National seminar

“Farmer researchers and organic agriculture – examples from Europe and lessons learned from CRAIIP”

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Climate resilient investigation and innovation project – South Sulawesi, West and Central Java
Outline

▪ Simple show: Why climate-resilient agriculture matters for Indonesia?
▪ Climate change impact on agriculture in Germany and Indonesia
▪ Benefits of organic agriculture
▪ Examples from Europe: Netherlands
▪ Adaptation practices in Indonesia
▪ Conclusion
Two main messages:

- Global temperature keeps rising
- CO2 concentration keeps rising

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Soil moisture
July 2018

Source: Copernicus
Organic olive grove with cover crops compared to a conventional grove with bare soil. Deifontes, Andalusia, Spain. 2008.

Picture source: IFOAM EU Group 2012: 17
Climate change and Agriculture

- Impacts CC = mitigation

- is impacted by CC = adaptation
  - impacts vary strongly per **region**
  - **water** is a key issue: water scarcity and drought, extreme precipitation events and waterlogging and flooding
  - increased weed, pest and disease **pressure**
  - extreme events cause **stress**
  - Increased **risk** in agricultural production

Source: FAOSTAT Indonesia

Source: IFOAM EU Group 2012
Adaptation = increased buffer capacity

1. Diversification (field, farm, beyond farm)
2. Reduction of financial risk by minimal external input
3. Increase resilience (by animal, soil and plant health)
4. Weather-based insurances...!? 

Source: Mueller et al 2012
Problem and solution:
What can a farmer do if the fields are getting more and more saline?
What can a farmer do if the fields are getting more and more saline?

Story of Farmer family van Wesemael

“Saline soil” = EC > 4 dS/m (Soil Science Society of America)
Here: 8 EC

Picture source: http://www.opdemariahoeve.nl/home
Sea cabbage (crambe maritima)

**Idea:** from white coast Dover

**Follow up:** Cooperation with University (analyse nutrients)

**Income:** Farmer family

- Price 120 €/kg (2 M IDR)
- $x 1500$ kg/season = 180,000€ or 2.9 billion IDR revenue

**Picture source:** own 19.09.2018
Sea cabbage production process

• 1st year: growing roots outside (550,000 roots)
• 2nd year: sprouts inside
• Harvest time: 8-11 AM
• 4 months, each day 12 kg

Picture source: https://www.gastropedia.nl/artikel/zeekool-crambe-maritima/
Saline Potatoes

- Smaller and harder than normal potatoes, yield lower
- Not salty!
- Sea Water is pumped from the sea and sprayed on potatoes
Zouttolerante aardappel binnen
Regionaal bod Proeftuin Zoet Water
Verslag van het volgen van aardappelrassen onder verschillende zoutregimes gedurende 2 groeiseizoenen

Juni 2017
Auteurs:
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In der Forschung: Science and farmer
What is the potential of Organic agriculture?
Growth of Organic Area

Organic acreage in Germany (ha)

Source: slide courtesy: BÖWL
German Organic Market: Topsellers

Source: slide courtesy: BÖWL
Organic Agriculture: Growing Demand – Stable Prices

Source: slide courtesy: BÖWL
Why does a farmer convert to organic agriculture?

Here is the Story of the farmer F.J.J. de Koning

„I changed because conventional prices were very low and farming was business as usual, no challenge, just follow what science advised“
Crop rotation
Healthy soil, living soil, good balance of nutrients

Champignon compost, horse and chicken manure, steamed at 70-120 degree C: high PH, high in organic matter
Healthy plant
Use of CO₂ from heating for plant growth
40 permanent and 60 seasonal labour from 20 countries
Processing and Marketing

25% Holland organic shops
17% organic shops Germany
68% supermarkets UK; Scandinavia, Germany
Direct marketing
How do farmers in Pangandaran/Cilacap and Toraja evaluate adaptation strategies?
Farming strategies of farmer researchers in Toraja

Source: own survey 2018
Farming strategies of farmer researchers in Pangandaran

Source: own survey 2018
Farming strategies of non-farmer researchers in Pangandaran

Farming strategies of non-farmer researchers in Toraja

Source: own survey 2018
Farmer researchers have better capacities to adapt to climate change compared to non-farmer researchers (CRAIIP).

Organic agriculture is widely known, accepted and most promising, say the farmers surveyed (CRAIIP).

Yields may be lower in organic agriculture, but can fetch premium prices if the farmer develops his or her own marketing channels (Holland examples).

Follow IFOAM principles: Health, Ecology, Fairness, Care through diversified system (Dutch Greenhouse).

Plant hygiene and healthy soils are very important, and can replace (bio) pesticides (Dutch greenhouse).

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Sources

- BOELW
- FAOSTAT