The Farmers' Dilemma: Help them to Feed the World whilst Protecting their Land

START Hack Case

20 March 2024

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

Source: UN, FAO, IntechOpen

Farmers are at the core of navigating a complex world to grow the food we need and protect the resources we depend on

Cope with effects of climate change driven weather extremes such as floods and droughts

Cope with pest pressure and more resistant diseases

Are good stewards of the soil and conserve arable land, manage water and input usage

Meet rising demand for more food and higher quality

Increase profitability and ensure investments to adopt new technology and train labor

Satisfy consumers changing diets and meet new regulatory standards

Farm decisions impact productivity, sustainability and financial viability

Minimized soil disturbance
ADOPT NO-TILL OR REDUCED-TILL TECHNIQUES

Plants in the ground year round
PLANT COVER CROPS TO PREVENT SOIL EROSION AND INCREASE CARBON INPUTS

Diversified crops in time and space
EXPAND CROPS IN ROTATION AND ADOPT INTERCROPPING

Precision application of biological and chemical inputs
DATA-ENABLED PRECISION PLACEMENT OF SEEDS, CROP PROTECTION AND CROP NUTRITION

Integrated livestock when possible
CROP RESIDUES AND COVER CROP GRAZING, MANURE AND COMPOST INPUTS

Syngenta Group hack case

What is the current problem?

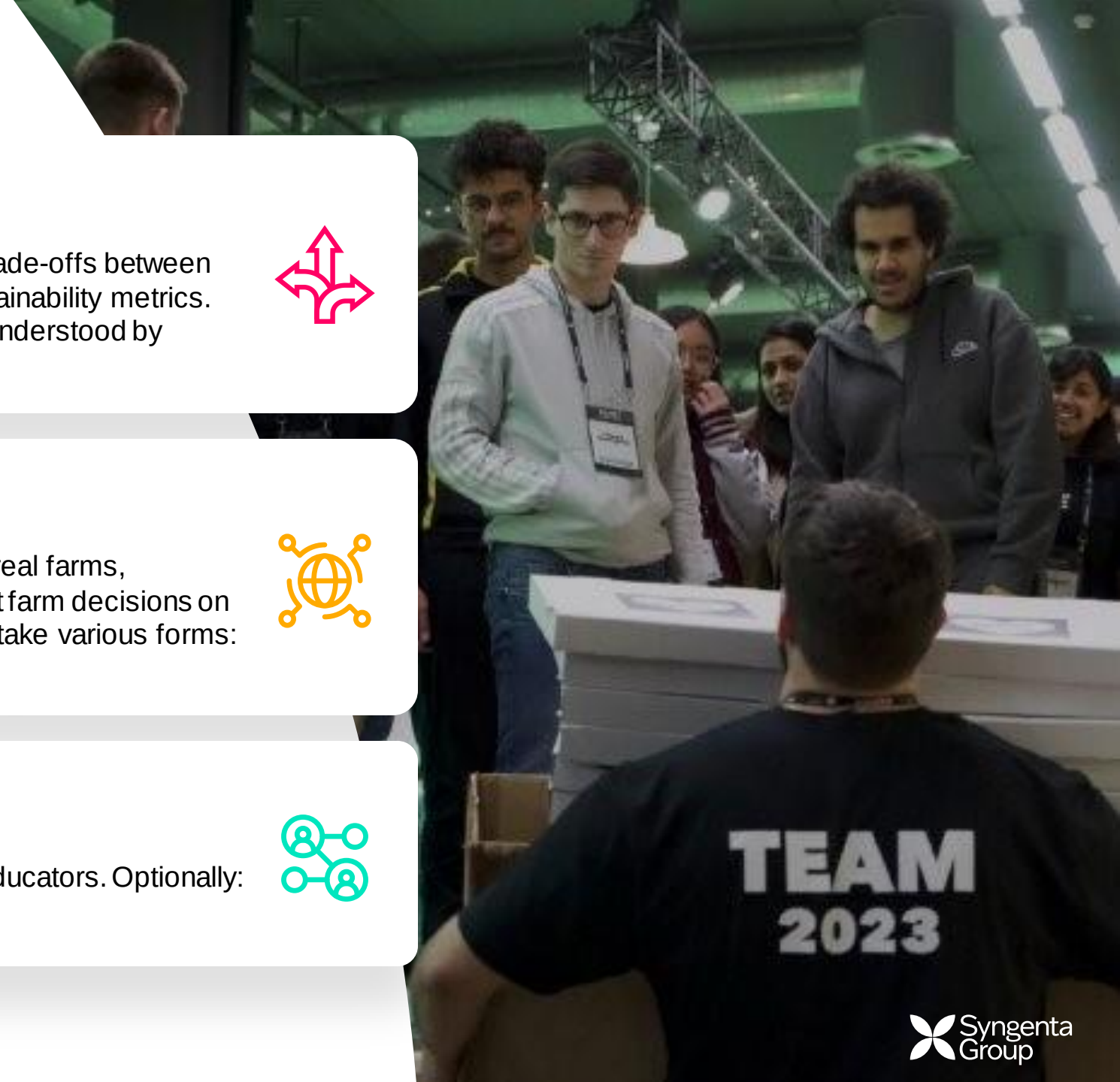
Farmers have to constantly make decisions that involve trade-offs between factors such as yield, cost, CO^2 emissions, and other sustainability metrics. The impacts of these decisions and trade-offs are poorly understood by policymakers and the public.

What is the expected final product?

Using satellite imagery, weather, and other datasets from real farms, build a gamified solution to illustrate the impact of different farm decisions on agricultural and sustainability outcomes. The solution can take various forms: an app, website, online game, etc.

Who are the users of the solution?

Food consumers (the general public), policymakers and educators. Optionally: Farmers, ag retailers, agronomists etc. in 'expert mode'



The prize: A trip to Madrid

The winning team will receive a trip to Madrid, including a tour of Syngenta's Digital office in the city followed by an opportunity to meet some of our farmer customers in the region. The trip will provide a unique insight into agriculture and technology as well as a chance to try some delicious locally produced food and wine!

Flights and accommodation in Madrid will be provided.

The Syngenta hack team

Andre Piza
Head of Digital Product Engineering

Marco Issenmann
Global Head Branding & Digital Marketing

Leandro Fernandez
Global Head of Software Reliability Engineering

Flora Viana
Global Marketing Manager Digital Agriculture

Pradeep Kethireddy
CE Hub Platform Manager

Conor Marsh
Digital Innovation & Strategic Partnerships Lead

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

Hack development tools

Provides advanced satellite and aerial imaging to monitor crop health. By utilizing the Imagery application or the Remote Sensing API, growers can leverage specialized analytics to detect variations in the field that are invisible to the naked eye. This provides insights into crop vigor and helps identify issues early on, enabling more informed agronomic decisions.

Provides a central access point for environmental data associated with time and geographical coordinates. Through well-defined APIs, it is possible to obtain historical weather data, vegetation health information, soil characteristics, land use, and topography.

Applies advanced algorithms and machine learning techniques to analyze and interpret weather patterns, soil conditions, crop health information, and satellite imagery. This assists growers in making more informed decisions about their farming practices.

The Insights Engine API offers predictions on the optimal planting times, recommendations for fertilizers or pesticides, and early warnings for potential issues.

Cropwise
Imagery



Syngenta Group


syngenta Crop Protection

syngenta Seeds

ADAMA

Syngenta Group China

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