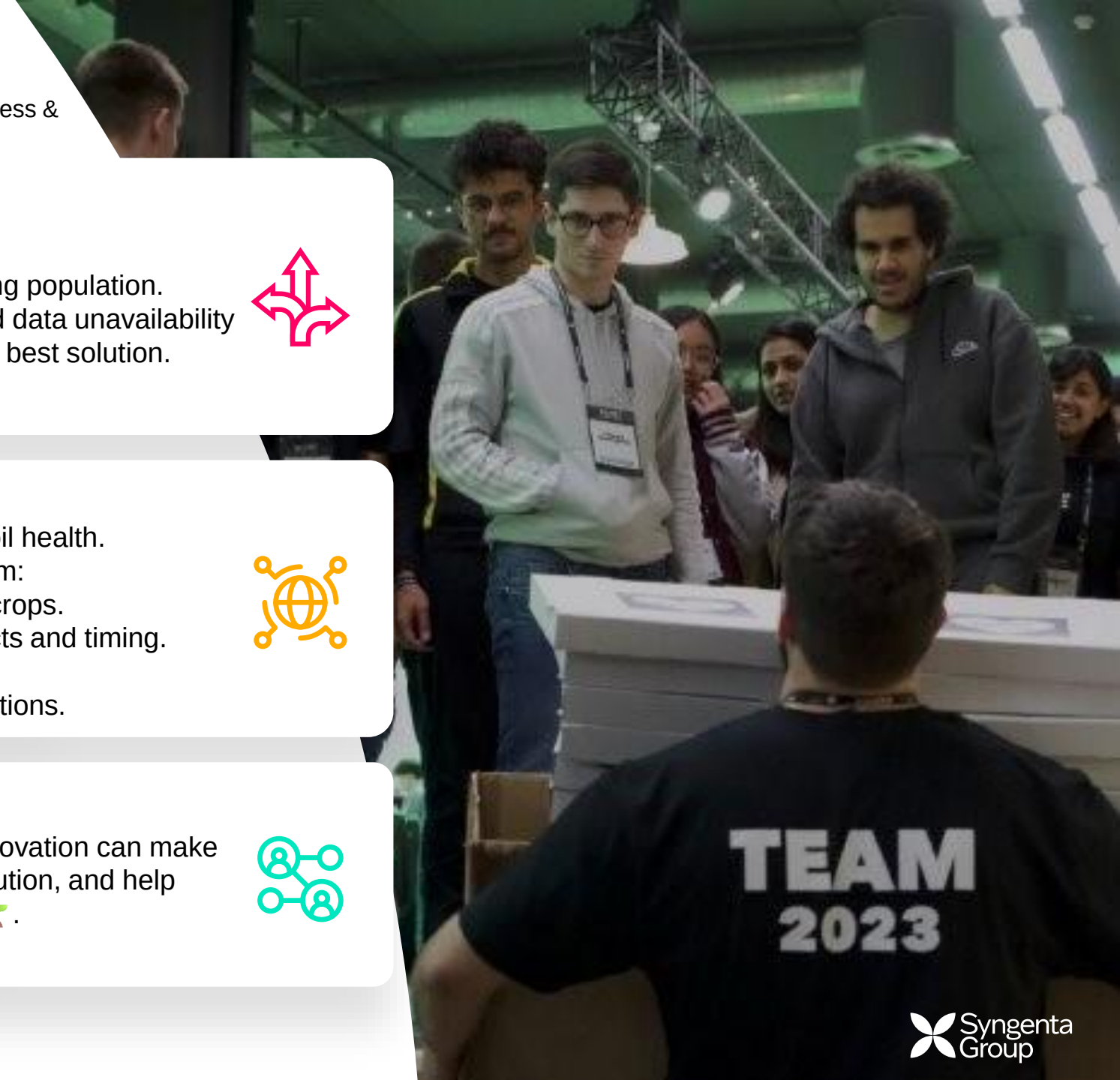
What is the expected final product?

Farmers need smarter tools to protect yields and improve soil health.
Your challenge? Build an AI-powered solution that helps them:

- Visualize risks – Map climate, soil, and disease threats to crops.
- Recommend the best biologicals – Identify the right products and timing.
- Track outcomes – Monitor results throughout the season.
- Improve over time – Use data to refine future recommendations.

Who are the users of the solution?

Farmers in India and Brazil face unique challenges. Your innovation can make a real difference! Choose a location, build your AI-driven solution, and help them protect yields, improve soil, and farm sustainably 🚀🌱.



Hack development tools

This is your chance to create a groundbreaking solution to help farmers.

CEHub

Unlock a central hub of rich environmental data—precisely mapped to time and location. With well-defined APIs, you can access:

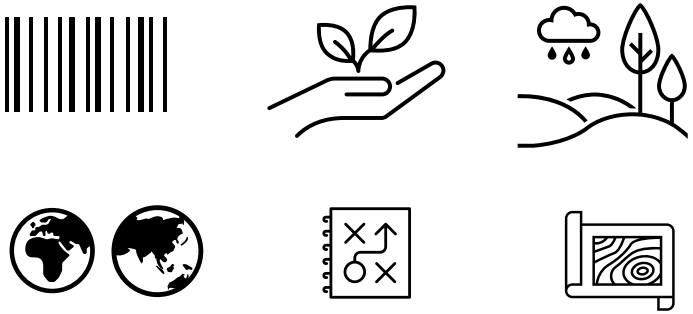
🌎 Historical weather trends

🌱 Vegetation health insights

🌾 Soil characteristics

🏞️ Land use & topography details

Use this data to build smarter, more impactful solutions for farmers. The tools are here—now it's your turn to innovate! 🚀



📌 Biological product data cards – Understand the products

🌾 Crop information data cards – Gain insights into what is grown

🌎 Public climate & soil data – Access real-world data from Brazil & India.

🧠 Agronomy stress algorithms logic – Apply the science-driven logic to tackle crop challenges with the power of AI

Build. Innovate. Inspire. 🚀

Your final showcase:

- A working prototype – An app, website, or interactive model.
- A concise PowerPoint – Clearly communicate your vision.

Key Elements for Success

✅ Define the problem – What challenge are farmers facing?

✅ Showcase your solution – Present a functional prototype.

✅ Highlight key features – Awareness, recommendations, and feedback loops.

✅ Explain your process – How does your solution make an impact?

✅ Use visuals – Graphics, charts, and demos to bring your idea to life.

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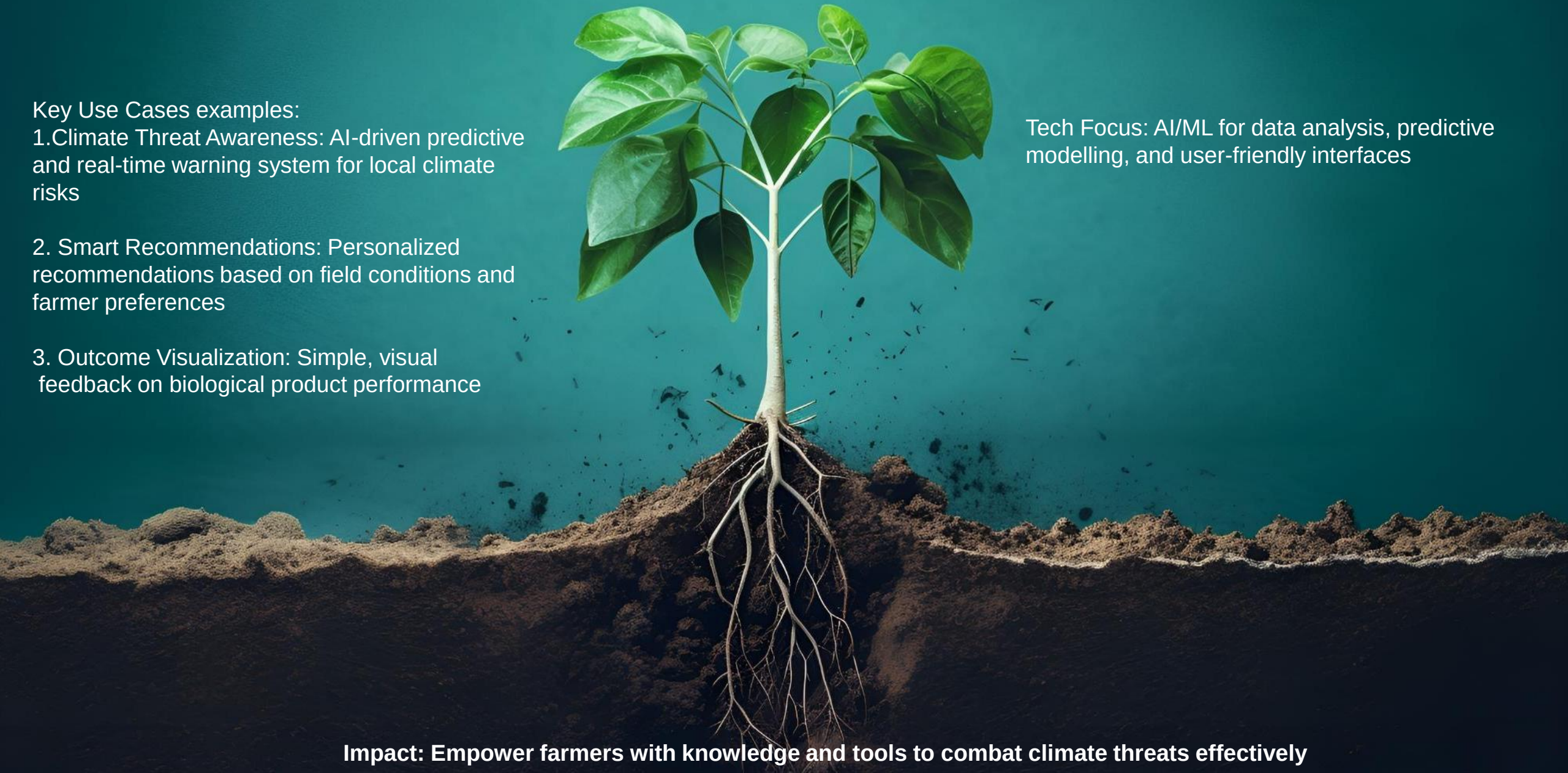
Help plants tolerate heat, frost and drought stress better
The Stress Buster

Boost Nitrogen usage for better productivity and sustainability
The Nutrient Booster

Increase the Yield
The Yield Booster



Key Use Cases examples:
1.Climate Threat Awareness: AI-driven predictive and real-time warning system for local climate risks

2. Smart Recommendations: Personalized recommendations based on field conditions and farmer preferences

3. Outcome Visualization: Simple, visual feedback on biological product performance

Tech Focus: AI/ML for data analysis, predictive modelling, and user-friendly interfaces

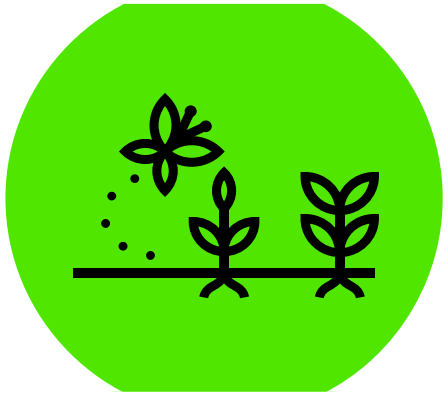
Impact: Empower farmers with knowledge and tools to combat climate threats effectively

This is your chance to create technology that drives real impact. Are you ready to hack for a better future?

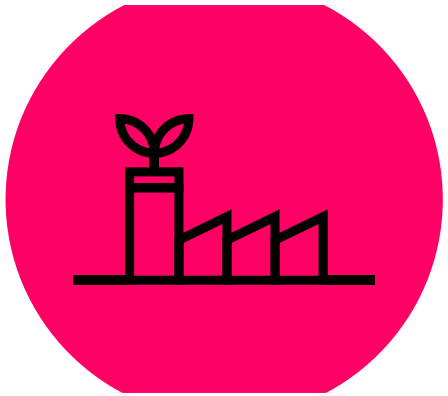
So what`s in it for you?

Join us in revolutionizing agriculture. Let’s build AI that empowers farmers to grow smarter, sustainably, and more efficiently! 🚀

Judging criteria

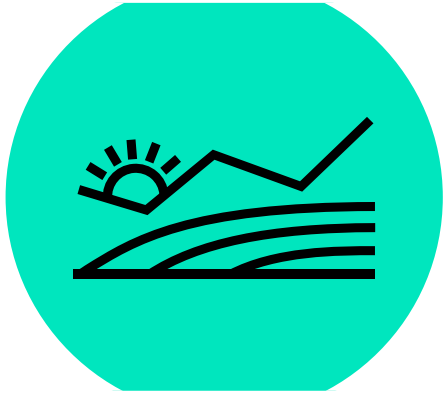


Creativity: 25%



Functionality, accuracy and applicability: 25%

Visual design and ease of use: 25%



Quality of pitch: 25%

The prize, part one: A trip to Atessa, Italy, for the winning team

The winning team will receive a trip to Atessa, Italy, nestled between the mountains and the Adriatic sea. Atessa is the **core of Syngenta Biologicals' research** and manufacturing. The trip includes the opportunity to **pitch to Syngenta leaders**, get a unique glimpse into **biological innovation** and try **delicious Italian food and wine**, in the breathtaking setting of the **Trabocchi Coast**!

Flights, accommodation and meals will be provided.

The prize, part two: $5,000 AWS credits for the top two teams

Our cloud partners Amazon Web Services have kindly offered to sponsor an additional prize of:

$5,000 AWS credits for the winning team and **$5,000 AWS credits** for the second-place team

To help you bring your ideas to life via the world's most comprehensive and broadly adopted cloud services!

The Syngenta hack team

Come and meet us at our booth for popcorn, and delicious rice (produced by our customers) to take home!

Marco Issenmann
Head of Branding &
Digital Marketing

Kiran Joseph
Head of IT & Digital Biologicals

Conor Marsh
Digital Innovation &
Strategic Partnerships Lead

Pradeep Kethireddy
Digital Platform Manager

Paolo di Lernia
Head of Biologicals
Communications

Elisabetta Castrucci
Communications Specialist



Syngenta Group


syngenta Crop Protection

syngenta Seeds

ADAMA

Syngenta Group China

Helping farmers feed the world with safe, nutritious and tasty food