XVIIIth CEUREG Forum
16-17 October 2014, Poznan, Poland

Regulation of biological control agents for plant protection

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DG SANCO (Health and Consumers Directorate-General)
Unit Chemicals, contaminants, pesticides

Health and Consumers

European Commission

Contents

- **What are biological pesticides?**
- How is OECD involved in the regulation of biopesticides?
- What is the state of play of different categories of biological pesticides?
- Conclusions

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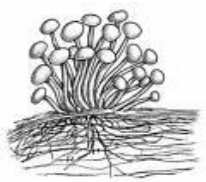
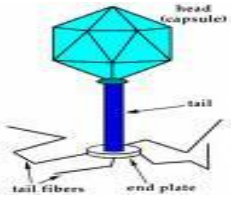
Biological Pesticides

- Macro-organisms

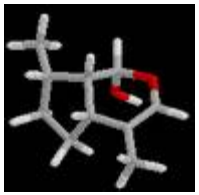
  (not covered by Reg.1107/2009)

- Microbial biopesticides





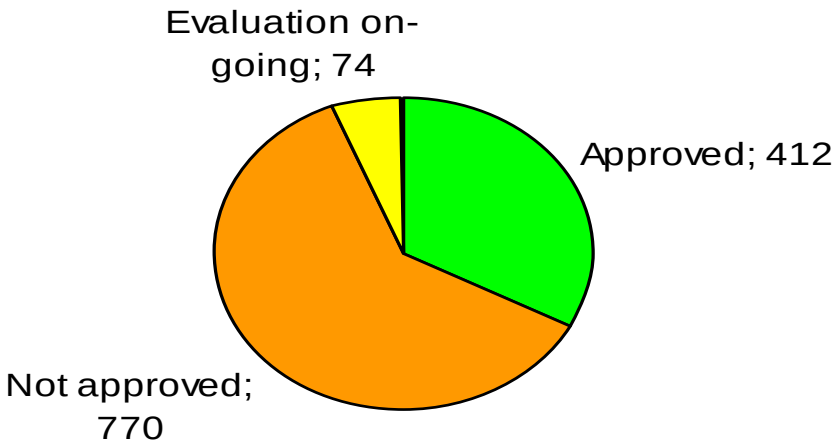
- Semiochemicals/Pheromones

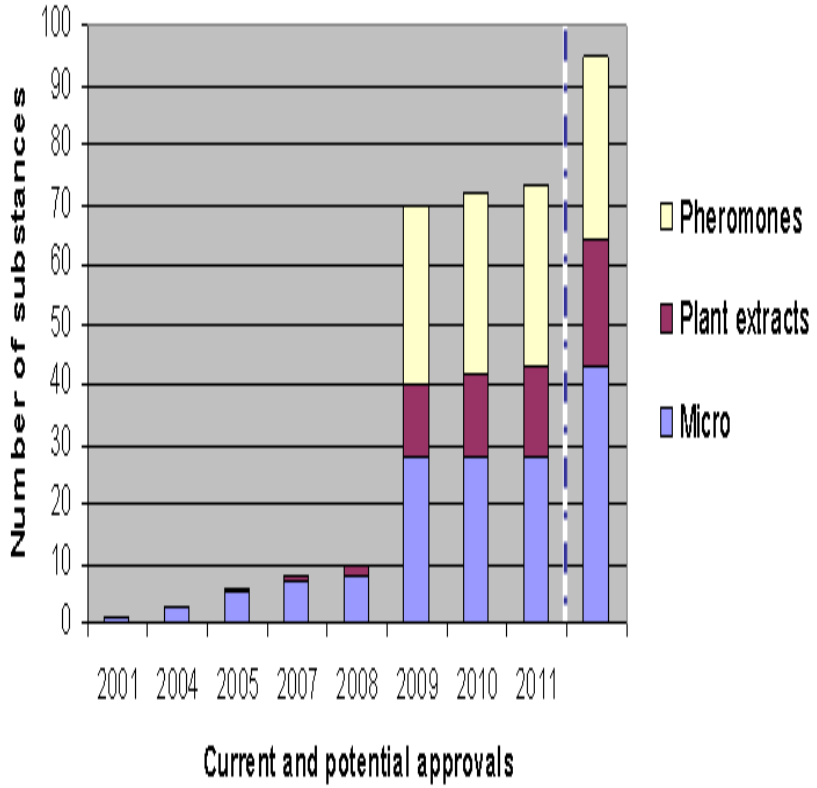


- Botanicals/Plant extracts

Review of approved pesticides
1993-2012
Evaluation active substances in EU

- **Before 1993: ≈ 1000 substances**
- **Today:**





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A few words about OECD

OECD: The Organisation for Economic Co-operation and Development

How is OECD involved in the work on (Bio)Pesticides?

- Started after World War II;
- Transformed in 1961 into the Organisation for Economic Co-operation and Development with trans-Atlantic and then global reach;
- Today the OECD has 34 member countries;
- More than 70 developing and transition economies are engaged in working relationships with the OECD (Brazil, China and India).

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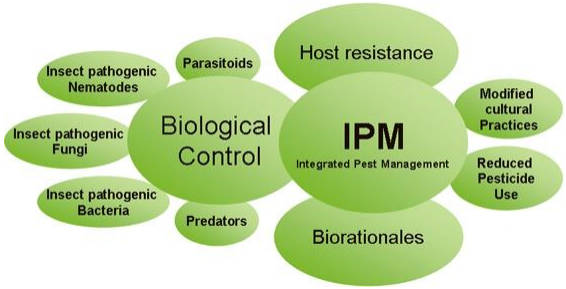
One of the fields in which OECD is actively involved is the sustainability of agriculture.



Working Group on Pesticides:

- Registration Steering Group (RSG)
- Risk Reduction Steering Group (RRSG)
- BioPesticides Steering Group (BPSG)

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The BioPesticides Steering Group (BPSG) was established by the WGP in 1999 to help member countries to harmonise the methods and approaches used to assess biological pesticides.

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Overview

Macro-organisms

Microbial Pesticides

Semiochemicals/ Pheromones

Botanicals/ Plant extracts

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Registration requirements were reviewed for invertebrate biocontrol agents/IBCAs and published in the OECD Series on Pesticides No. 21: "Guidance for Information Requirements for Regulation of Invertebrates as Biological Control Agents (IBCAs)".

In 2007 a survey was carried out on how macro-organisms were regulated in OECD.

- Update is considered necessary.
- New survey about the regulation of macro-organisms for pest and disease control in OECD countries has been circulated.
- Deadline: 1 December 2014.

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Overview

Macro-organisms

Microbial Pesticides

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Botanicals/ Plant extracts

Data requirements

Registration requirements were reviewed for microbial pesticides and published in the OECD Series on Pesticides No. 18: "Guidance for Registration Requirements for Microbial Pesticides"

Data requirements for microbial pesticides are laid down in Part B of Commission Regulations (EU) No 283/2013 and No 284/2013

FDA and EPA Requirements

	Current EPA Requirements	Current FDA Requirements
Pre-Market Animal Safety Study	Guideline No: 870.7200 Title: Companion Animal Safety Number of Animals: 8 per sex per dose Level of Concern: 5X Other: Harmonized with previous FDA/CVM Guidance #33	Guideline No: 185 (VICH GL43) Title: Target Animal Safety for Veterinary Pharmaceutical Products Number of Animals: 4 per sex per dose Level of Concern: 5X Other: International harmonization
Pre-Market Clinical Trials	None	Guideline No: 80 (VICH GL9) Title: Good Clinical Practice Number of Animals: ~200 (where 1/2 are positive control). Represents populations of actual pets rather than only test beagles. Informs labeling and contributes to the overall approval decision.
Post-Market Surveillance	Aggregate summary reporting of summary numbers of adverse effects under FIFRA Section 6(a)(2). Generally only used to trigger a more detailed review.	Ten veterinarians and other professional staff evaluate detailed adverse events, particularly for new products. Findings may result in changes to product, label, insert, and communication with vets and the public.

OECD – Publications (1)

Dossier

- OECD Dossier Guidance for Microbials, 2003 rev. August 2006.

Monograph

- OECD Monograph Guidance for Microbials, 2003 rev. August 2006.

OECD – Publications (2)

"Working Document on the Evaluation of Microbials for Pest Control"

This document is essentially a set of examples/case studies aimed at helping the regulatory authorities to deal with these issues in the assessment of (microbial) biopesticides.

OECD Environment, Health and Safety Publications, Series on Pesticides No. 43, 2008

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Working Document - Chapters

1. Taxonomic identification of micro organisms in MPCP;
2. Genetic toxicity assessment of microbial pesticides;
3. Exposure (operators, bystanders, consumers)
4. Microbial metabolite residues in food;
5. Efficacy evaluation of microbials.

More recent OECD Publications (3)

- Issue Paper on Microbial Contaminant Limits for Microbial Pest Control Products (OECD Series on Pesticides No. 65, 2011)
  → *SANCO/12116/2012 – rev. 0, September 2012*

- Guidance to the Environmental Safety Evaluation of Microbial Biocontrol Agents (OECD Series on Pesticides No. 67, 2012)
  → *SANCO/12117/2012 – rev. 0, September 2012*

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"Workshop on the Regulation of Biopesticides: Registration and Communication issues" *15-17 April 2008, EPA, Arlington, USA; OECD Environment, Health and Safety Publications, Series on Pesticides No. 44, 2009*

Promote communication and information exchange on Biopesticides: organise seminars and workshops.

Seminar - Structure

Presentations on:

- government, research and stakeholder experience and perspectives,

followed by discussion after each set of presentations.

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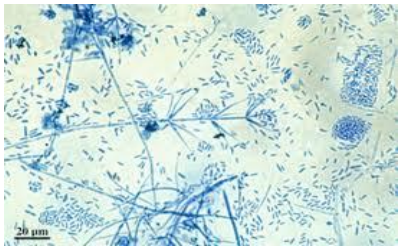
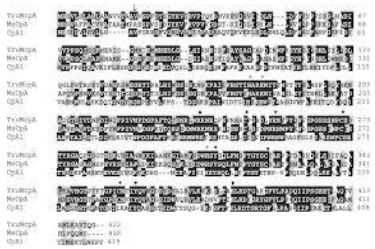
1. *Report of Seminar on "Identity and Characterisation of micro-organisms"*, OECD Series on Pesticides No. 53, 2010.





2. *Report of Seminar on "The fate in the environment of microbial control agents and their effect on non-target organisms"*, OECD Series on Pesticides No. 64, 2011.

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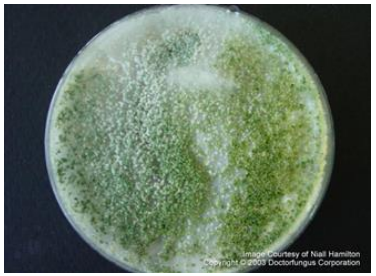
3. *Report of Seminar on "Trichoderma spp. for the use in Plant Protection Products: similarities and differences"*, OECD Series on Pesticides No. 74, 2013.



4. *Report of Seminar on "Application Techniques for Microbial Pest Control Products and Semiochemicals: Use Scenarios and Associated Risks"*, held on 31 March 2014; Publication in preparation

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Workshop on Microbial Pesticides

OECD/KEMI/EU Workshop
on
"Microbial Pesticides:
Assessment and Management of Risks"

17-19 June 2013 in Saltsjöbaden, Sweden

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KEMI
Kemikalieinspektionen
Swedish Chemicals Agency

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Regulating microbials: a challenge!

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Why a Workshop

- Micro-organisms for use as pesticides are regulated in a similar way as chemical pesticides.
- However the biological properties of living micro-organisms differ from the properties of chemical pesticides.
- Therefore it was desirable to reconsider the regulatory requirements for microbial pesticides.

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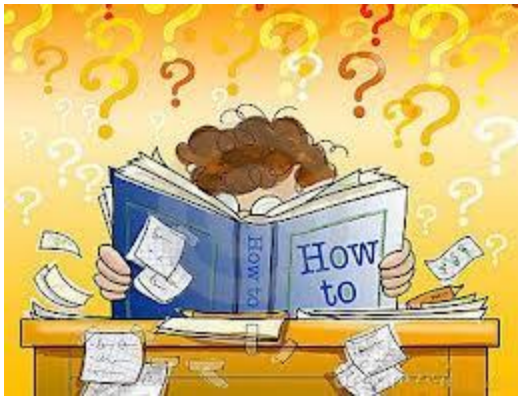
Overall recommendations

- Take note of valuable experiences in the assessment of chemicals.
- Improve the interpretation of the data requirements with detailed guidance for the assessment of the biological aspects.
- Micro-organisms are living organisms; improve related exposure scenarios.

Workshop issues

Around 20 different issues were discussed, including:

- Identification, incl. QA & contaminants
- Secondary metabolites
- Persistence
- Test methods
- Procedural/regulatory issues



Identification, incl. QA & contaminants

- Prepare issue papers on particular biological properties (e.g. growth temperature).
- Develop issue papers on individual taxonomic groups.
- Use marker approach for identification at strain level as well as fate quantification.
- Use "most appropriate justified" technology for identification.

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Secondary metabolites

OECD guidance document is under development:

- What level of evidence needed?
- Usefulness of information on related species and strains.
- Consideration of biology of micro-organisms.
- Does the product contain metabolites or are they formed after application.
- Potential of effects of secondary metabolites in non-target organisms (birds and mammals).

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Persistence

- Use population dynamics to study persistence in the environment.
- Reconsider decision-making criterion: "*microbial level has to decrease to the background level within one year*".
- Related to natural occurrence (background level).

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Test methods

- Test methods for chemicals should be evaluated and adapted for micro-organisms.
- Biology of the micro-organism should be considered when designing tests (e.g. duration of test).
- Develop priority list for development of new/amended test guidelines for microbials (based on OECD-BPSG questionnaire).

Procedural/regulatory issues

- Encourage EFSA involvement in developing GD.
- Use risk assessments from other areas.
- Provide a list of test methods and GD how to address each item of the data requirements.
- "Regulatory toolbox" on micro-organisms?

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Outcome of the Workshop

- Micro-organisms are living organisms with biological properties that can die, survive or proliferate.

- As living organisms micro-organisms respond to the environment in different ways.

"Biology is the difference!"

Report has been published in the OECD Series on Pesticides No. 76

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Overview

Macro-organisms

Microbial Pesticides

Semiochemicals/ Pheromones

Botanicals/ Plant extracts

European Commission

Data requirements

Registration requirements were reviewed for pheromones and other semiochemicals and published in the OECD Series on Pesticides No. 12: “Guidance for Registration Requirements for Pheromones and Other Semiochemicals Used for Arthropod Pest Control"

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OECD – Publications

Dossier

- OECD Dossier Guidance for Pheromones and other Semiochemicals, 2003

Monograph

- OECD Monograph Guidance for Pheromones and other Semiochemicals, 2003.

SCLPs (1)

- Austria is Rapporteur Member State (RMS) for pheromones.
- Austria prepared the Straight-Chained Lepidopteran Pheromones (SCLPs) Draft Assessment Report (DAR) for the 91/414 EEC review program.
- The OECD-12 was used as guidance for preparing the SCLP-DAR.

STATUS OF DATA REQUIREMENTS R Require data, surrogate data or a rationale to waive data CR only required in conditions under right-hand column		CONDITIONS AND COMMENTS
Mode of action	R	
FUNCTION, HANDLING and LABEL INFORMATION		
Information on Function & Handling: function of product, directions for use, formulation, field of use and use sites, pest(s) controlled, application rate and timing, pre-harvest interval, application method, precautionary and emergency measures, procedures to clean equipment and spills, disposal of unused product.	R	
Labeling requirements regarding hazard classification and risk identification	R	Required by EU, according to Directives 67/548/EEC and 99/45/EC.
CHEMISTRY		
TECHNICAL GRADE OF ACTIVE INGREDIENT (TGAI)		
Composition: - g/kg or g/L of TGAI - g/kg or g/L of all ingredients exceeding 1g/kg	R	For US and Canada, also provides figures in %w/w (to convert g/kg or g/L expressions to %w/w: divide by the density expressed in terms of g/kg or g/L, and multiply by 100) Where the manufacturing process is such that impurities and by-products which are particularly undesirable could be present in the TGAI, the content of each such compound must be determined and reported even if below 1 g/kg (0.1%w/w).
Identity by spectral confirmation, including one or more of UV/IR/NMR/MS.	R	To extent necessary to identify components.
Description of starting materials, production process and potential impurities	R	
Analytical data and methodology (including spectral confirmation of identity)	R	EU requires 5 batch data if feasible, Switzerland, US, Canada 3 production batches if feasible.
Analytical methodology and data for impurities of toxicological concern.	CR	Only required if manufacturing methods and materials indicate potential for presence of a toxic impurity.
Analytical method for residues.	CR	Relevant if residue data is required.
Colour, odour, physical state, relative density or specific gravity, stability (temperature, metals).	R	
For each known Active Ingredient Component (AIC) of the TGAI (i.e. pure active components which are separately synthesised)		
Description of starting materials and manufacturing process.	R	Required if AIC is made by or specifically for the TGAI manufacturer. If an AIC is purchased commercially, the name and address of its manufacturer and specifications describing its composition are required.

SCLPs (2)

- Austria was asked to provide suggestions for an update of the OECD-12.
- It should be *clearly* stated which requirements are absolutely necessary and cannot be waived (e.g. concerning identity).
- In all cases references are required and must be accessible for the evaluators.
- More guidance for formulations other than solid matrix dispensers (e.g. sprayable microcapsule suspensions).

SCLPs (3)

- In the OECD No. 12 it is stated that "application rates of up to 375 g SCLP/ha/year are generally understood to result in exposure levels which are comparable to natural emissions"

- However, the rationale for this assumption/value is based on a 'white paper'.

- This value should be reconsidered (in line with the EFSA-conclusion on Straight Chain Lepidopteran Pheromones; January 2014).

- Update *Guidance Document on the approval of new substances falling into the group of SCLPs* (SANCO/5272/2009).

- Report of Seminar on *"Application Techniques for Microbial Pest Control Products and Semiochemicals: Use Scenarios and Associated Risks"*, held on 31 March 2014; Publication in preparation.

- The application technique and/or use pattern for semiochemicals can differ significantly from conventional chemicals and hence may result in a different risk and/or risk assessment.
- The seminar can contribute to a better understanding of application techniques and exposure assessment in different scenarios and facilitate the registration of semiochemicals.

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Overview

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Botanicals/Plant Extracts

- OECD-seminar on “Characterisation and Analyses of Botanicals for the use in Plant protection Products” 30 March 2011; OECD Series on Pesticides No. 72, 2012.

- BPSG Workplan 2013 – 2016:
  Develop guidance on botanicals/plant extracts

- EU-expert group on "botanicals"




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EU-expert group on "botanicals" (1)

- EU Draft Working Document on Plant Extracts SANCO/10472/2003 – clearly needs to be updated.
- The intention is to prepare an EU Guidance Document, possibly to be 'upgraded' at a later stage to an OECD-document.
- Key chapters: Identification, characterisation, analyses, manufacturing process, history of use and exposure.
- The use of 'botanicals' can be promoted as part of IPM strategies.

EU-expert group on "botanicals" (2)

The following information has been taken into account:

- experience of other non-EU OECD countries (e.g. USA and Canada that have already some guidance in place),
- information from the EU Biocides guidance document,
- publications of EFSA (e.g. scientific opinions).

- Revised data requirements (identification, metabolism): "*For plant extracts, a different approach may be taken and adequately justified*".

Guidance Document on "botanicals" (1)

Based on the taxonomy and/or current knowledge of the botanical source three groups can be distinguished.

Group 1

- Botanical active substances that are known to have no unacceptable effects on humans, animals and the environment and are based on materials with known specifications e.g. food grade.

  Not necessary to identify each component but demonstrate that each sample is comparable to the specification.

Guidance Document on "botanicals" (2)

Group 2

- Botanical active substances for which taxonomy and current knowledge indicates that the botanical active substance may contain components of possible concern for humans, animals and/or the environment.

  → In this case these components should be identified and quantified.

Group 3

- Botanical active substances that are not based on a material with an established specification.

  → Complete identification and characterisation is needed.

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Guidance Document on "botanicals"(3)

- Guidance Document has been 'noted' on 20 March 2014 and is applicable to applications submitted from 1 October 2014 onwards (SANCO/11470/2012).
- Circulated to OECD-BPSG: comments received from CAN and CropLife.
- Current document should be amended to address comments and align with different definitions used by regulators in other countries/regions.
- Explore possibly to upgrade the EU Guidance Document to an OECD-document.

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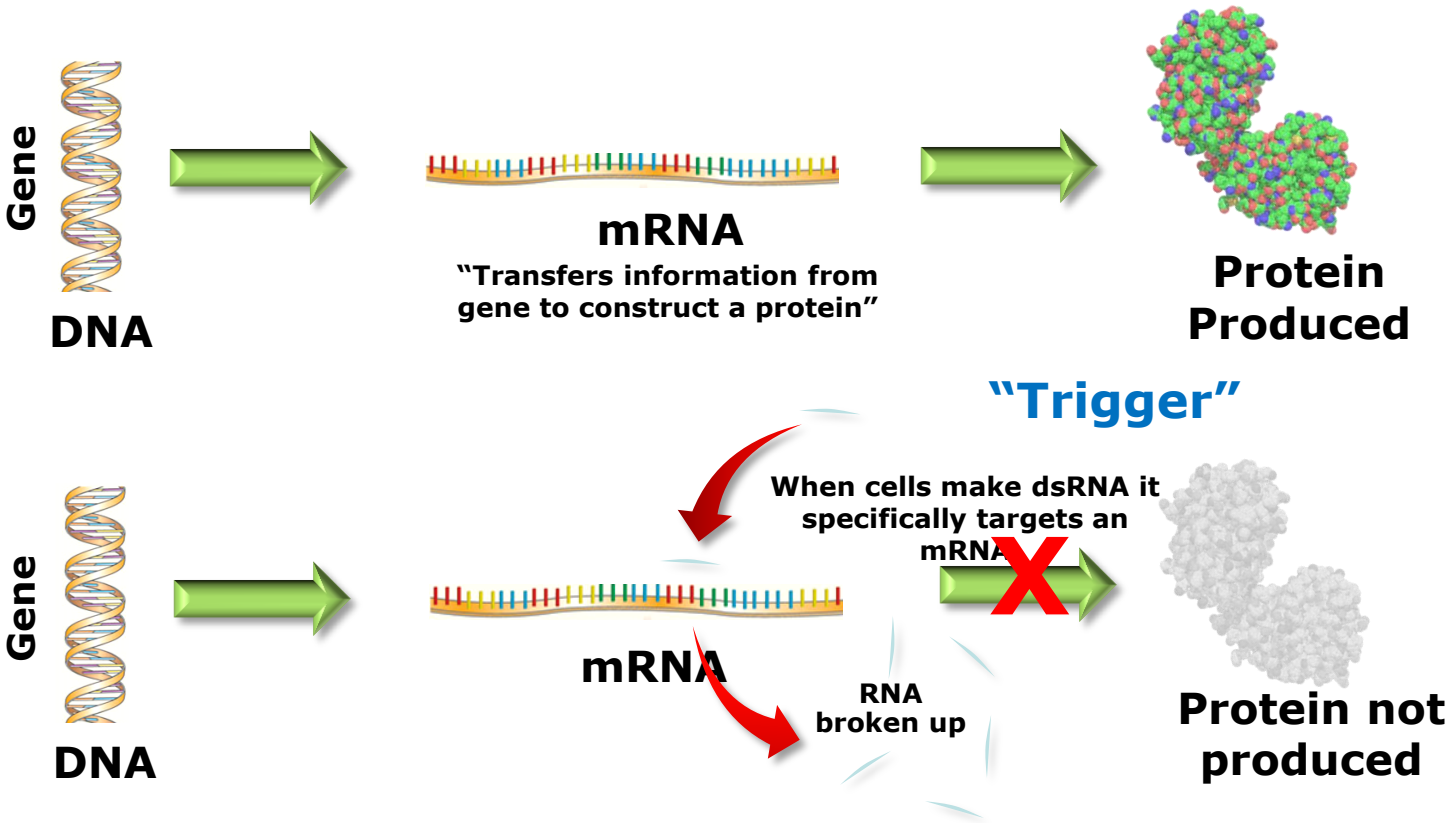
New techniques…
RNA interference (RNAi)



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Conclusions

- The BPSG has achieved a lot of progress towards harmonisation and work sharing through the development of guidance and working documents, the 2008 and 2013 Workshops and subsequent seminars.
- The BPSG and EU Working Group on Biopesticides will continue to facilitate in close cooperation with other stakeholders the evaluation and assessment of biopesticides and promote harmonisation and work sharing.
- We have to prepare ourselves for new techniques of biocontrol.

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Thank you for your attention

Any questions?