

AE-based systematic approach and solutions for farming efficiency & sustainability

Presentation prepared for
The National Foresight and Theory of Change Workshop
on Agroecology and Safe Food System

ASSET project, 12-13 Oct, 2022, Adonis Hotel Hanoi

Hoi Pham Van
CARES – Vietnam

Content

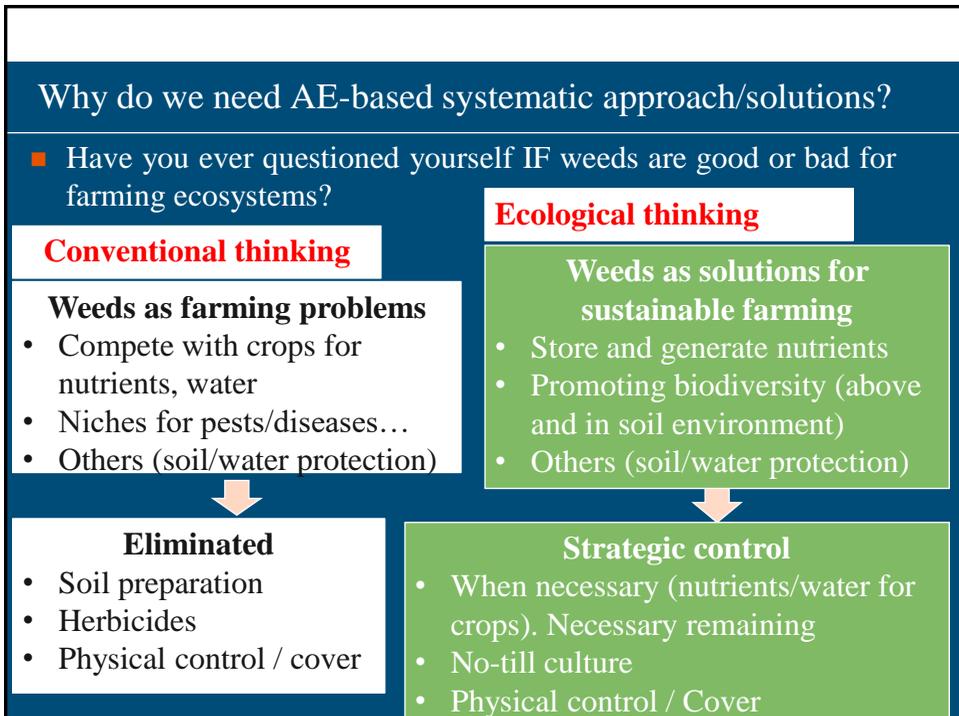
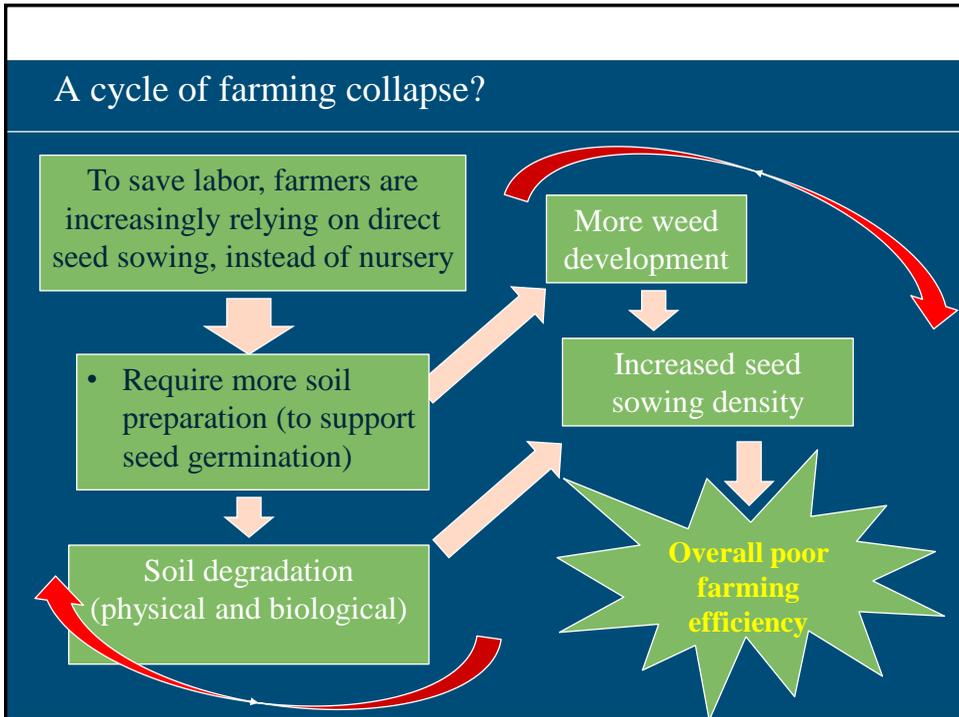
- Lessons learnt from PGS vegetables
- Why do we need AE-based systematic approach & solutions?
- Examples of AE-based solutions for PGS vegetable efficiency and sustainability

Lessons learnt from PGS farmers

- PGS organic vegetable production in Vietnam started in 2008 under ADDA supports. And in 2019, organic agriculture was officially institutionalized in Vietnam.
- So far, PGS can be recognized as the best quality control system (farmers pay twice to remain PGS as compared to Vnese organic certification).

Lessons learnt from PGS farmers

- However, PGS is not yet sustainable. Hindering factors include: low income, intensive labor demand (for production and post-harvesting practices), and aging farmers.
- These are being caused and/or exacerbated by poor existing farming practices, that could create a **Cycle of farming collapse**.
- Trac Van PGS team leader (Hanam province): we started PGS in 2013 with continuous application of organic compost – but soil is remained less improved (compacted, water logging under rains) → **high risk for summer vegetables**.



Why do we need systematic approach/solutions?

- Have you ever questioned yourself WHY do we need soil preparation?

Conventional thinking

Soil preparation as necessary farming practices

- Removing weeds
- Favoring seed germination and/or young plant growth
- Mixing / harnessing nutrients
- Redesigning farms (i.e., making soil beds).

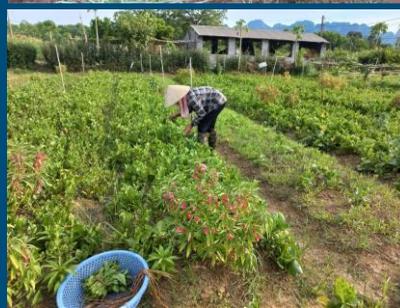
Ecological thinking

No-till culture as solution for sustainable farming

- Protecting & enriching soil (texture, organism communities, nutrient holding capacity...)
- Minimize weeds development (esp. stem multiplication).
- Saving costs

Keep in mind: in natural succession, soil fertility is kept improved overtime

Soil preparation - common farming practices



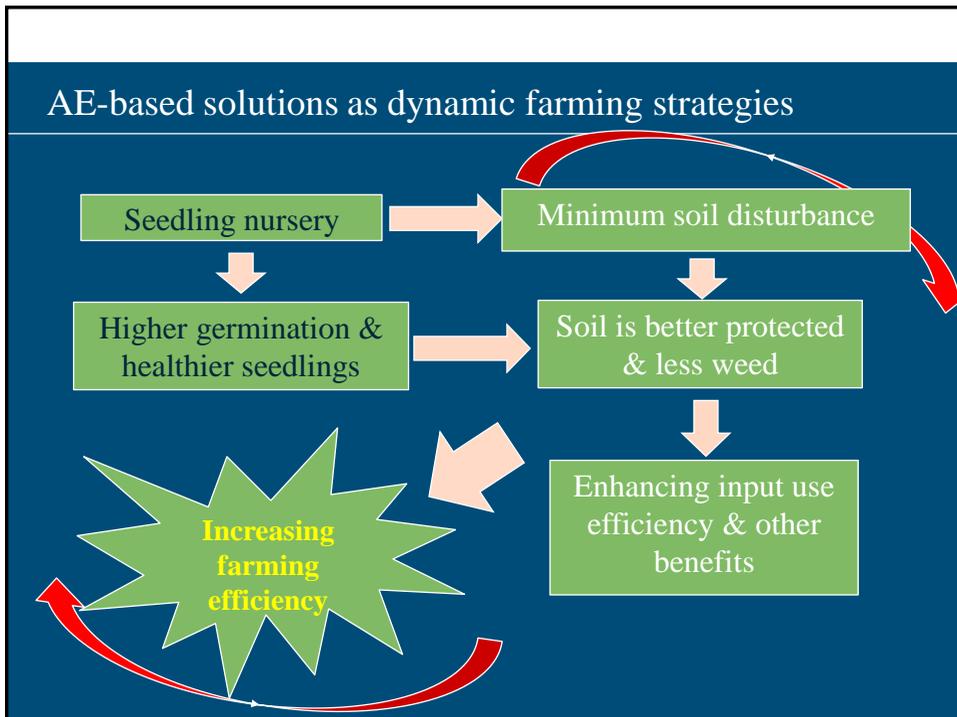
Why do we need AE-based systematic approach/solutions?

- What is underlying cause of the difference between conventional and AE thinking on weed and/or soil management?

Single (& short-term) target-oriented (i.e., crop productivity)
VS system-efficiency (mid & long-run) oriented.

Alternative thinking approaches?

- Certain single farming techniques can work for certain crop growth period/timing... **but probably not so** if we consider for all system and/or long-term. For instance:
 - Heavily soil preparation might somehow positively support seed germination and/or young plant growth, and harnessing soil nutrients, but then cause overall trouble for the farming efficiency / agroecosystem functions in mid- and long-run.
 - Weed clearance can help fostering crop development right after it is done, but in mid- and long-run, farming efficiency / agroecosystem functions are negatively affected (i.e., soil is compacted, biodiversity loss, reduced diversity of nutrients for crops...).



- AE-based solutions as dynamic farming strategies
- In existing PGS vegetables, higher market demand on summer season, but farmers often have to reduce vegetable growing (replaced by soil rehabilitation crops: maize, legume...) in the season because of labor demands for weed control (& hard working conditions).
 - Alternative farming strategy is: soil-rehabilitation crop shall be grown in **dry** and winter season with direct application of green or semi-composts:
 - To take advantage of high market demand in summers.
 - To save labor for composting, compost utilization, and even weed control.
 - To enrich soil microorganism community.

Conclusions

- Single farming techniques designed need to be framed on possible impacts on overall system.
- The utmost important solution for farming efficiency and sustainability is related to land protection and nurture.
- Agroecosystem is dynamic in nature → requires systematic & dynamic farming approaches for efficiency and sustainability (and framed by ecological keys).
- AE-based farming strategies are thus flexible & context-embedded through which farmers can get high farming efficiency whilst remain their farms with sustainability.