



Utilizing today's data for tomorrow's  
sustainable products

March 29<sup>th</sup>, 2022 | Proprietary | Prepared for CROP Business & Innovation

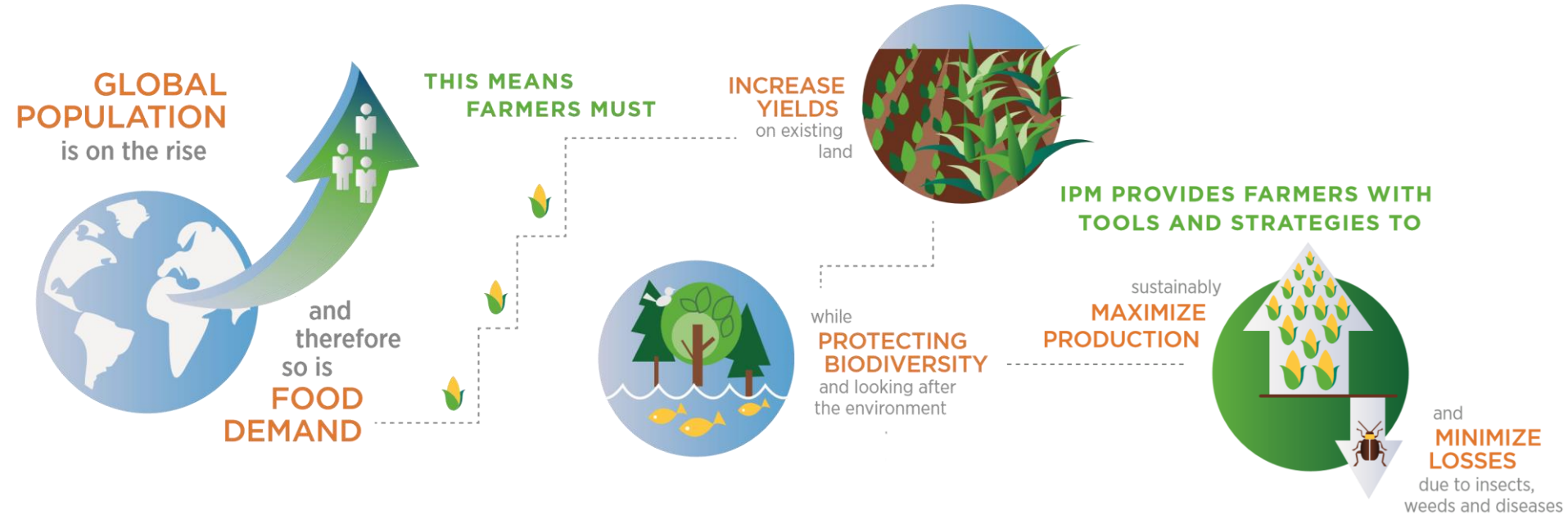
The CROP logo consists of the word "CROP" in a bold, blue, sans-serif font, followed by a small green leaf icon.

**CROP**

**INNOVATION  
& BUSINESS**

March 27-29, 2022 | Ghent, Belgium

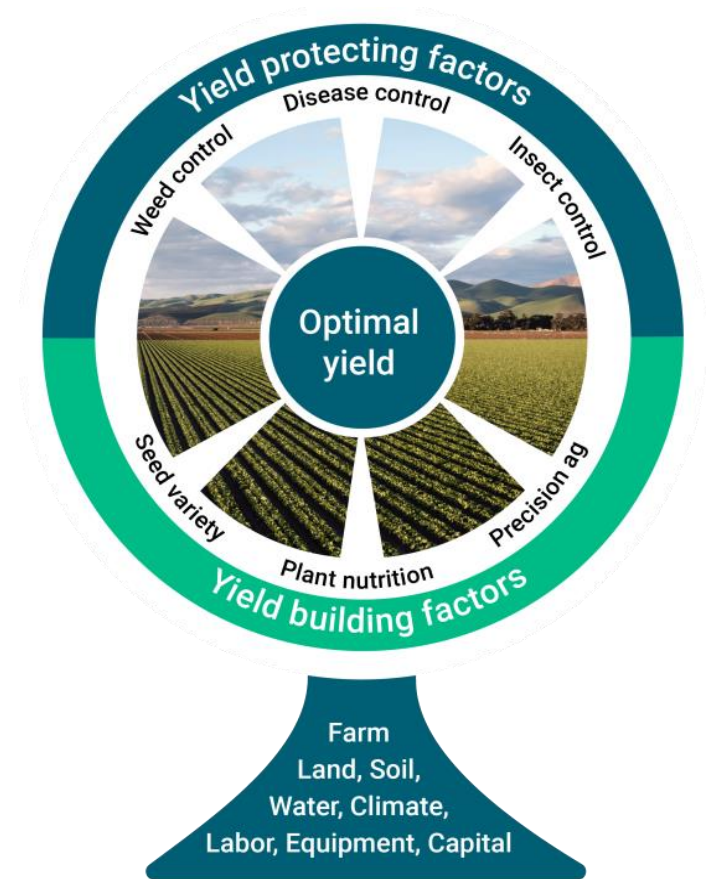
# The need to sustainably feed the world



# Modern agriculture in the 21<sup>st</sup> century

## Key factors to success:

- 🌱 Educated, economy driven, large area farmers
- 🌱 Elite, hybrid and engineered seeds varieties
- 🌱 Technology driven equipment, irrigation, harvesting and farm management systems
- 🌱 Decision assisting tools based on big data analytics
- 🌱 **Inputs such as fertilizers, stimulants and pest management**



# AI in Agriculture



Remote sensing



IoT in one platform



Real-time data  
Dashboard



High accuracy and  
granularity



Proprietary AI  
algorithm



Visualize Farms

Monitoring, Imaging, Precise Agriculture, Supply chain

Agrematch is using AI to focus on the discovery and development of  
new Crop Protection compounds

Why?

# There is an urgent need for novel CP products

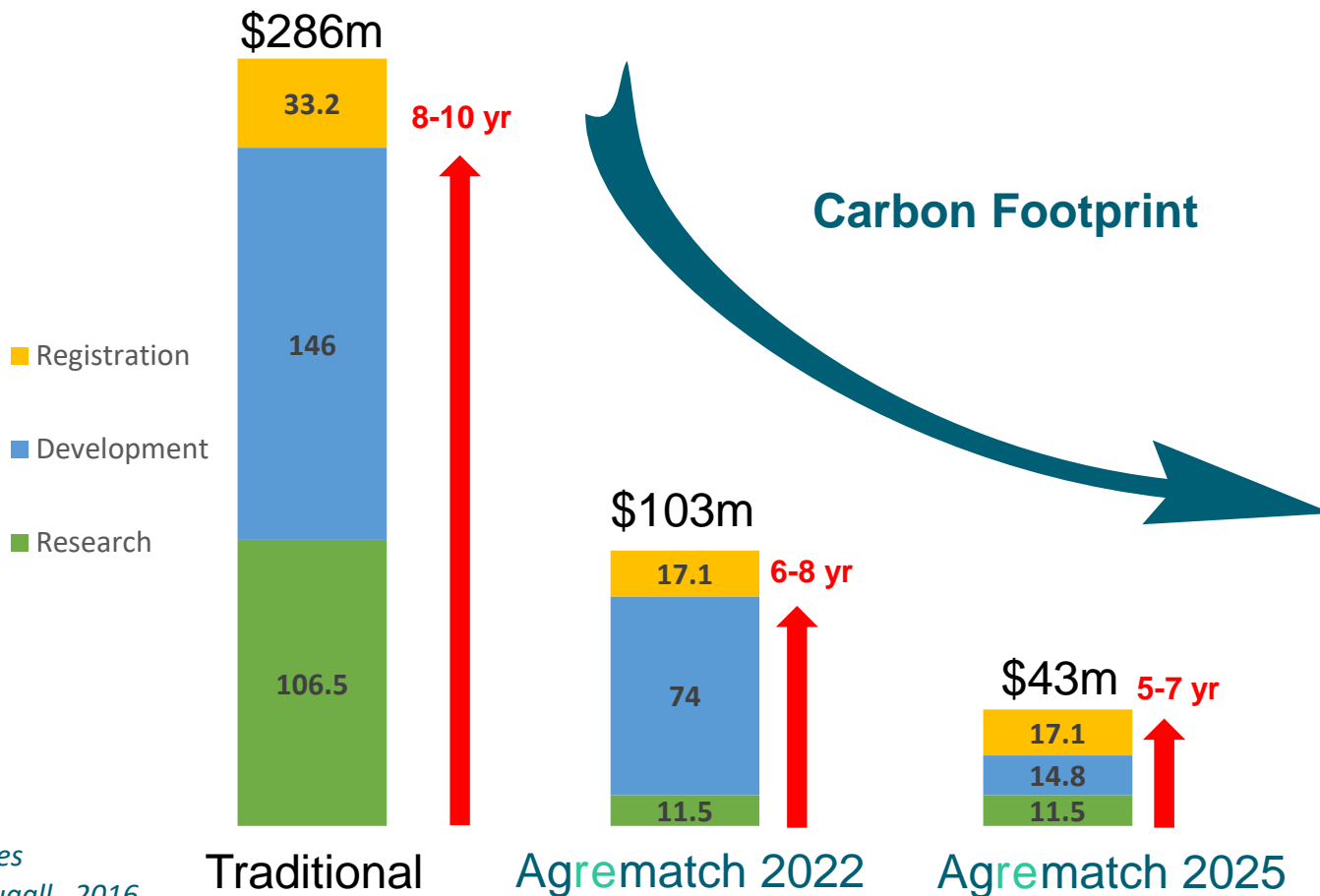


BAYER, Global Herbicide Resistance Challenge (GHRC) 2017, Denver

To address this need, Agrematch is using AI to discover and develop new Crop Protection compounds

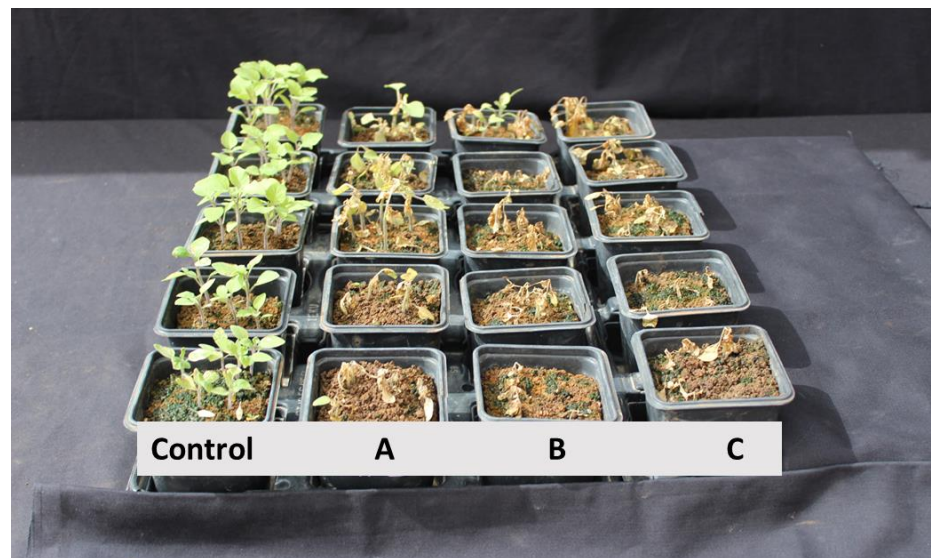
# Faster, safer, and cost-effective Development

Radically shortening the timeline and reducing discovery & development costs of crop protection products





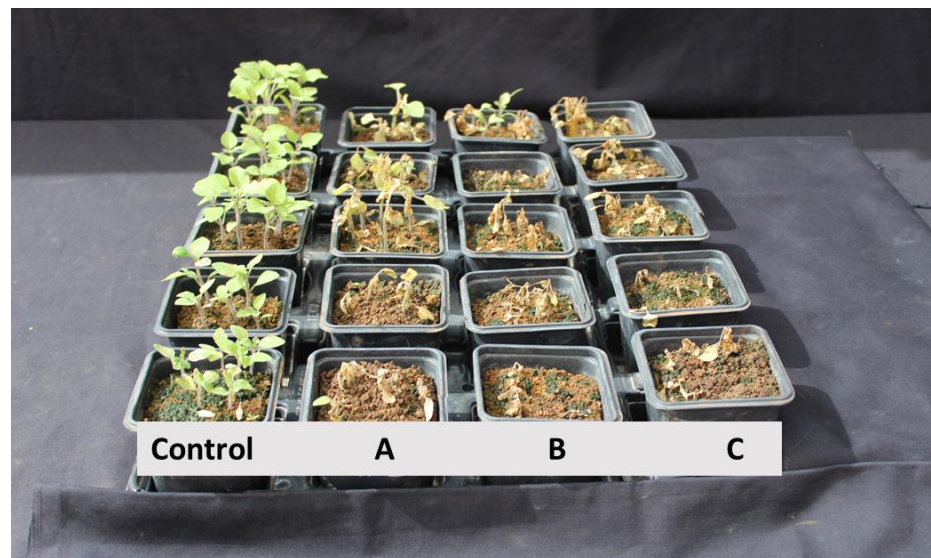
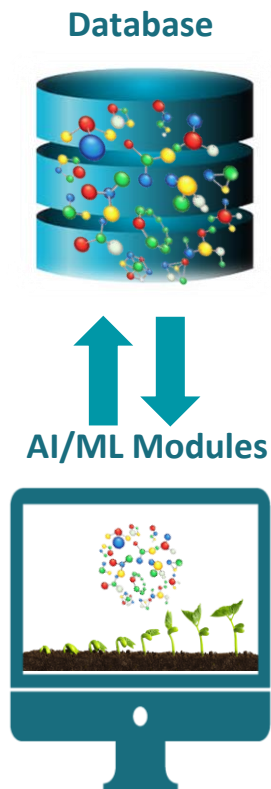
# Traditional vs. *in-silico* screening for lead compounds



*In vivo* screening of ~100k of compounds

# Traditional vs. *in-silico* screening for lead compounds

- ✓ Quickly screen billions of compounds in days/weeks
- ✓ Saving time, costs and identifying promising candidates early

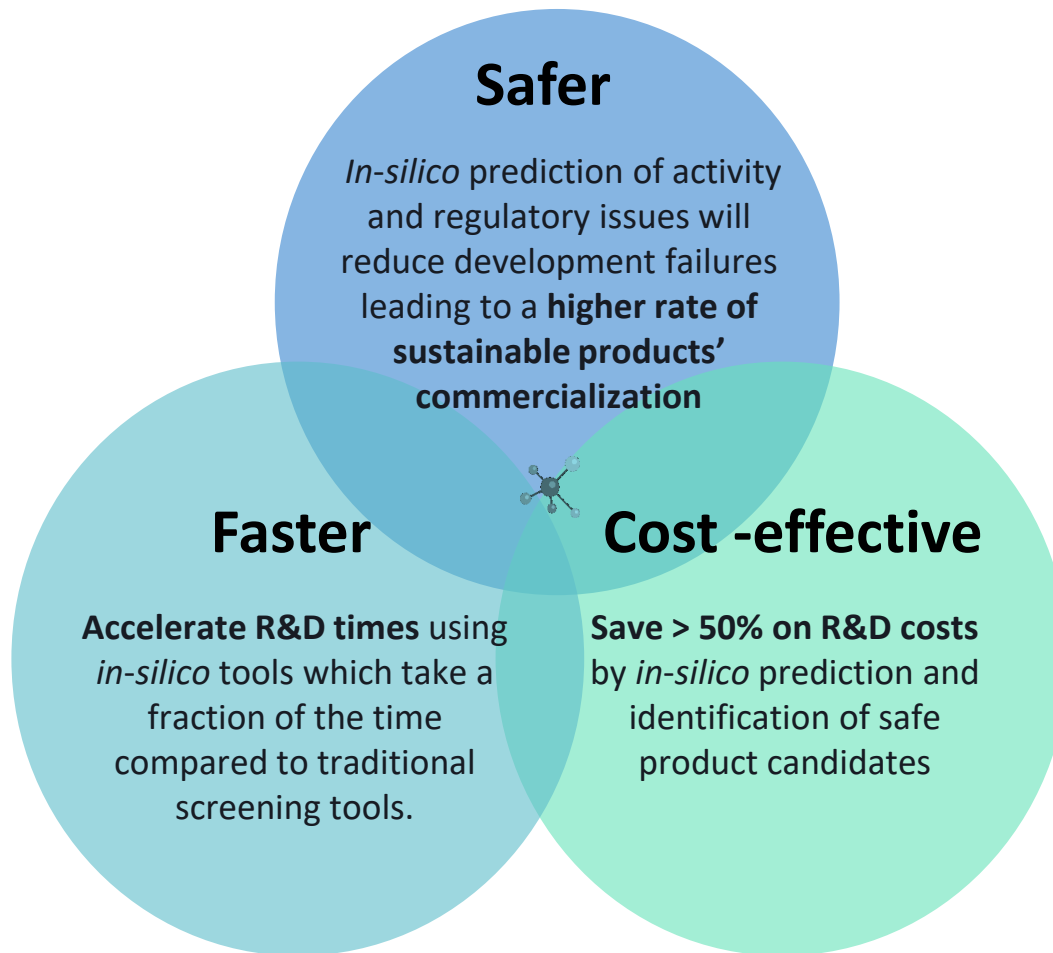


- ✓ *In silico* screening of billions of compounds
- ✓ *In vivo* validation of 100's of compounds

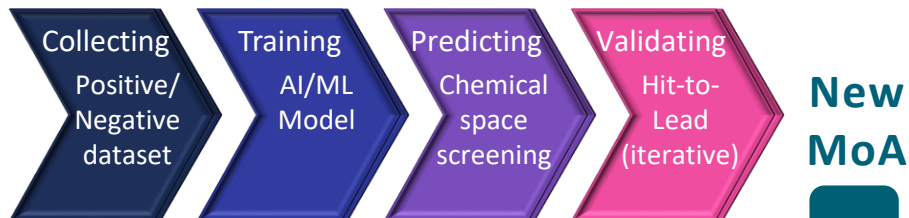


# Agrematch's Vision

Harness the power of AI/ML to bring novel sustainable products to market: safer, faster and more cost-effectively



# Compound-based vs. Target-based Approach



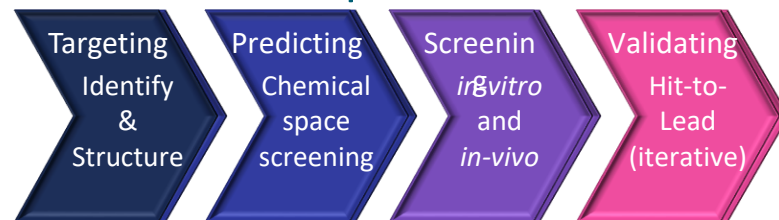
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## Agrematch's compound-based approach

- Independent of targets
- Screening based on functionality
- Screening in unexplored compounds space

## Target-based approach

- Structure – function-based prediction
- Limited to targets with known protein structure



# Agresense™: an AI search engine for the chemical universe

More than  $10^{60}$  compounds are estimated to follow the Lipinski rule and are potentially feasible product candidates.

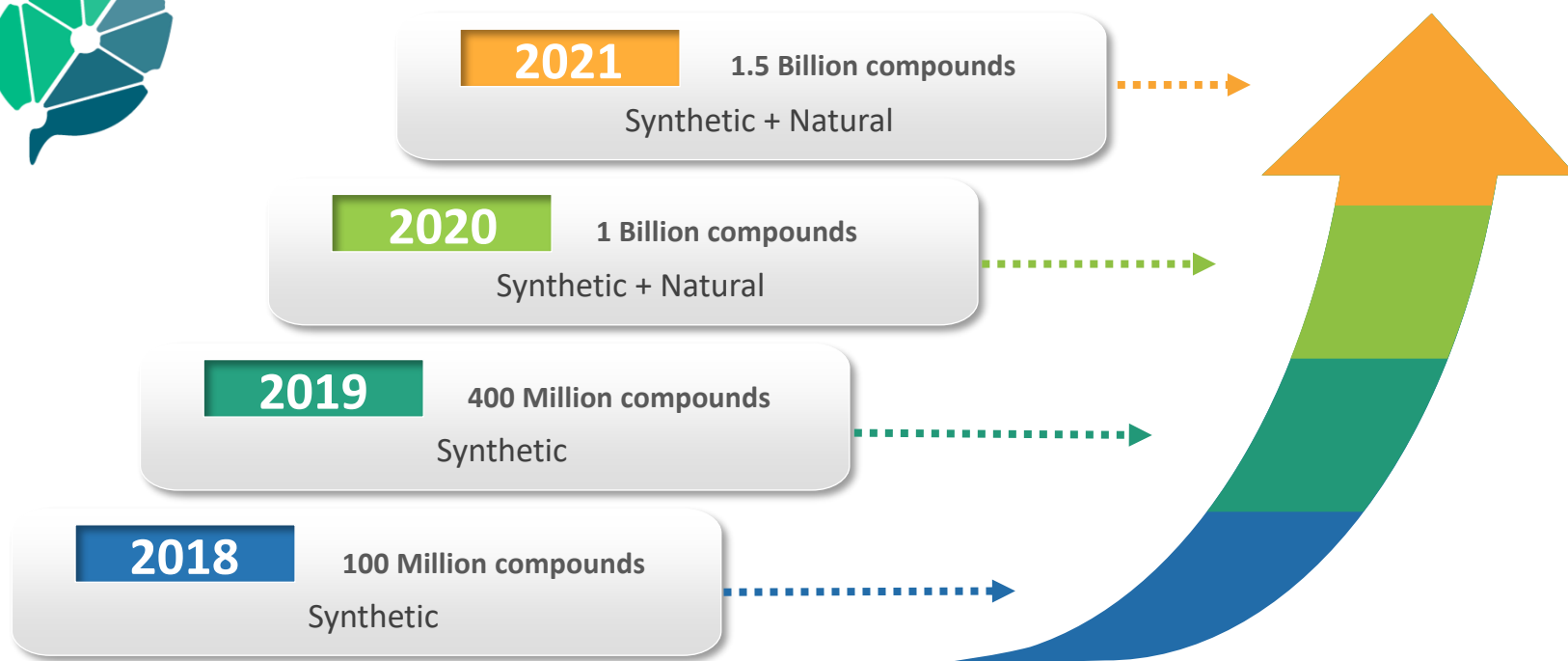
So far, existing models have had little success in navigating the chemical map and uncovering new meaningful ground.

We have developed a new bio-chemical language that articulates the needs and lights up spots around **novel functional bioactive compounds**.

# Agrematch Compounds Database

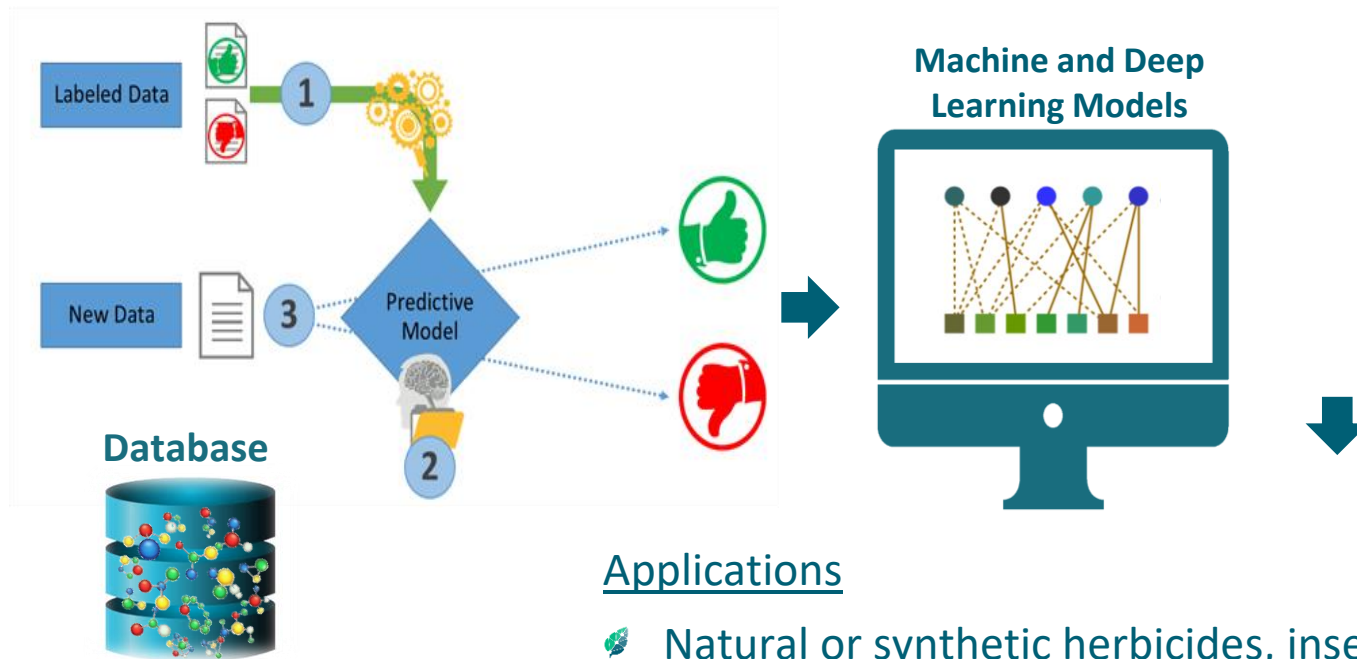


**150+ Billion compounds  
Expected by 2022**



# Agresense Functional Compounds Discovery

## Concept and Business cases



### Applications

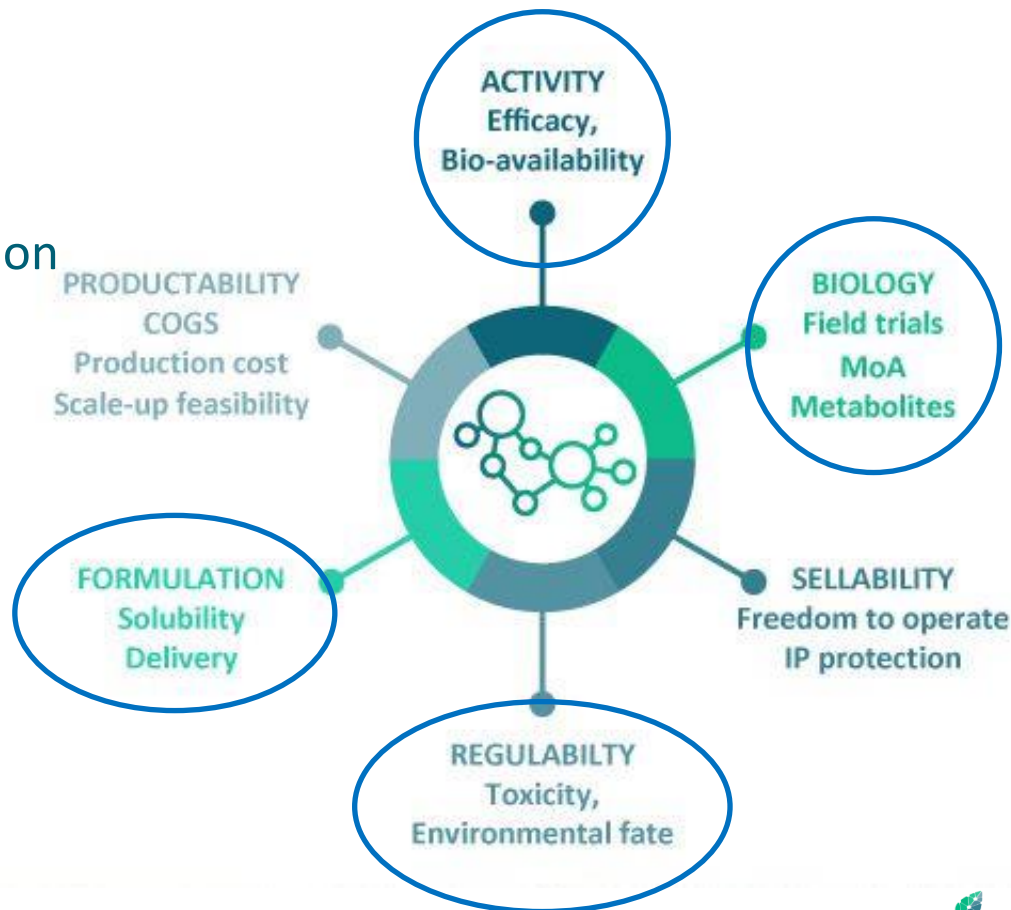
- 🌿 Natural or synthetic herbicides, insecticides and fungicides
- 🌿 Biorationals and biostimulants
- 🌿 MoA classification and prediction
- 🌿 Toxicity assessment
- 🌿 Mixture formulation

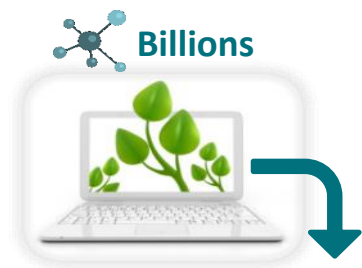


# Crop protection Product Development

## Discovery, Characterization and Downstream Risk Mitigation

- 🌿 Bio-activity identification
- 🌿 MoA classification/prediction
- 🌿 Toxicity assessment
- 🌿 Environmental fate
- 🌿 Formulation
- 🌿 COGS

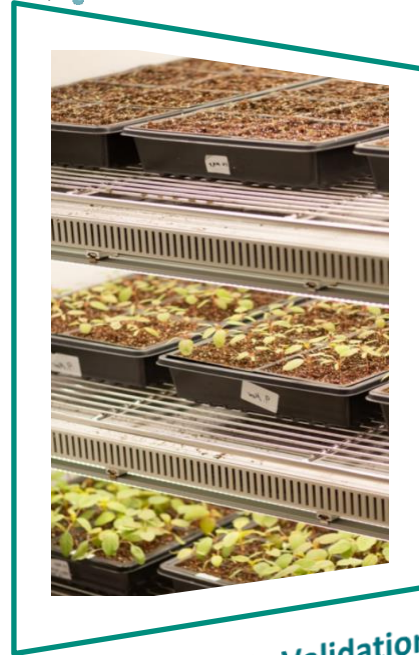




# Integrated Validation Process

Fast-track from data analytics to field trials

 Hundreds



Lab Validation

 Dozens



Green House

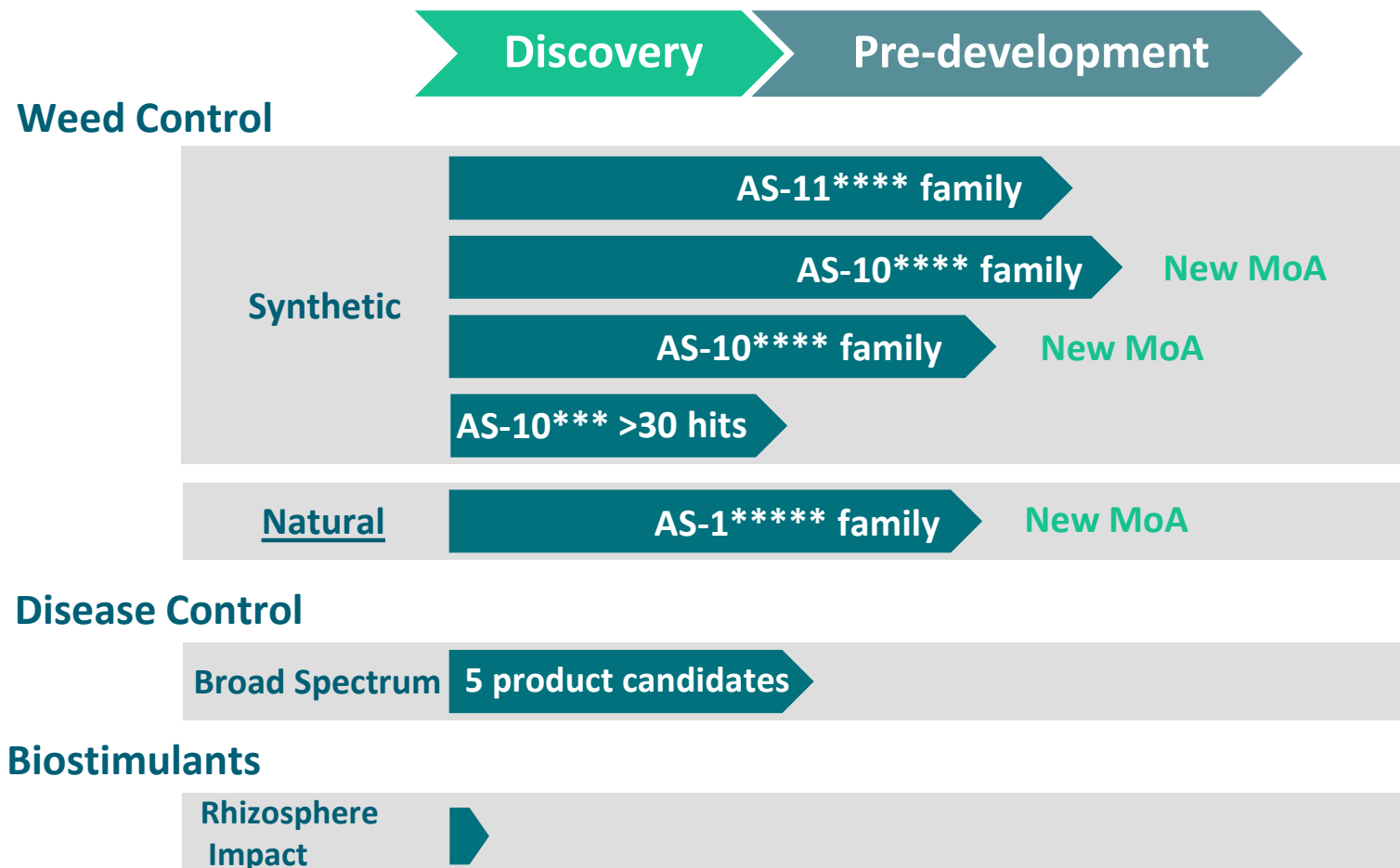
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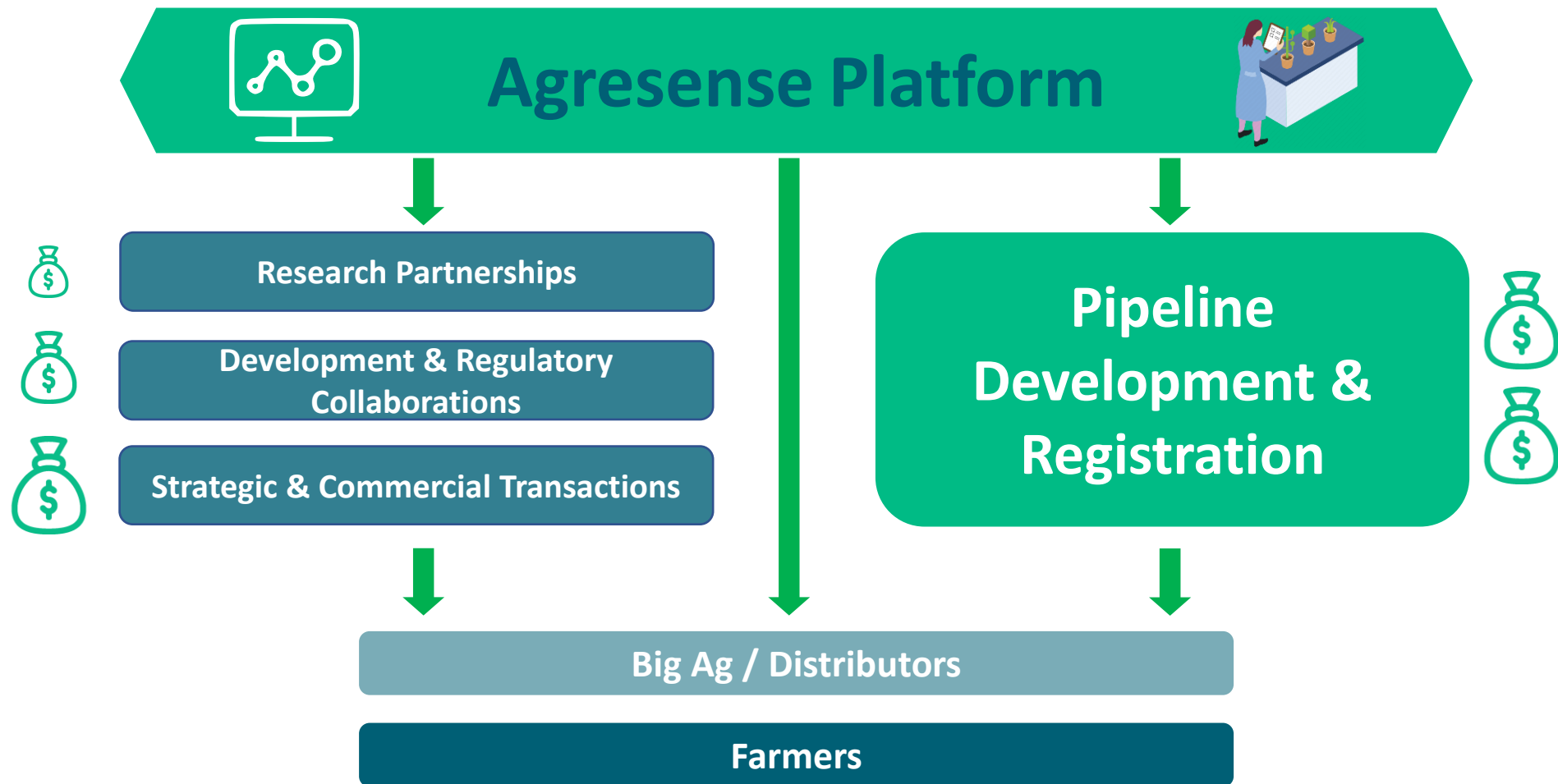
Field Trials

3 - 6 months (for most applications)

# Agrematch Product Pipeline



# Hybrid Business Model



# Utilizing today's data for tomorrow's sustainable products

- ✓ Address critical need
- ✓ Innovative AI & data science-based solution
- ✓ Reduce costs & time
- ✓ Develop strong pipeline
- ✓ Valuable business model

**Faster, safer,  
and cost-effective  
crop protection**







# Thank You

Ouri Fischel  
Business Development  
[ouri@agrematch.com](mailto:ouri@agrematch.com)  
+972 54 432-7476

[www.agrematch.com](http://www.agrematch.com)