MISTRA EviEM

MISTRA COUNCIL FOR EVIDENCE-BASED ENVIRONMENTAL MANAGEMENT

The multifunctional roles of vegetated strips around and within agricultural fields: a systematic map

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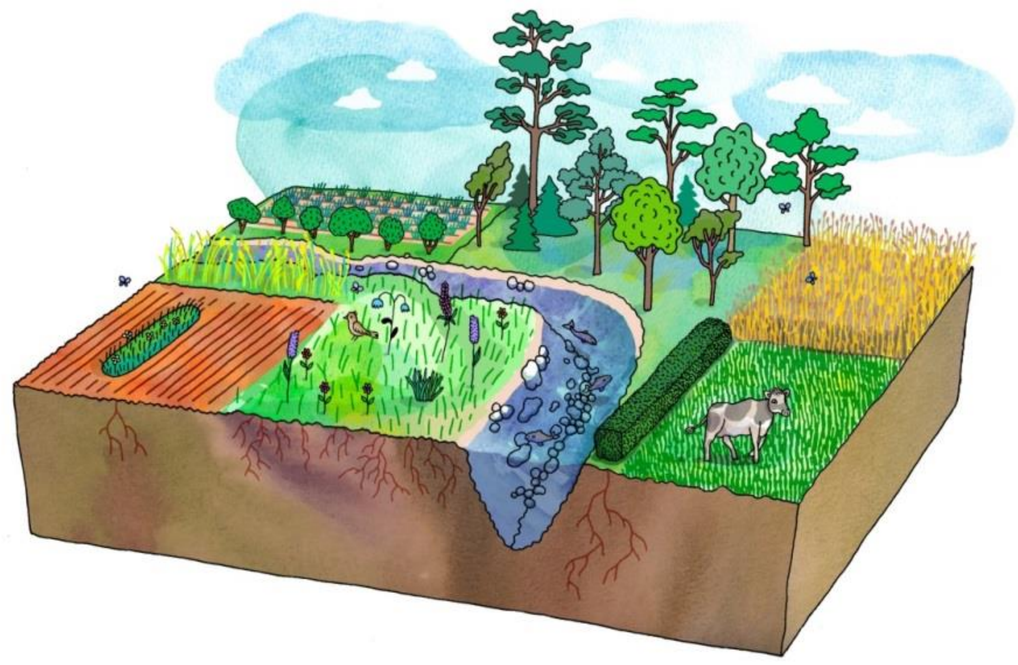
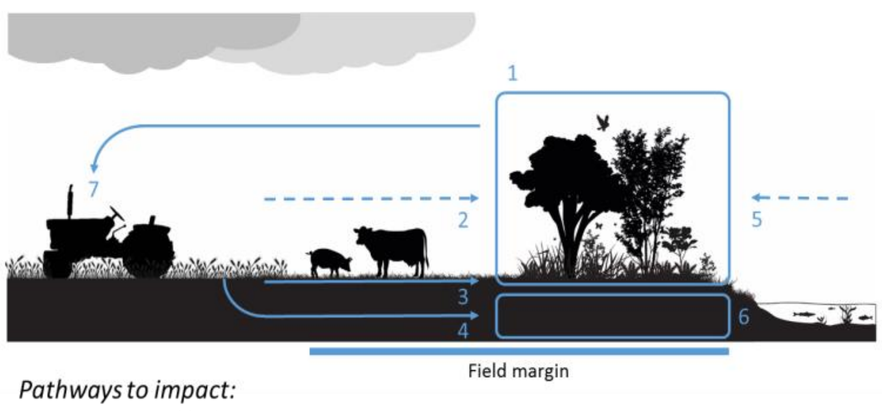
Problem formulation

- Agriculture and agricultural intensification can have significant negative impacts on the environment
- Establishment and management of vegetated strips adjacent to farmed fields (including various field margins, buffer strips and hedgerows) are key mitigation measures
- Environmental managers and other stakeholders must often make decisions about how best to design and implement vegetated strips for a variety of different outcomes
- A vast body of evidence exists, but it is difficult to obtain relevant, accurate and summarised information on the effects of implementation and management of vegetated strips



The range of different vegetated strips within and around agricultural fields, including; hedgerows, wildflower strips, beetlebanks, grassy borders, woody vegetated strips and forest margins. Illustration: Gunilla Hagström.



Pathways to impact:

1. Presence of habitat
2. Interception of chemical drift
3. Interception of surface water flow/leaching
4. Interception of groundwater flow
5. Interception of wind
6. Interaction with the soil
7. Agronomic

Conceptual model of pathways to impact for vegetated strips within or around fields. Illustration: Neal Haddaway

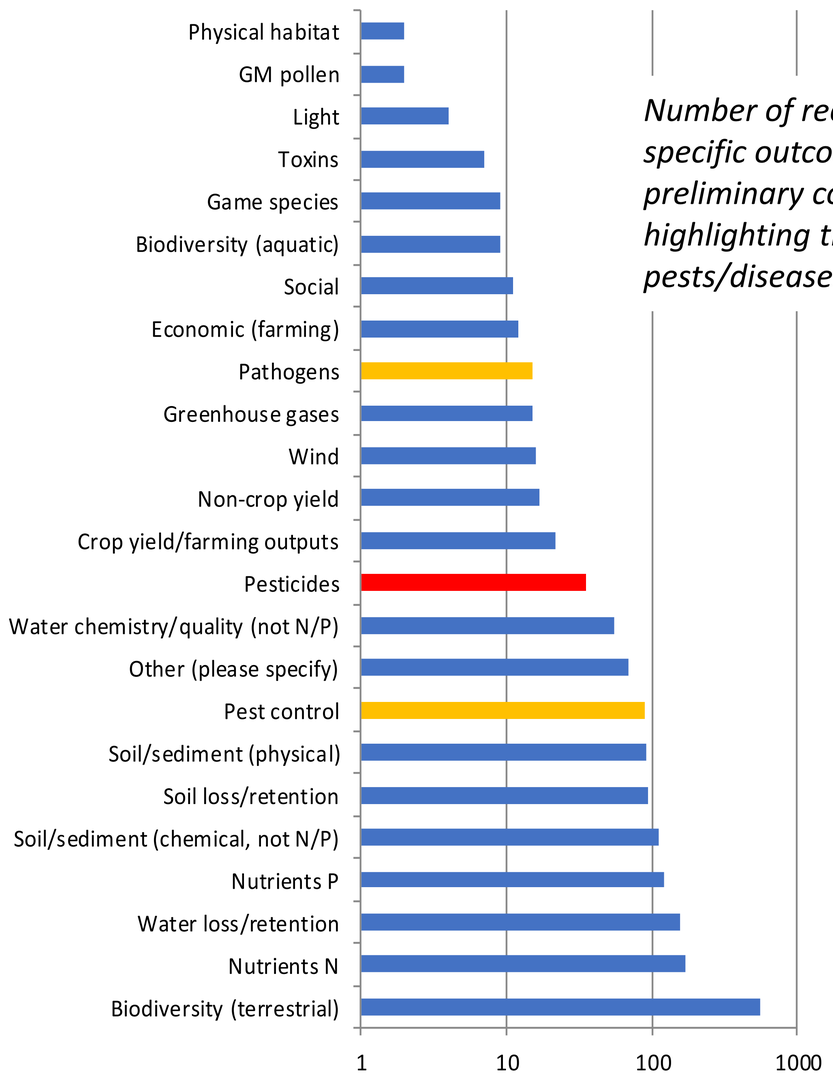
Overview

To improve the situation, we are compiling a systematic database of relevant research relating to vegetated strips undertaken in boreo-temperate farming systems (arable, pasture, horticulture, orchards and viticulture), according to the primary question:

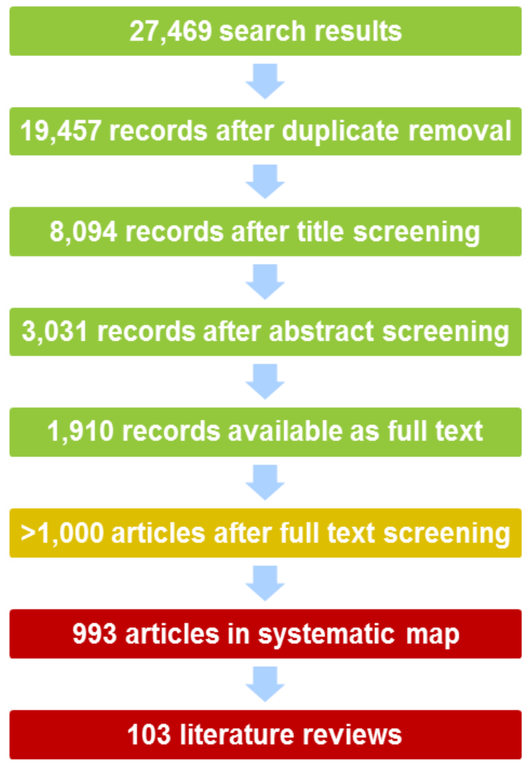
"What evidence exists regarding the effects of field margins on nutrients, pollutants, socioeconomics, biodiversity, and soil retention?"

Systematic map process

- Question formulated with stakeholders
- Protocol published in Env. Evidence
- Searches for academic/grey literature
- Screened at title and at abstract
- Full texts retrieved
- Screened at full text
- Reference lists of relevant reviews checked
- Coding/meta-data extraction of full texts



Number of records returning specific outcomes through preliminary coding, highlighting those related to pests/diseases and pesticides

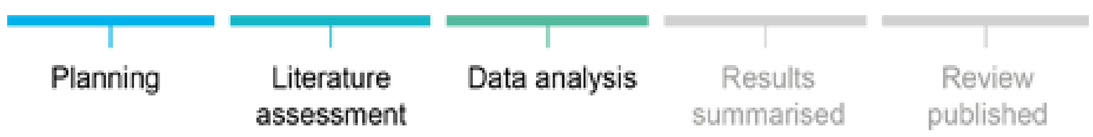


Number of records returned through systematic mapping process

Systematic map outputs

- Searchable systematic map database ('Evidence atlas')
  - ✓ Each study described in detail (setting, methods, not results)
  - ✓ Filterable codes
  - ✓ Descriptive information
- 'Heat maps'
  - ✓ List of knowledge gaps (un-/under-represented subtopics)
  - ✓ List of knowledge clusters (well-studied subtopics

Review status…



To find out more

http://www.eviem.se/en/projects/Buffer-strips/