



Resistenzen begegnen und
Lösungen für die Landwirtschaft

Schwerpunkte der globalen Herbizidforschung bei Bayer



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Pressegespräch, August 2020





Forward-Looking Statements

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Various known and unknown risks, uncertainties and other factors could lead to material differences between the actual future results, financial situation, development or performance of the company and the estimates given here. These factors include those discussed in Bayer's public reports which are available on the Bayer website at <http://www.bayer.com/>.

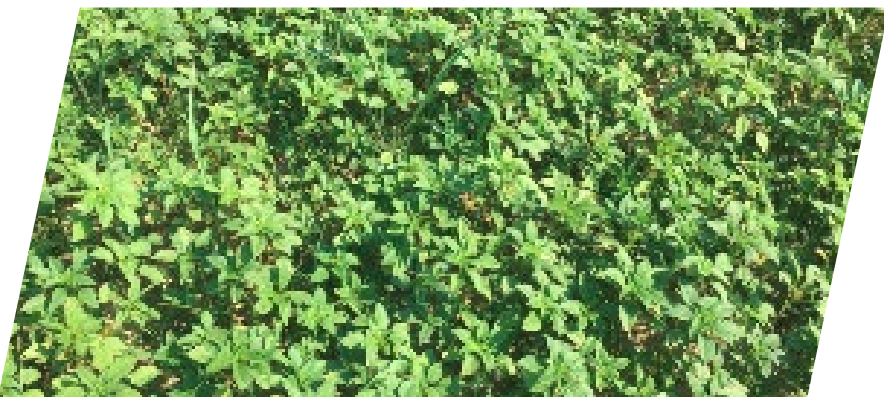
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Every Farmer Has to Perform Weed Control

Without Controlling Weeds, One Third of Yields Would be Lost

Grower needs in weed control:



Typical infestation of Palmer Amaranth in Southeast U.S.A.

WITHOUT
WEED CONTROL MEASURES



Typical infestation of Black Grass in cereal field in the UK

Weed-free field ...

WEED DESTRUCTION TOOLS

(in the order of cost & convenience to the grower)

- 1 Herbicides
- 2 Mechanical / Manual
- 3 New emerging weed control solutions

... without damaging the crop

SELECTIVITY MECHANISM that protects the crop from herbicides and, in the case of herbicide tolerant traits, enables conservation and no-till systems that conserve topsoil and improve carbon sequestration.

- 1 Intrinsic selectivity (selective herbicides)
- 2 Positioning selectivity; timing and targeted applications
- 3 Safeners
- 4 Herbicide Tolerance (HT) Traits



Weed Control Research

Central Function embedded in highly integrated Frankfurt site

SMol Technologies

- // Analytics / Quality Control
- // Process Research
- // Biotransformation

Computational Sciences

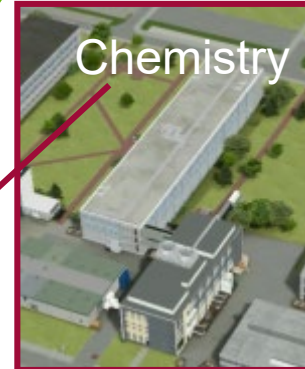
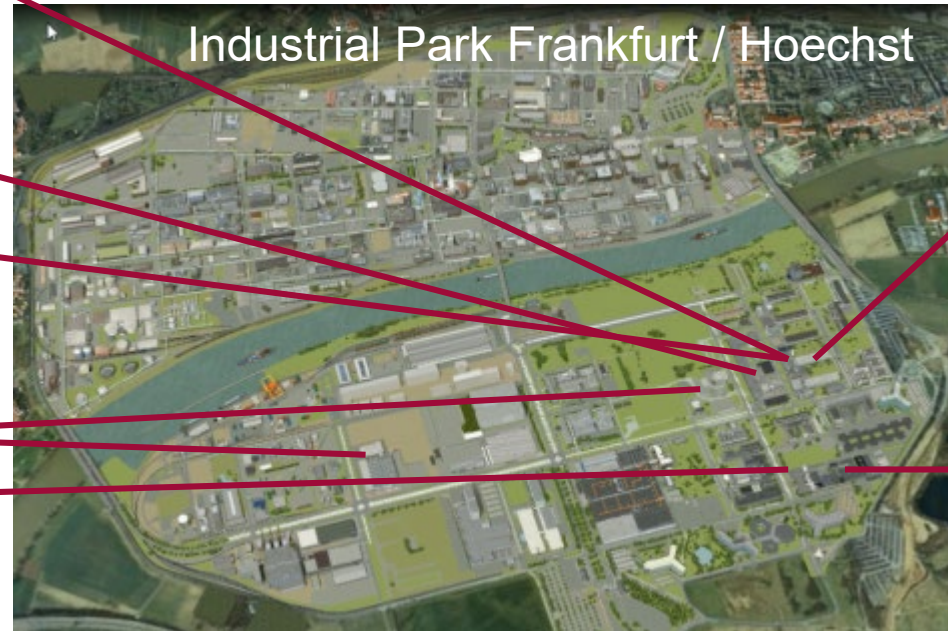
SMol Research Operations

- // Lab Operations Frankfurt
- // Logistics

Product Supply

Product Development & Regulatory Science

- // Early Agronomic Development
- // Logistics
- // Bioavailability
- // Ecotoxicology



Chemistry

SMol Weed Control Research

- // Chemistry
- // Biochemistry & Target Discovery
- // Greenhouse Biology
- // Screening Technology Platform
- // Crop Performance Lab
- // Project & Product Support
- // Weed Resistance Comp. Center



Biology & Biochemistry



Crop Protection Small Molecules Innovation Approach Constantly Redefined and Adapted to Meet Changing Needs of Farmers

Drivers

Weed, Insect and Fungal Resistance

Regulatory Pressure on Old Products

Increasing Regulatory Hurdles for New Products

Strong Reliance on a Few Modes of Action

Redefining Our Approach

**CROP
PROTECTION
SMALL
MOLECULES
INNOVATION**

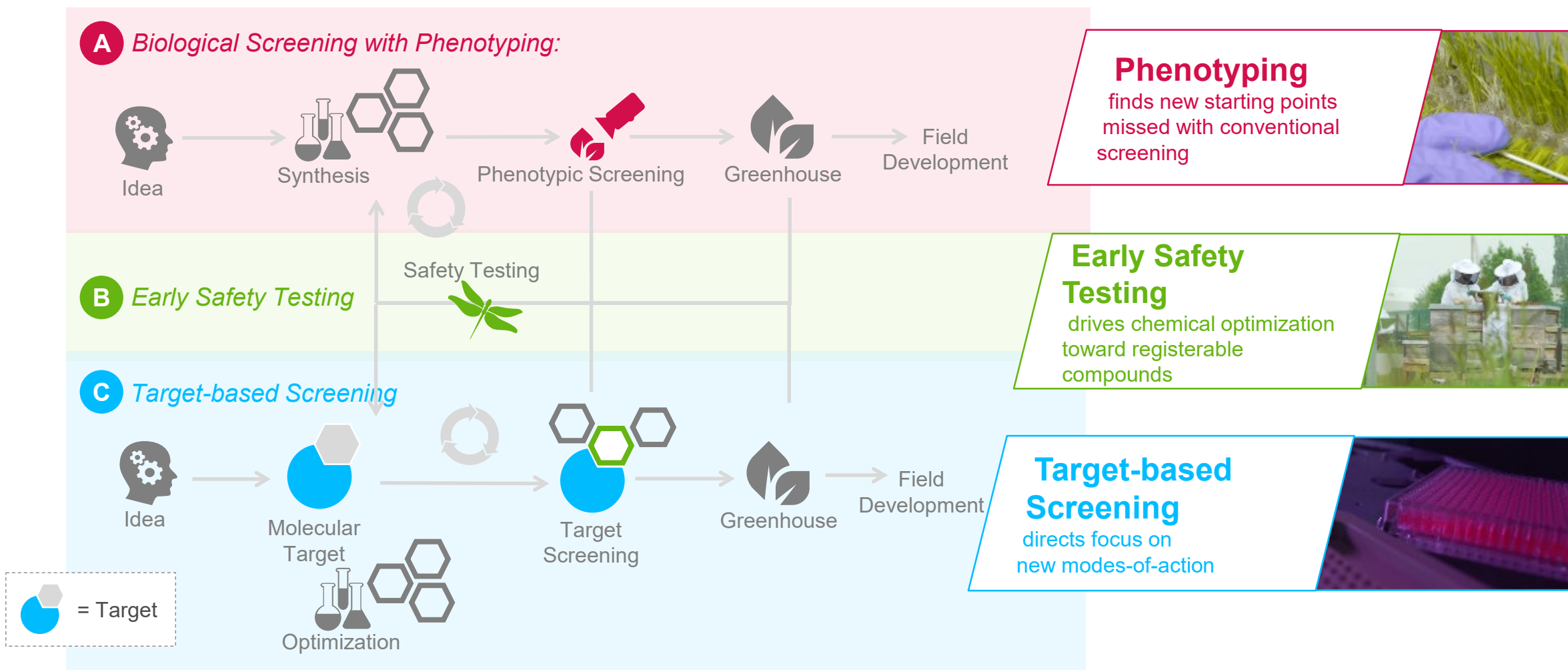
Dedicated activities to understand resistance

Establishing early safety testing tools

New technologies like phenotyping to find new products

Target Strategy to find new Modes of Action

Complementary screening approaches and early Safety Testing to find differentiating Small Molecules

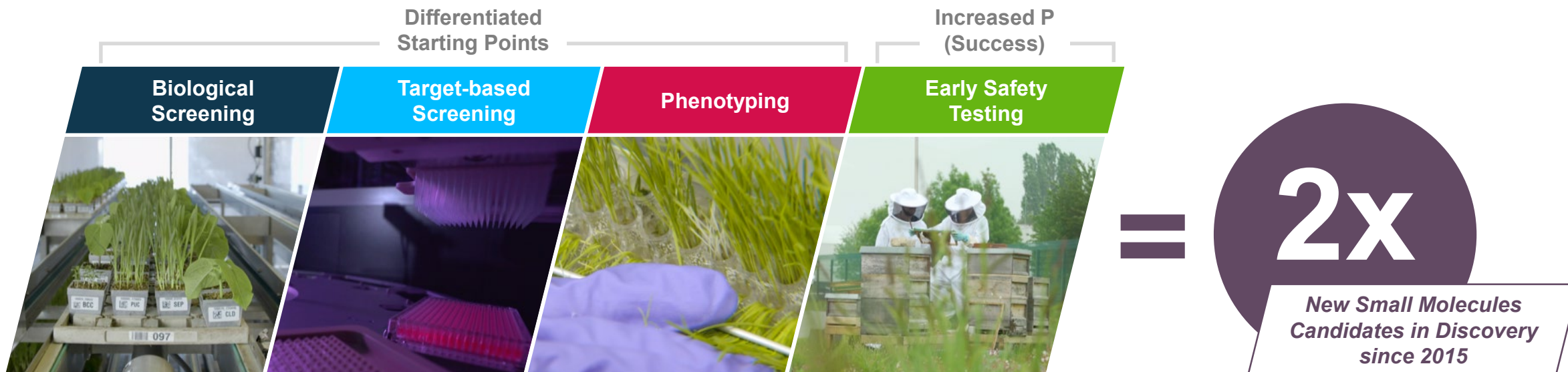




Enhancements to Identify and Optimize Small Molecule Candidates

Early Safety Testing and tailored Screening Approaches, Combined with New Data Tools, Collectively Contribute

To identify diverse development candidates with a higher probability of regulatory success with new modes-of-action, we constantly improve and tailor our approaches:





Effective weed control

is crucial to enhance sustainability



Saves 1/3 of yields



***Can enable
no-till farming***



***Helps maintain soil
fertility and prevents
soil erosion***

***Bayer investing ~€5bn in alternative weed management methods
to offer farmers more options for effective weed control***



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