Agriculture practices supporting biodiversity conservation in Israel: A meta-analysis

Israely Liron[1], Amdur Liron[2] and Dayan Tamar[1,3]

1 School of Zoology, George S. Wise Faculty of life sciences, Tel Aviv University

2 The Open Landscape Institute (OLI), The Steinhardt Museum of Natural History, Tel Aviv University

3 The Steinhardt Museum of Natural History, Tel Aviv University

Agriculture vs. Biodiversity

Can there be Wild friendly agriculture ?

Land sharing vs Land sparing

Ecosystem services use and abuse

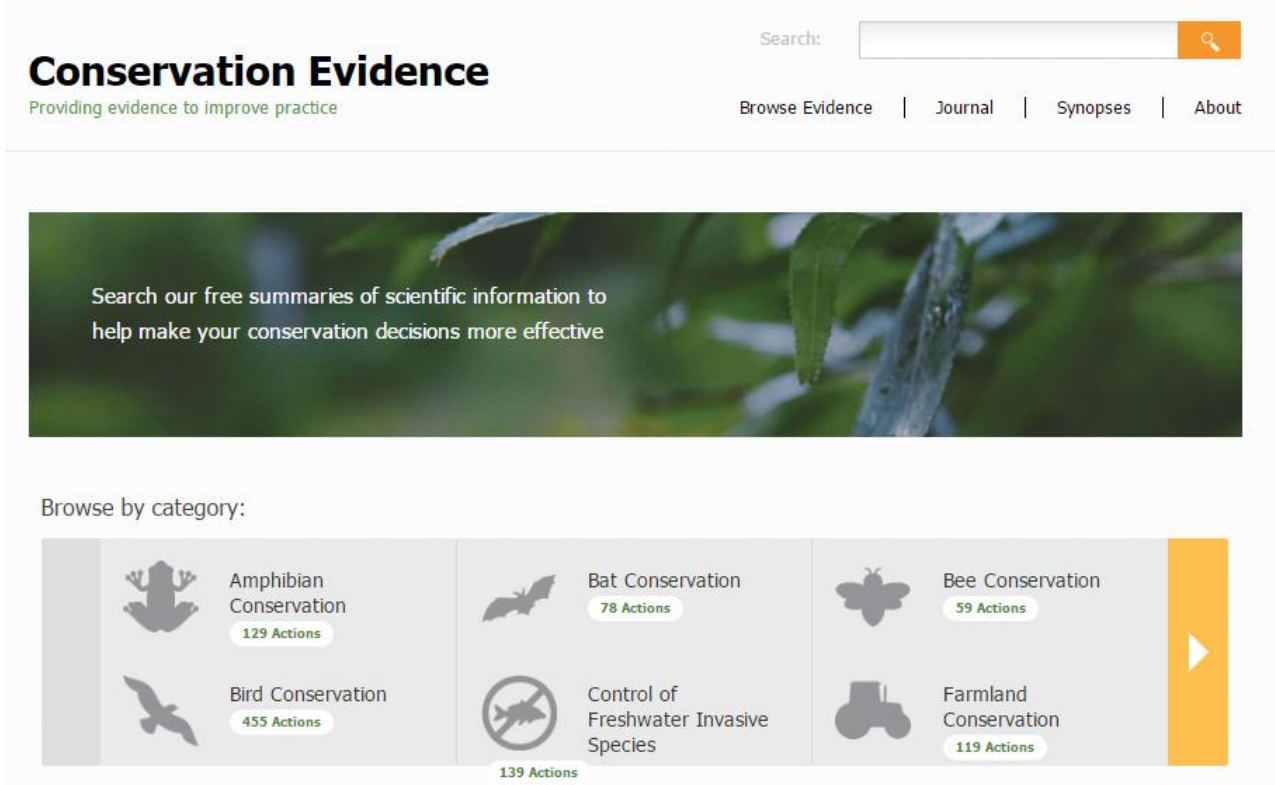
Agriculture Affects 40% of the planet's land area

Aim


Identifying scientific evidence
Agricultural practices in Israel
Supporting biodiversity conservation

Methods

Conservation Evidence, Cambridge university



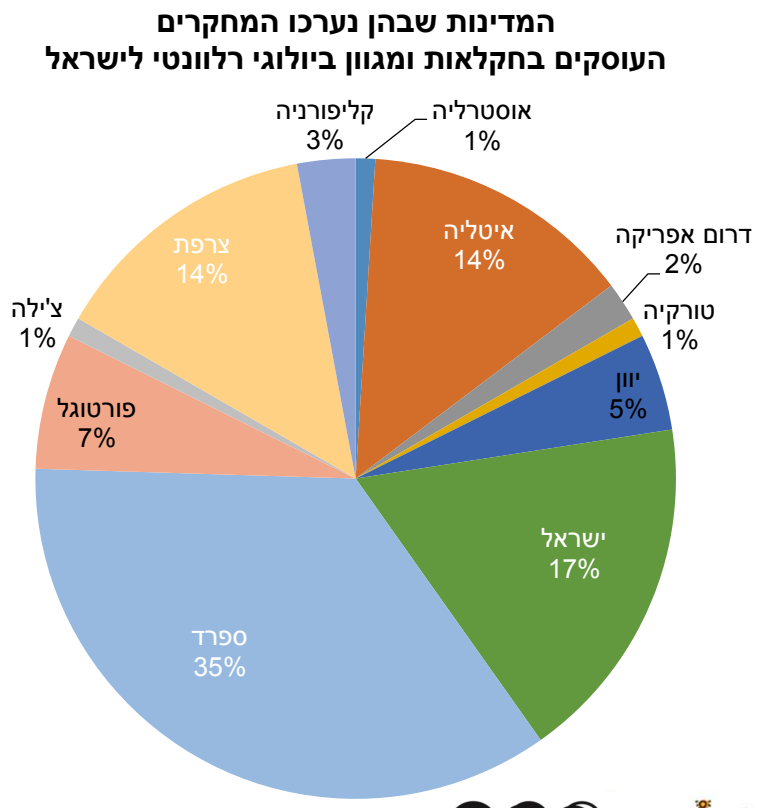
1. Decisions support tool
2. Evidence base
3. Conservation support assessment
4. Database by action\ target

The Database

Of Mediterranean biodiversity conservation practice in agriculture

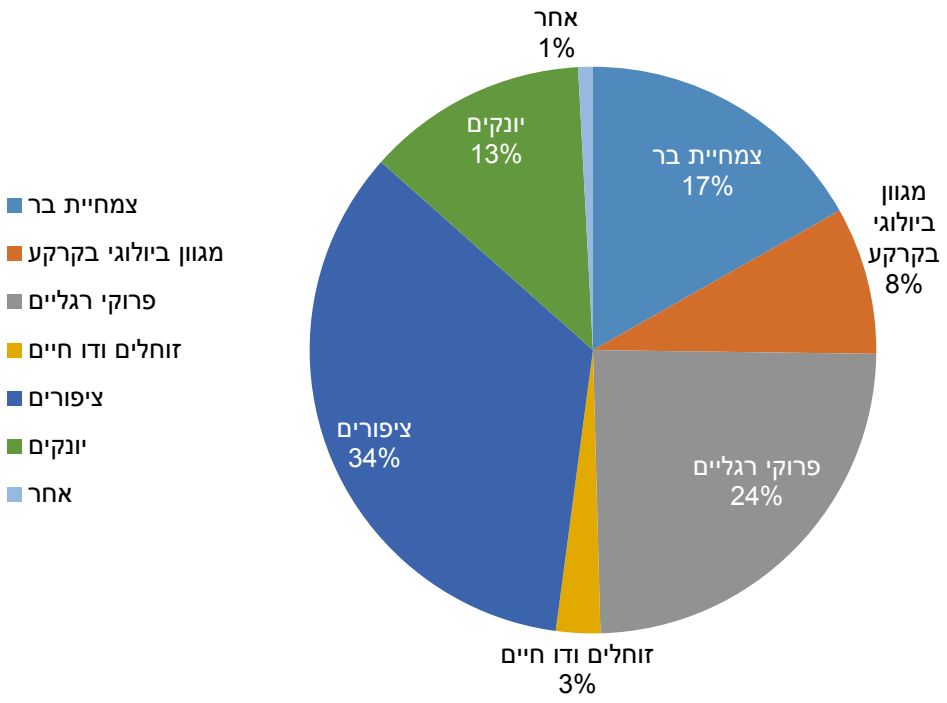
132 Research work
88 from Med- climate zone
17 from Israel

- **Quantitative**
- **Field research**
- **Specific agriculture practice**



Over view of database

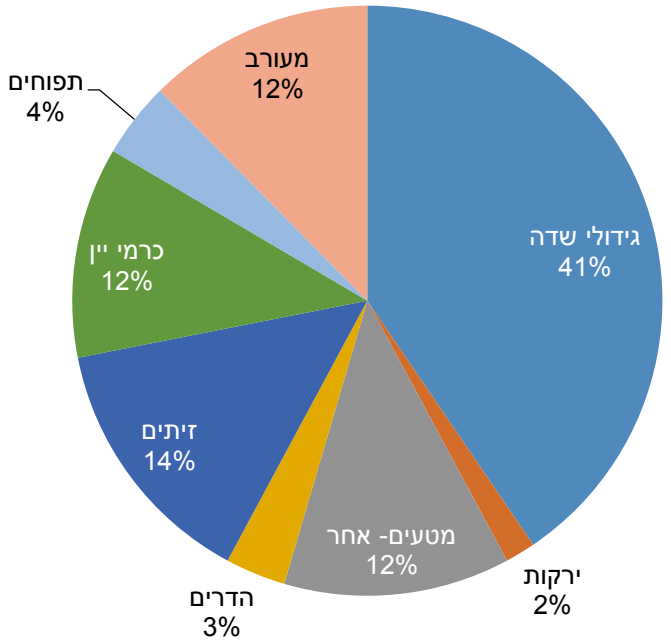
קבוצות טקסונומיות שנבדקו במחקרים העוסקים בחקלאות ומגוון ביולוגי



Few research on Vegetable production – A dominant sector in Israel

34% dedicated to birds conservation – non in Israel

ענפים חקלאיים שנבדקו במחקרים העוסקים בחקלאות ומגוון ביולוגי



Best practices

The Following practices were investigated for their support to biodiversity conservation

Practice	Number of research
Seed cycle & fallow	3
Keeping Stubble	4
Fertilizers	6
Size & form of the Ag. land	7
Ponds and rivers near agriculture land	8
Herbaceous field boundaries	11
Irrigation vs dryland	11
Fallow, set aside	11
Conservation tillage	11
Semi-natural Patches	14
Hedgerow: trees & shrubs	16
IPM	17
Landscape Mosaic	18
Cover crops in plantation	20

Evidence summery page

Ex. 1 – Semi-natural Patches on farmland

1. Practice deception
2. Main action
3. Number of research
4. Level of Conservation evidence

5. Relevance for: Agriculture branch |Taxonomic group | Conservation Action Goals

6. Possible influence over agriculture productivity

7. Evaluation on evidence (Table)

8. Description of evidence (Table)

Evidence assessment

Num. of research	strength	% out of supporting evidence	strength
up to 7	Low	up to 30%	Low
8 to 13	Medium	45%-31%	Medium
more then 14	strong	more then 45%	strong

Out comes 1

Strong Evidence for Biodiversity conservation practices:

Semi-natural Patches

Cover crops in plantations

Landscape mosaic

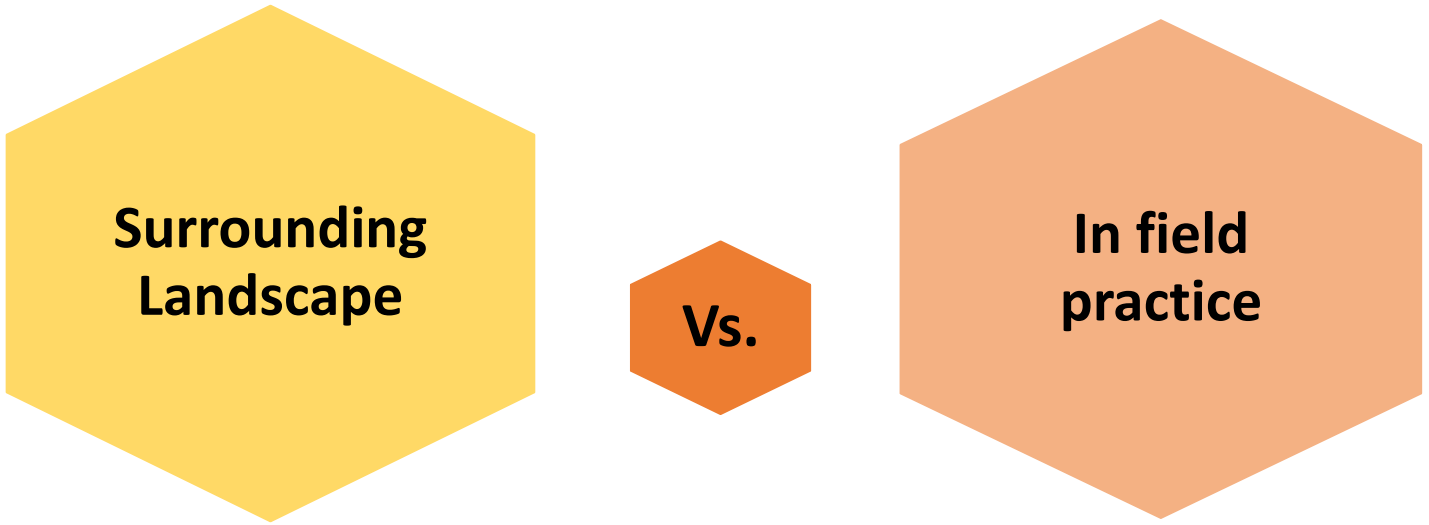
Hedgerow: trees & shrubs

Based on:

Sum of supporting evidence
Percent of of all research work for specific practice

Out comes 2

Type of conservation action



Clear contribution

Mixed evidence

Future research

Knowledge gaps on 3 levels:

1. Good supporting evidence Not enough research work:

Ponds and rivers near agriculture land
Herbaceous field boundaries
Irrigation vs dryland

Keeping Stubble

2. Lak of knowledge in Israel:

Farm land birds

Vegetable production
Irrigation vs dryland

3. Interaction between practices

Conservation tillage
Organic & Biodynamic
IPM
Special element in the field

Thank you