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Discussion Group 2

Case study:
Gene drive modified agricultural pests



Network: PULLMAN



@EFSA_EU



European Food Safety Authority

Trusted science for safe food

- Formally devising plausible pathways to harm that describe how a proposed activity could be harmful (i.e., impact a protected value adversely)
- Formulating risk hypotheses (i.e., hypotheses of no harm or of no unacceptable risk) about the likelihood and severity of such events
- Identifying the information that will be useful to test the risk hypotheses
- Developing a plan to acquire new data for hypothesis testing should tests with existing information be insufficient for decision-making

- Insect pests cause important losses in agricultural productivity
- *Drosophila suzukii* (Spotted wing *Drosophila*) damages fruit industry
- Recently invaded North America and Europe
- Infestations treated with broad-spectrum insecticides
 - Not always effective and intensive use associated with shortcomings
- Gene drive technology could be applied for population suppression
 - Targeting genes essential for development or viability

- Biodiversity and ecosystems
 - Toxicity to non-target organisms
 - Alteration of food networks
 - Impact on ecosystem services
 - Niche replacement - pest
 - Impact on pest fitness
- Plant health
 - Niche replacement – plant pathogens
 - Increased vectorial capacity
 - Increased pathology
- Human/animal health
 - Accidental exposure leading to toxicity or allergenicity
- Water, soil and air quality, agriculture or natural resources
 - Impact by gene drive modified pest
- Management practices
 - Impact on other control strategies
 - Failure of control strategy altering pest incidence

Problem formulation template

Plausible pathway to harm	Testable risk hypotheses (compared with GM insects)	Relevant information to test risk hypotheses	Means to gather relevant information (and feasibility)
Protection goal: ...			
Step1
Step2
Step3
Step4
Step5
Step6
Step7
Step8
Step9
Harm: ...			