Pesticides
Invention to Market

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What is an agrochemical?

Insect control

Fungal control

Weed control

A chemical which can safely be applied to a crop in order to give the farmer:

- Higher yields
- Better quality produce
- Reliability
- Ease of harvest

Agrochemicals include **insecticides**, **fungicides** and **herbicides** which are collectively known as crop protection products.

Crops are in competition with weeds, plant diseases, insects and other organisms.

- About 10,000 insect species are classified as pests
- At least 600 species of plants are classified as weeds
- Some 1,500 different fungi cause plant diseases

The Route to Market

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Step 1: Determining the context-of-use

Step 2: Addressing core principles

Step 3: Fit-for-purpose criteria

Criteria	Prioritization	Hazard Screening	Risk Assessment
chemical applicability domain			
SOP - source and species of cell/tissue			
assay description			
quality of verification datasets			
SOP - metabolic competence status			
FFP test validity (acceptance criteria)			
Independent peer review			
Endpoint or pathway for prediction			
explanation of mechanistic basis			
Assay robustness			
Data accessibility			
Biological comparison with in vivo data, animal or human			
Statistical evaluation of model/assay			
Level of certainty in prediction			
biological variability and sub-populations of relevance			

Less More Important | Less More Important | Less More Important

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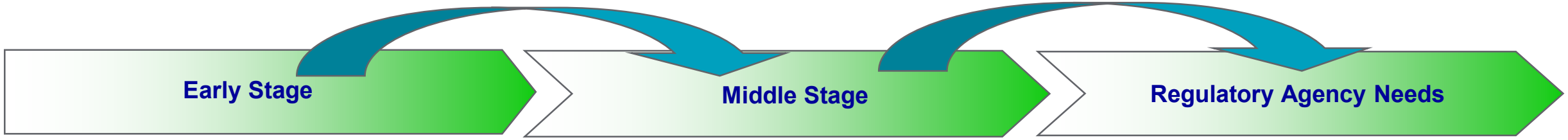
Knowledge Needs Differ According to Development Phase

Toxicological Knowledge Required:



Acute Hazard
Genetic Toxicity
Understanding of PK
Low Dose Target Organ & Carcinogenicity Potential
Developmental and Reproduction Toxicity Potential

ADME
Sub Chronic Toxicity
Reproductive Toxicity
Preliminary Risk Assessments

Acute Hazard
Genotoxicity
Carcinogenicity & Chronic Toxicity
Reproductive Toxicity
Developmental Toxicity
Neurotoxicity
Sub Chronic Toxicity (Non-Rodent)
Dermal Absorption
ADME
Metabolite Testing
Manufacturing Intermediates
Formulation Toxicity
Definitive Risk Assessments

Understanding Safety and Risk

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Questions?

Bringing plant potential to life