Farmknowledge.org
- knowledge platform of OK-Net Arable

Developed by ICROFS/AU

- Allan Leck Jensen
- Ilse A. Rasmussen
- Margit Styrbæk Jørgensen
- Helene Kristensen
- Dennis Christensen

OK-Net Arable Knowledge Platform – presentation at BioFach 2017

OK-Net Arable - exchange knowledge, enhance farming

Browse the knowledge base in one of the five themes

Search the knowledge base

Exchange with others

Find online courses

Suggest a tool

Soil quality and fertility

Nutrient management

Pest ar

Weed management

Crop specific

English
English
Bulgarian
Danish
Dutch
Estonian
French
German
Hungarian
Italian
Latvian

Internet Explorer, where text strings are cut off when special characters occur. We recommend the use of other browsers such as Chrome or Firefox.

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Advanced search

Reset search

- Search

Search by keywords

Annual weed (9)
Arable crops (19)
Arable farming (74)
Biodiversity (2)
Biological control (4)
Carbon sequestration (5)
Catch crop (6)
Cereal crop (5)
Compost (4)
Conversion to organic farming (3)

Arbitrary text search

By type

By theme

- Results - (81)

1. Crop rotation and its ability to suppress perennial weeds
2. Growing cover crops in organic arable crop rotations: best practices from Denmark
3. Efficient nitrogen use from livestock manure
4. Reduced Tillage
5. Crop management of linseed
6. SmartSOIL Tool
7. Composting leaflet – agroecological approach at your farm
8. Satellite based and camera-controlled steering systems
9. Crop rotation and its ability to suppress perennial weeds
10. Efficient use of nitrogen from livestock manure
11. Growing cover crops in organic arable crop rotations: Best practices from Denmark
12. Cultivating a diverse wheat population suitable for low-input and organic farming

Advanced search

- Search

Search by keywords

Arbitrary text search

- Filter

By language

German (3) ×

By type

Practice abstracts (3) ×

By theme

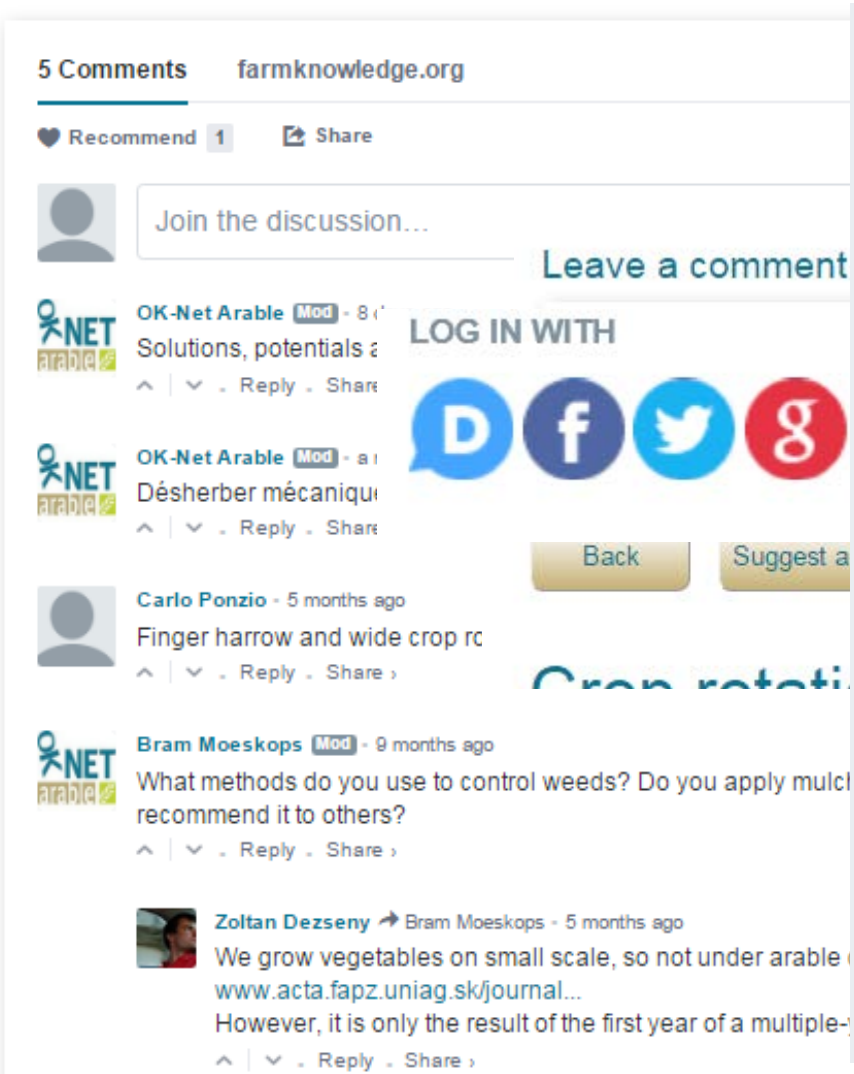
Weed management (3) ×

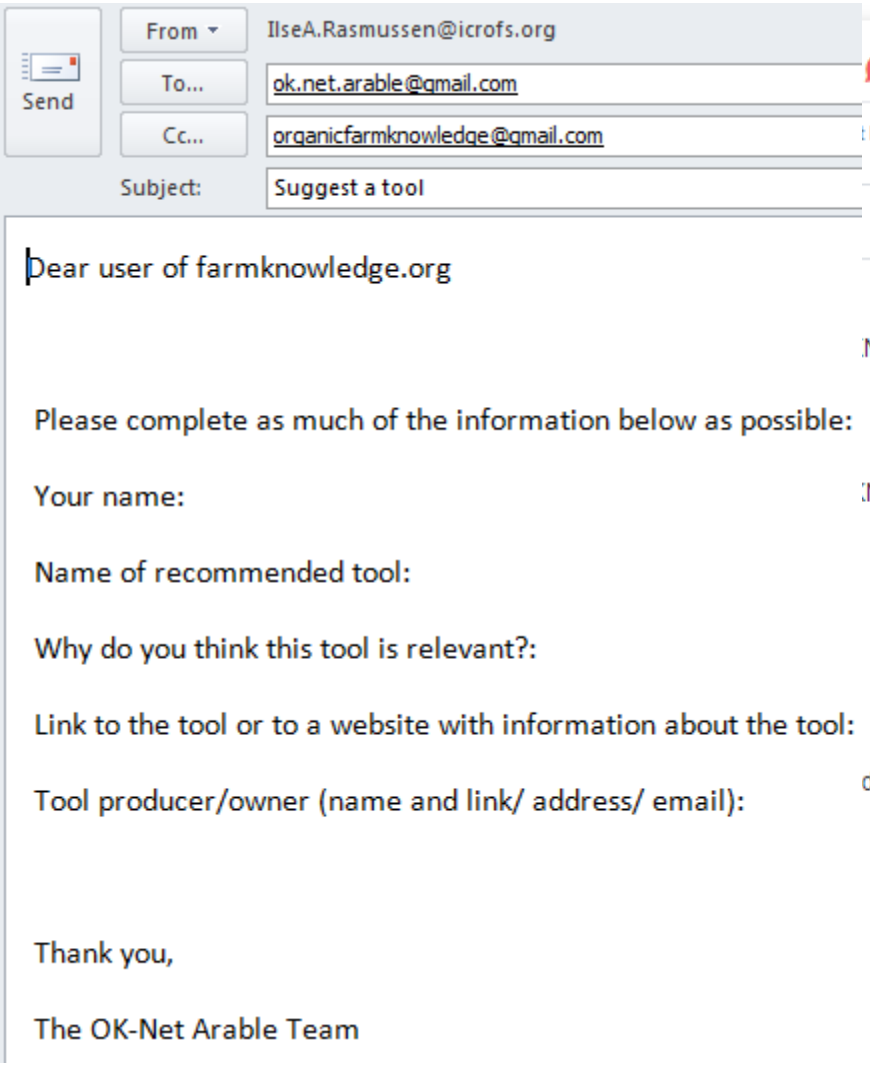
- Results - (3)

1. Controlling docks by stubble cultivation
2. Winter field peas as green manure before maize
3. No-till cultivation of maize in rolled forage peas

Discussion forum

Here you can discuss your problems and solutions for this theme

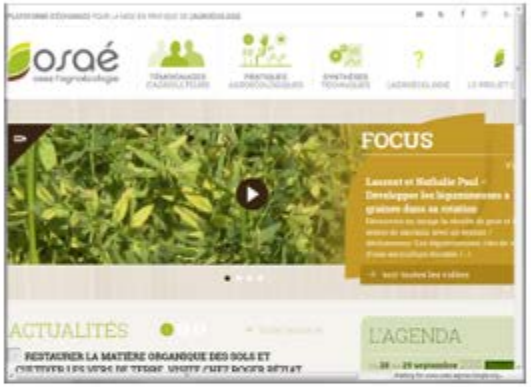




Back | Suggest a tool

Related content from Organic Eprints
More about the tool on Organic Eprints

Knowledge exchange platform for agroecology



Web tools

Link to the tool

Give your rating to the tool:

Average rating to the tool: **4.0** Number of ratings to the tool: **2**

Problem

How to implement direct-drilling in crop residues or living mulch, how to manage crop association and implement biological control.

Solution

Several information to successfully develop practices related to agroecology

Description

It offers videos, dossier and short info-sheets reporting practical farmers experiences. At today, for arable crops, it includes a dossiers on direct-drilling in crop residues or living mulches, a dossier on crop

Applicability

Theme

Soil quality and fertility, Nutrient management, Pest and disease control, Weed management

Languages

French language

Show more information

Crop rotation and its ability to suppress perennial weeds

Problem

Perennial weeds like thistle and couch-grass hinder growth and yields of arable crops. Without a proper focus on perennial weeds (through a good crop rotation system) organic arable cropping systems may not manage for more than 6 years without facing major weed problems.

Solution

Crop rotation is a key tool for preventive control of perennial weeds in arable farming. Weed-suppressing rotations include an appropriate percentage of competitive crops and green manures. Selection of the right crops and their proper management are important for successful weed prevention.

Outcome

The appropriate combination of crops and green manures prevents spread of perennial weeds and increases crop yields and quality. Weed-suppressing crop rotations are absolutely essen-

Applicability box

Theme
Weed management, Soil quality and fertility, Crop-specific measures

Geographical coverage
Cool, temperate climate

Application time
At planning of crop rotation

Required time
No additional time required

Period of impact
Entire crop rotation

Equipment
No additional equipment required

Best in
All arable crop rotations

Interaction

- Rate tools
- Ask questions about themes or tools
- Discuss in discussion forum
  - Language barrier?

- How many are using the knowledge platform?
- Who is using it?

- BE ACTIVE!

Video gallery

BASE-ABC, a group of French
applying conservation agricult
3:42

Le réseau RotAB: sites expéri
biologiques (OK-Net Arable &
1:43

Presentation of RotAB Networ
organic farming (OK-Net Arab
1:45

Dialogue between Belgian an
farmers in the OK-Net Arable
6:06

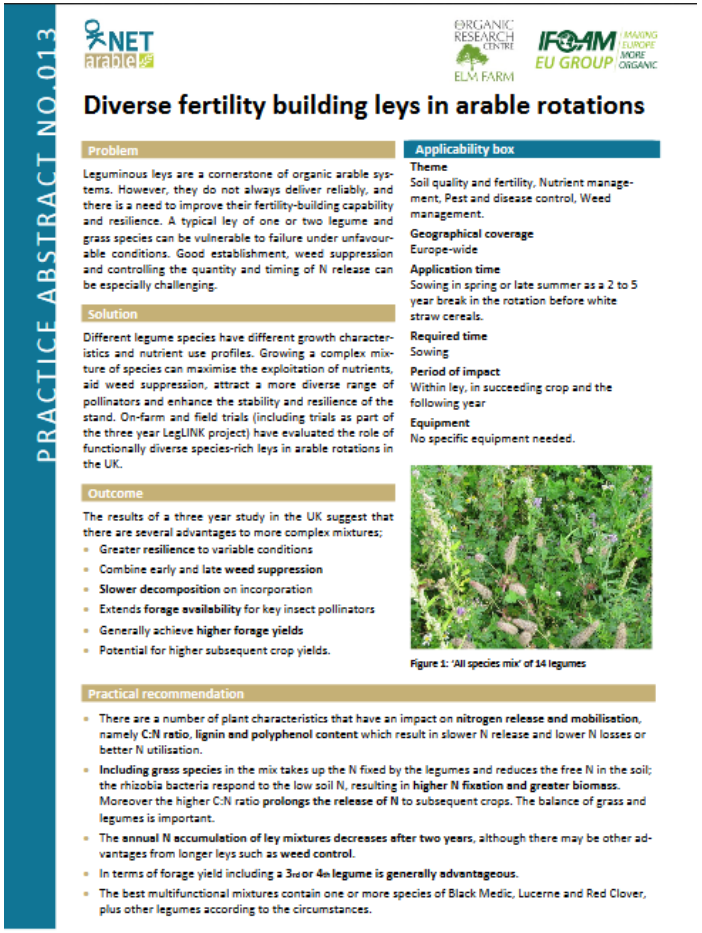
BASE-ABC, a group of French
applying conservation agricult
3:35

Tools by theme:
Soil quality (34)

- Crop rotation and its ability to suppress perennial weeds
- Growing cover crops in organic arable crop rotations: best practices from Denmark
- Reduced Tillage
- SmartSOIL Tool
- Composting leaflet – agroecological approach at your farm
- Satellite based and camera-controlled steering systems
- Crop rotation and its ability to suppress perennial weeds
- Growing cover crops in organic arable crop rotations: Best practices from Denmark
- Aerated compost tea (ACT) to improve soil biology and to act as a biofertiliser/biofungicide
- Diverse fertility building leys in arable rotations
- Testing peas for legume fatigue
- Catch crop in maize
- Intercropping grain peas with barley
- How to successfully convert to organic arable farming
- Basics of soil fertility management
- Breaking up green manures
- Intercropping grain peas with barley
- Direct Sowing of Maize
- The Spade test - Visual soil assessment in the field
- Knowledge exchange platform for agroecology
- Sort Out Your Soil: A practical guide to green manures
- Visual soil assessment: field guide for cropping
- Soil quality test kit guide
- The Muencheberg Soil Quality Rating (SQR)
- Green manure and cover crops in organic agriculture: guide to the choice of the species
- Green manure and cover crops in organic agriculture: general introduction
- Earthworms: architects of fertile soils
- Tilman-org: videos on reduced tillage in organic farming

Tools by theme:
Nutrient management (36)

- Growing cover crops in organic arable crop rotations: best practices from Denmark
- Efficient nitrogen use from livestock manure
- Reduced Tillage
- SmartSOIL Tool
- Composting leaflet – agroecological approach at your farm
- Satellite based and camera-controlled steering systems
- Efficient use of nitrogen from livestock manure
- Growing cover crops in organic arable crop rotations: Best practices from Denmark
- Diverse fertility building leys in arable rotations
- Winter field peas as green manure before maize
- Nitrogen supply for winter oilseed rape
- Testing peas for legume fatigue
- Catch crop in maize
- Intercropping grain peas with barley
- Organic quality wheat production - Results of long-term field trials of cultivation and selection of varieties
- How to successfully convert to organic arable farming
- Potato Crop Management
- Basics of soil fertility management
- Breaking up green manures
- Intercropping grain peas with barley
- Direct Sowing of Maize
- The Spade test - Visual soil assessment in the field
- Nutrient management in farms in conversion to organic
- Knowledge exchange platform for agroecology
- Sort Out Your Soil: A practical guide to green manures
- Risk management for small grains
- ROTOR: organic crop rotation planner
- Nutrient supply
- Green manure and cover crops in organic agriculture: guide to the choice of the species
- Green manure and cover crops in organic agriculture: general introduction
- Regionally adapted humus balance in organic farming
- Cover crop and living mulch toolbox
- Nitrogen budget calculator



PRACTICE ABSTRACT NO.013

OK-NET arable

ORGANIC RESEARCH CENTRE ELM FARM

IFOAM EU GROUP MAKING EUROPE MORE ORGANIC

Diverse fertility building leys in arable rotations

Problem

Leguminous leys are a cornerstone of organic arable systems. However, they do not always deliver reliably, and there is a need to improve their fertility-building capability and resilience. A typical ley of one or two legume and grass species can be vulnerable to failure under unfavourable conditions. Good establishment, weed suppression and controlling the quantity and timing of N release can be especially challenging.

Solution

Different legume species have different growth characteristics and nutrient use profiles. Growing a complex mixture of species can maximise the exploitation of nutrients, aid weed suppression, attract a more diverse range of pollinators and enhance the stability and resilience of the stand. On-farm and field trials (including trials as part of the three year LegLINK project) have evaluated the role of functionally diverse species-rich leys in arable rotations in the UK.

Outcome

The results of a three year study in the UK suggest that there are several advantages to more complex mixtures;

- Greater **resilience** to variable conditions
- Combine **early and late weed suppression**
- **Slower decomposition** on incorporation
- Extends **forage availability** for key insect pollinators
- Generally achieve **higher forage yields**
- Potential for higher subsequent crop yields.

Applicability box

Theme
Soil quality and fertility, Nutrient management, Pest and disease control, Weed management.

Geographical coverage
Europe-wide

Application time
Sowing in spring or late summer as a 2 to 5 year break in the rotation before white straw cereals.

Required time
Sowing

Period of impact
Within ley, in succeeding crop and the following year

Equipment
No specific equipment needed.

Figure 1: 'All species mix' of 14 legumes

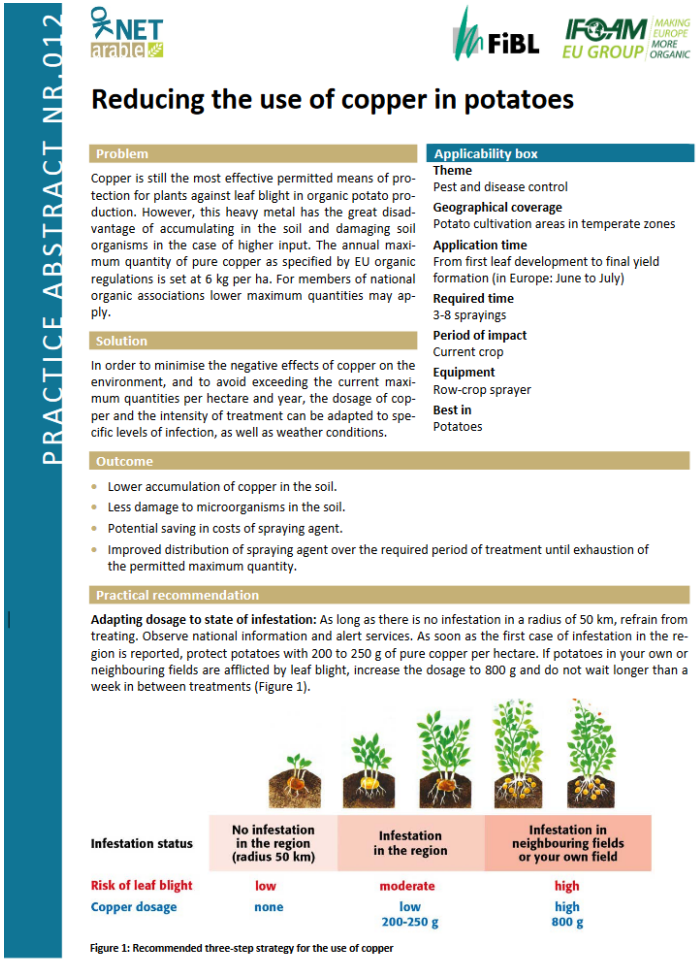
Practical recommendation

- There are a number of plant characteristics that have an impact on **nitrogen release and mobilisation**, namely **C:N ratio, lignin and polyphenol content** which result in slower N release and lower N losses or better N utilisation.
- **Including grass species** in the mix takes up the N fixed by the legumes and reduces the free N in the soil; the rhizobia bacteria respond to the low soil N, resulting in **higher N fixation and greater biomass**. Moreover the higher C:N ratio **prolongs the release of N** to subsequent crops. The balance of grass and legumes is important.
- The **annual N accumulation of ley mixtures decreases after two years**, although there may be other advantages from longer leys such as **weed control**.
- In terms of forage yield including a **3rd or 4th legume is generally advantageous**.
- The best multifunctional mixtures contain one or more species of Black Medic, Lucerne and Red Clover, plus other legumes according to the circumstances.

Organic Research Centre. Diverse fertility building leys in arable rotations.
OK-Net Arable Practice Abstract.

Tools by theme:
Pest and disease control (21)

- Reduced Tillage
- Satellite based and camera-controlled steering systems
- Growing cover crops in organic arable crop rotations: Best practices from Denmark
- Aerated compost tea (ACT) to improve soil biology and to act as a biofertiliser/biofungicide
- Diverse fertility building leys in arable rotations
- Use of rock dust against the rape pollen beetle
- Reducing the use of copper in potatoes
- How to successfully convert to organic arable farming
- Potato Crop Management
- Control of wireworms in organic potato cultivation
- Agrometeo: decision support tool for pest prognosis and risk assessment
- Knowledge exchange platform for agroecology
- Atlas of agricultural entomology -a knowledge base of pest insects
- Sort Out Your Soil: A practical guide to green manures
- Risk management for small grains
- ECOPHYTOPIC – The portal for integrated crop protection of arable crops
- Database for ecological pest management
- Description of biological control agents and agroenvironmental measures for plant protection
- FusaProg: risk assessment of fusarium and mycotoxin infestation in wheat production



PRACTICE ABSTRACT NR.012

Reducing the use of copper in potatoes

Problem

Copper is still the most effective permitted means of protection for plants against leaf blight in organic potato production. However, this heavy metal has the great disadvantage of accumulating in the soil and damaging soil organisms in the case of higher input. The annual maximum quantity of pure copper as specified by EU organic regulations is set at 6 kg per ha. For members of national organic associations lower maximum quantities may apply.

Solution

In order to minimise the negative effects of copper on the environment, and to avoid exceeding the current maximum quantities per hectare and year, the dosage of copper and the intensity of treatment can be adapted to specific levels of infection, as well as weather conditions.

Applicability box

Theme
Pest and disease control

Geographical coverage
Potato cultivation areas in temperate zones

Application time
From first leaf development to final yield formation (in Europe: June to July)

Required time
3-8 sprayings

Period of impact
Current crop

Equipment
Row-crop sprayer

Best in
Potatoes

Outcome

- Lower accumulation of copper in the soil.
- Less damage to microorganisms in the soil.
- Potential saving in costs of spraying agent.
- Improved distribution of spraying agent over the required period of treatment until exhaustion of the permitted maximum quantity.

Practical recommendation

Adapting dosage to state of infestation: As long as there is no infestation in a radius of 50 km, refrain from treating. Observe national information and alert services. As soon as the first case of infestation in the region is reported, protect potatoes with 200 to 250 g of pure copper per hectare. If potatoes in your own or neighbouring fields are afflicted by leaf blight, increase the dosage to 800 g and do not wait longer than a week in between treatments (Figure 1).

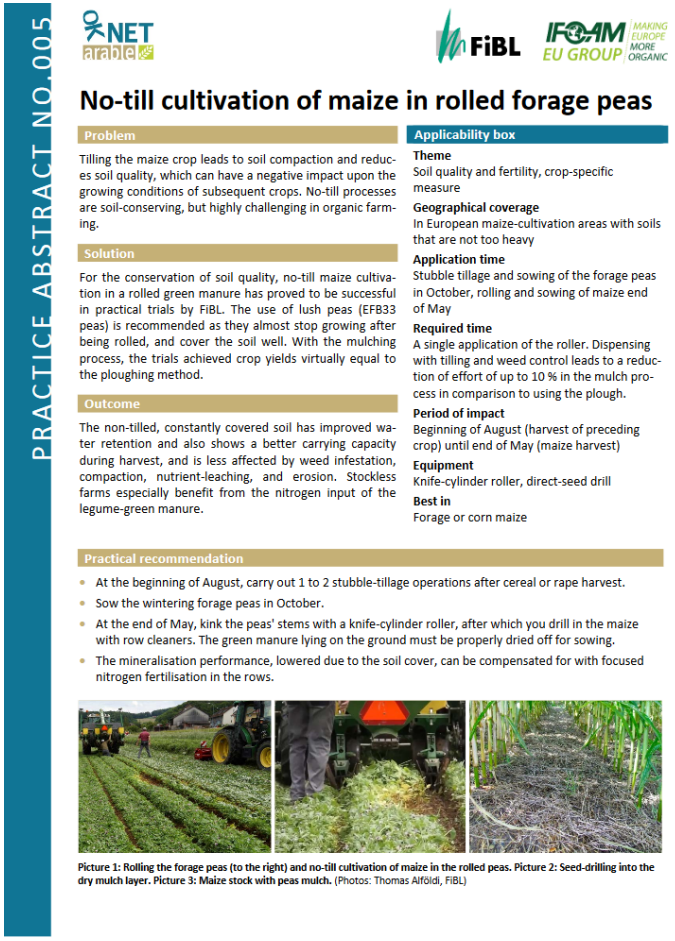
Infestation status	No infestation in the region (radius 50 km)	Infestation in the region	Infestation in neighbouring fields or your own field
Risk of leaf blight	low	moderate	high
Copper dosage	none	low 200-250 g	high 800 g

Figure 1: Recommended three-step strategy for the use of copper

Research Institute of Organic Agriculture FiBL. Reducing the use of copper in potatoes. OK-Net Arable Practice Abstract.

Tools by theme:
Weed management (45)

- Crop rotation and its ability to suppress perennial weeds
- Growing cover crops in organic arable crop rotations: best practices from Denmark
- Reduced Tillage
- Satellite based and camera-controlled steering systems
- Crop rotation and its ability to suppress perennial weeds
- Growing cover crops in organic arable crop rotations: Best practices from Denmark
- Diverse fertility building leys in arable rotations
- Controlling docks by stubble cultivation
- Winter field peas as green manure before maize
- Reducing weed seed pressure with the false seedbed technique
- Catch crop in maize
- No-till cultivation of maize in rolled forage peas
- Black-grass control in winter cereals with hoeing
- Weed control in soy with the finger weeder
- Control of creeping thistle by stubble cultivation
- How to successfully convert to organic arable farming
- Dock plant control (Use preventive possibilities)
- Breaking up green manures
- Intercropping grain peas with barley
- Mechanical Weed Control in Maize
- Direct Sowing of Maize
- Demonstration of Hoeing Machines in Arable Farming
- Destruction of Leys with Skim Ploughs and Flat (Grubber) Cultivators
- Root-weed control in organic agriculture
- Creeping thistle - Successful control in organic farming
- Knowledge exchange platform for agroecology
- Sort Out Your Soil: A practical guide to green manures
- Risk management for small grains
- Weed management on organic farms
- ECOPHYTOPIC – The portal for integrated crop protection of arable crops
- Weed control in organic farming through mechanical solutions
- Green manure and cover crops in organic agriculture: guide to the choice of the species
- Green manure and cover crops in organic agriculture: general introduction
- Mechanical weeding in arable crops
- Soil tillage
- Bringing the dirt to your doorstep: organic no-till weed management
- Tilman-org: videos on reduced tillage in organic farming



PRACTICE ABSTRACT NO.005

No-till cultivation of maize in rolled forage peas

Problem

Tilling the maize crop leads to soil compaction and reduces soil quality, which can have a negative impact upon the growing conditions of subsequent crops. No-till processes are soil-conserving, but highly challenging in organic farming.

Solution

For the conservation of soil quality, no-till maize cultivation in a rolled green manure has proved to be successful in practical trials by FiBL. The use of lush peas (EFB33 peas) is recommended as they almost stop growing after being rolled, and cover the soil well. With the mulching process, the trials achieved crop yields virtually equal to the ploughing method.

Outcome

The non-tilled, constantly covered soil has improved water retention and also shows a better carrying capacity during harvest, and is less affected by weed infestation, compaction, nutrient-leaching, and erosion. Stockless farms especially benefit from the nitrogen input of the legume-green manure.

Applicability box

Theme
Soil quality and fertility, crop-specific measure

Geographical coverage
In European maize-cultivation areas with soils that are not too heavy

Application time
Stubble tillage and sowing of the forage peas in October, rolling and sowing of maize end of May

Required time
A single application of the roller. Dispensing with tilling and weed control leads to a reduction of effort of up to 10 % in the mulch process in comparison to using the plough.

Period of impact
Beginning of August (harvest of preceding crop) until end of May (maize harvest)

Equipment
Knife-cylinder roller, direct-seed drill

Best in
Forage or corn maize

Practical recommendation

- At the beginning of August, carry out 1 to 2 stubble-tillage operations after cereal or rape harvest.
- Sow the wintering forage peas in October.
- At the end of May, kink the peas' stems with a knife-cylinder roller, after which you drill in the maize with row cleaners. The green manure lying on the ground must be properly dried off for sowing.
- The mineralisation performance, lowered due to the soil cover, can be compensated for with focused nitrogen fertilisation in the rows.

Picture 1: Rolling the forage peas (to the right) and no-till cultivation of maize in the rolled peas. Picture 2: Seed-drilling into the dry mulch layer. Picture 3: Maize stock with peas mulch. (Photos: Thomas Alföldi, FiBL)

Research Institute of Organic Agriculture FiBL. No-till cultivation of maize in rolled forage peas. OK-Net Arable Practice Abstract.

Tools by theme:
Crop specific (38)

- Crop rotation and its ability to suppress perennial weeds
- Efficient nitrogen use from livestock manure
- Reduced Tillage
- Crop management of linseed
- Satellite based and camera-controlled steering systems
- Crop rotation and its ability to suppress perennial weeds
- Efficient use of nitrogen from livestock manure
- Cultivating a diverse wheat population suitable for low-input and organic farming
- Rolling of grains to prevent winter kill damage
- Catch crop in maize
- No-till cultivation of maize in rolled forage peas
- Intercropping grain peas with barley
- Organic quality wheat production - Results of long-term field trials of cultivation and selection of varieties
- Organic cultivation in autumn 2016
- How to successfully convert to organic arable farming
- Potato Crop Management
- Dock plant control (Use preventive possibilities)
- Crop Management of Rapeseed and Pollen Beetle Control
- Breaking up green manures
- Processing Quality of Organic Wheat
- Intercropping grain peas with barley
- Mechanical Weed Control in Maize
- Direct Sowing of Maize
- Demonstration of Hoeing Machines in Arable Farming
- Control of wireworms in organic potato cultivation
- Destruction of Leys with Skim Ploughs and Flat (Grubber) Cultivators
- Organic farming Guidelines for pest and disease control and weed management in organic farming and crop-specific production recommendations
- A farmer's guide to organic fruit and vegetable production
- Organic Cereals
- Practical advice for organic production of lupines
- Oekolandbau.de: portal for organic plant production