Conservation Agriculture as an agroecology approach

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Increasing challenges

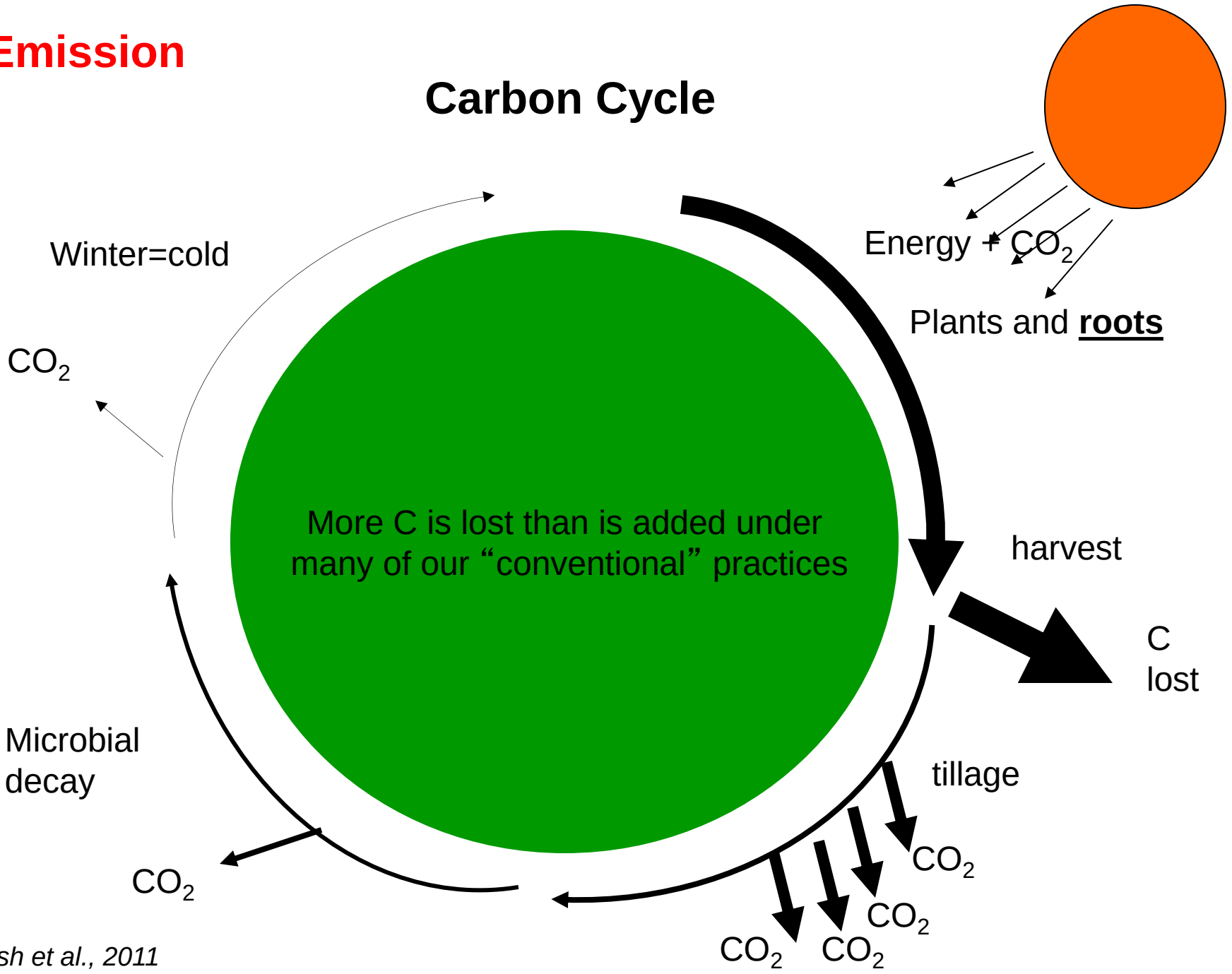
- Soil erosion
- Reduced land area for food production
- Climate change
- Yield reach the ceiling

Current situation

- Monoculture or reduced diversity
- Unsustainable intensification: bad impacts on the environments (emission, soil erosion, environment pollution…)
- Unseasonable and intensive exploitation of lands
- Low commodity values: poor quality of products…

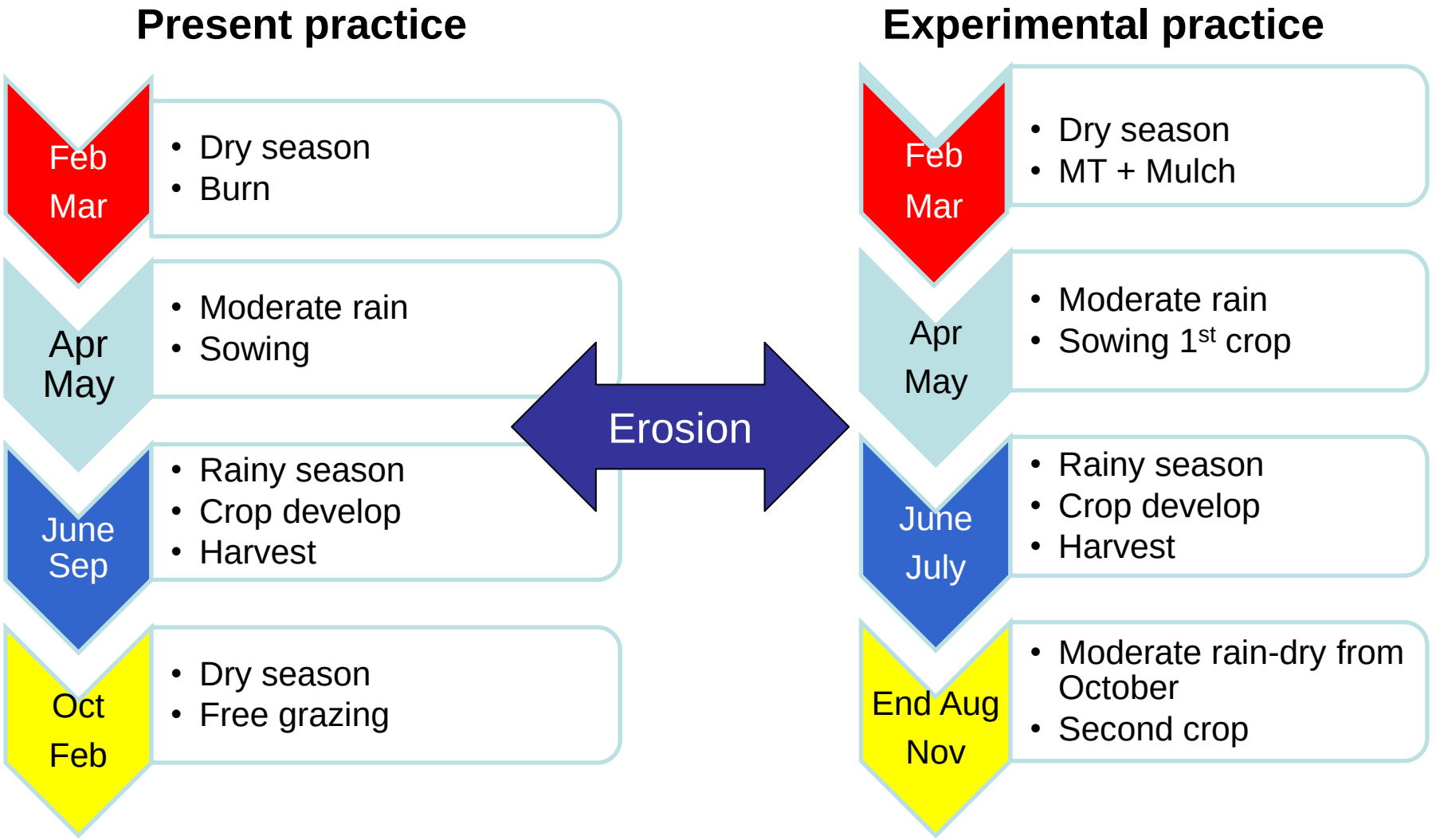
Emission

Carbon Cycle

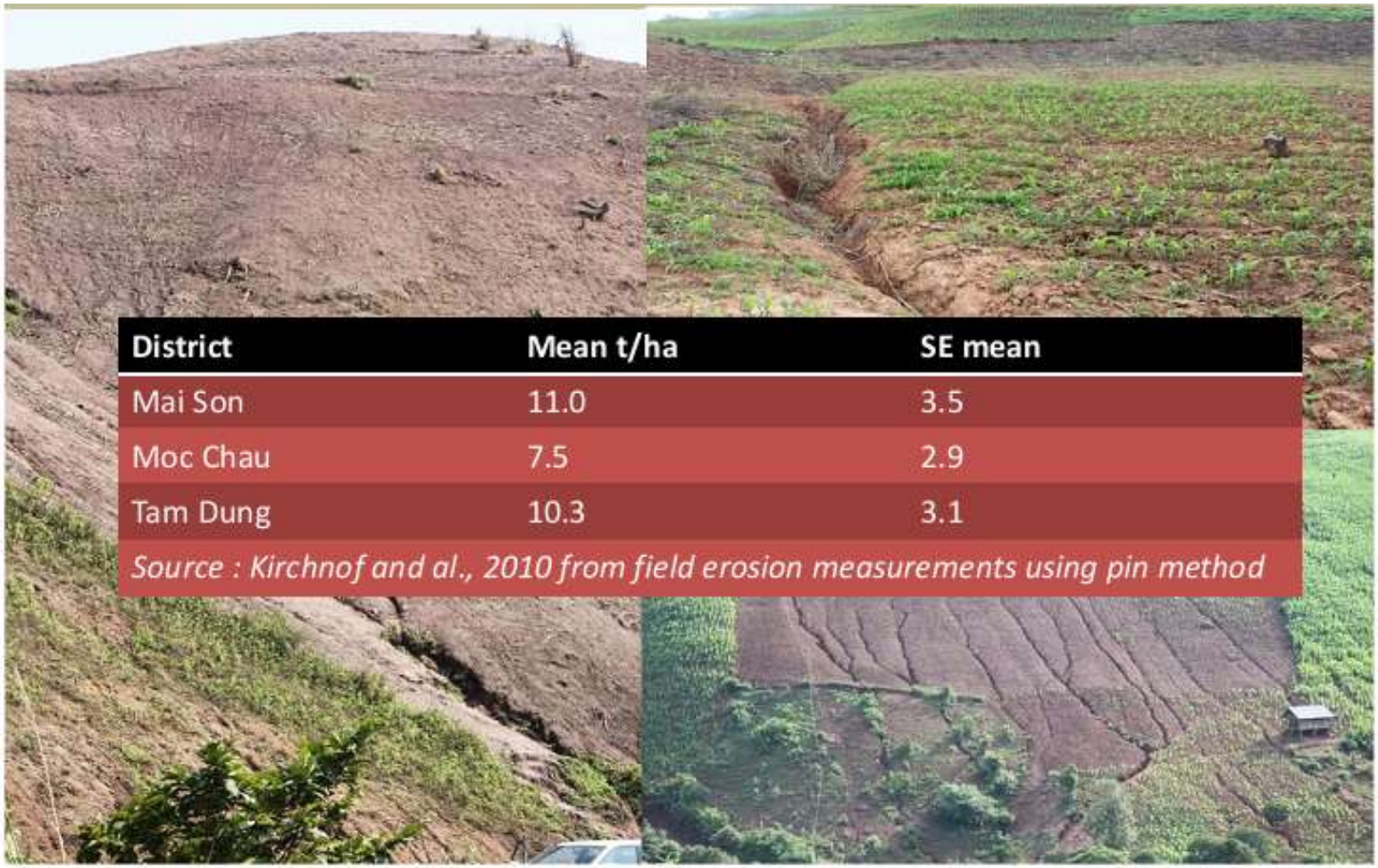


N.S. Eash et al., 2011

Soil erosion



Soil erosion in the NMR



District	Mean t/ha	SE mean
Mai Son	11.0	3.5
Moc Chau	7.5	2.9
Tam Dung	10.3	3.1

Source : Kirchnof and al., 2010 from field erosion measurements using pin method

D.Hauswirth., 2011

Conservation Agriculture

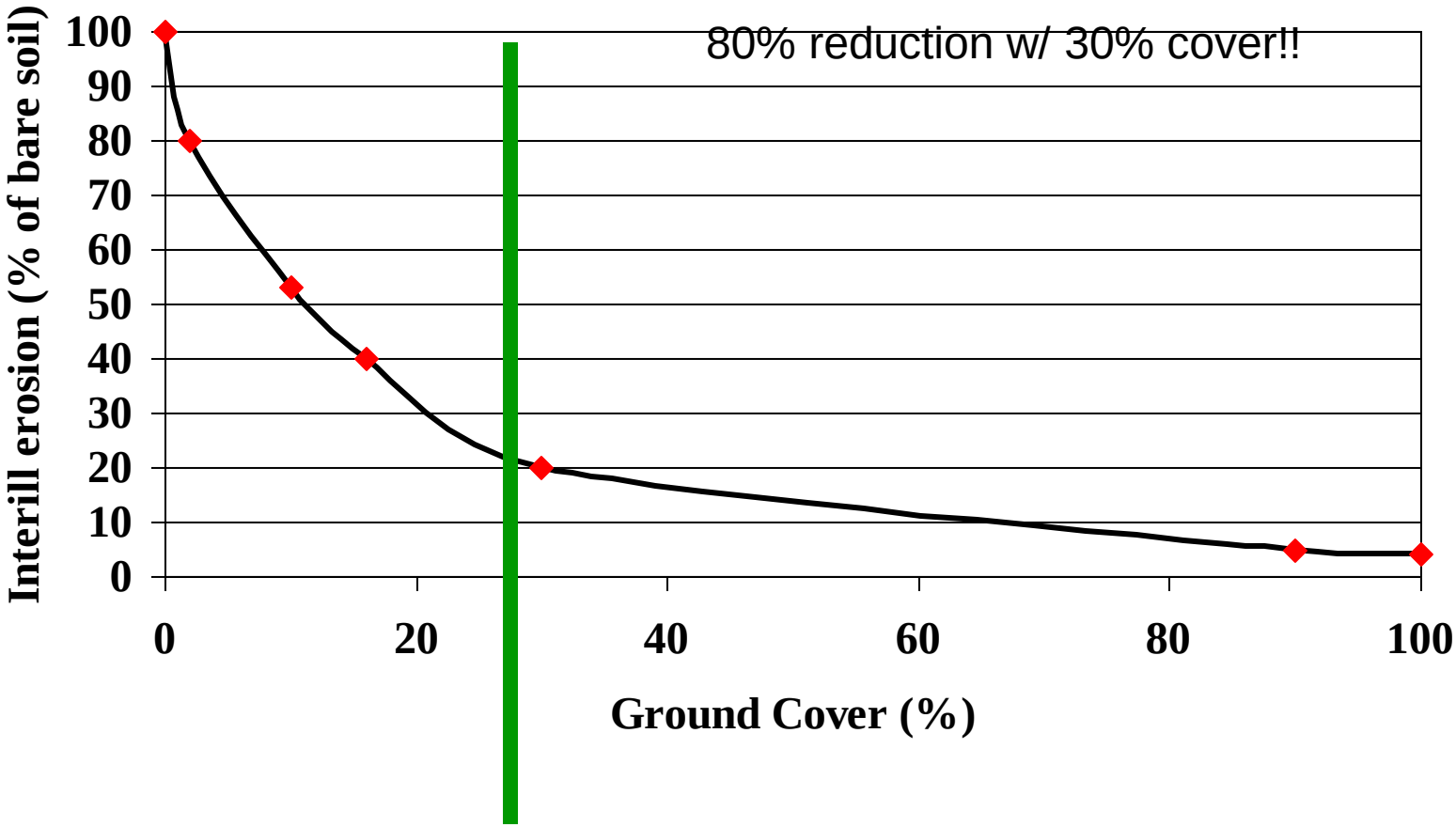
Resource-saving agricultural crop production that strives to achieve acceptable profits together with high and sustained production levels while concurrently conserving the environment. (First in USA as of the 1960s, and then in southern Brazil, Australia, Argentina and Canada as of the 1970s)

Three principles:

1. Continuous minimum mechanical soil disturbance (direct planting/seeding)
2. Permanent organic soil cover (crop residues and cover crops)
3. Diversification of crop species grown in sequences and/or associations.

From: : http://www.fao.org/ag/ca

Organic cover impact on soil erosion



From Brady and Weil, 2002

Problem facing farmers in adopting CA

- How to produce mulch materials?
- Appropriate tools/machines for direct seeding
- Others (labour, habit, cost-benefit etc.)

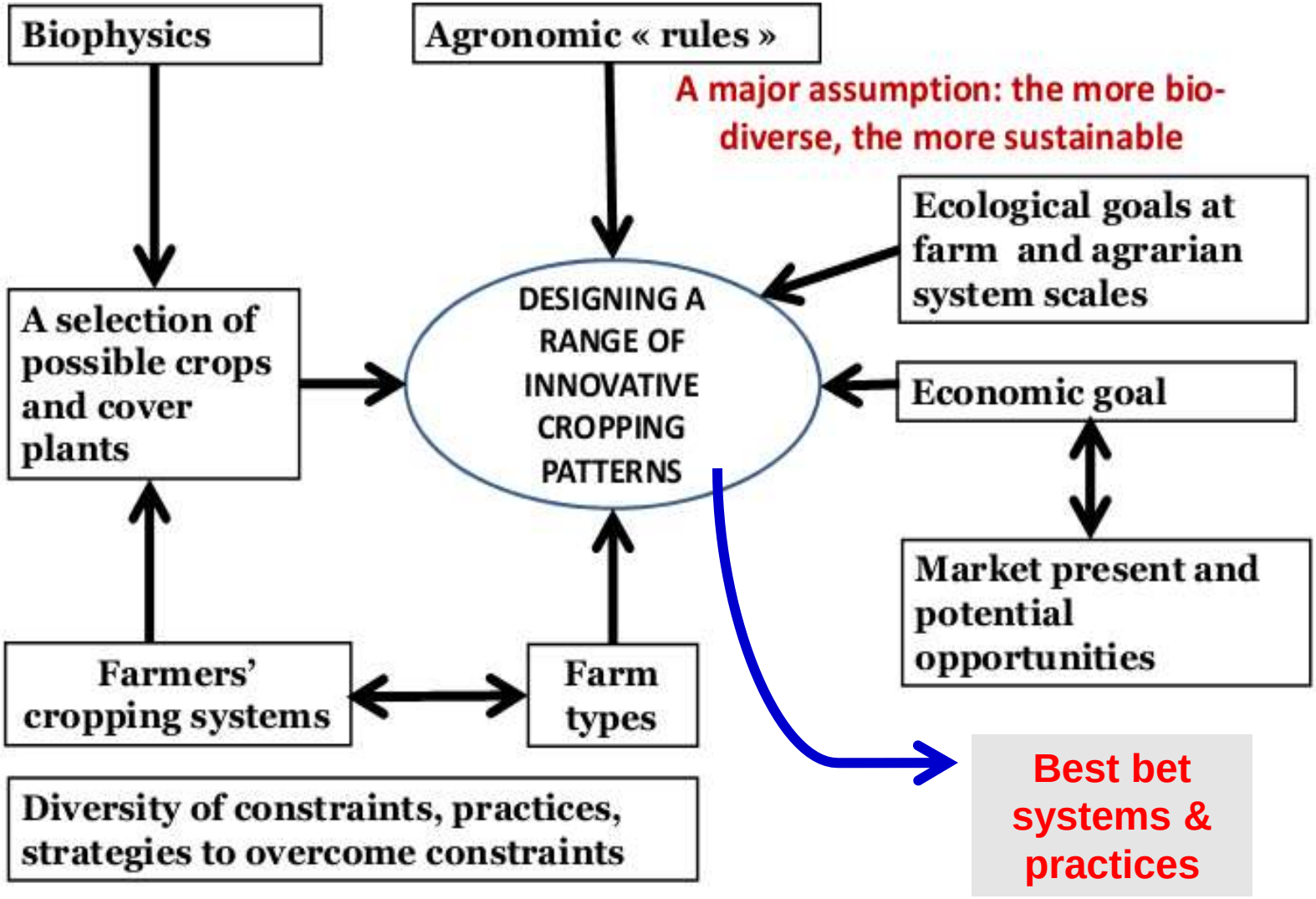

40 cm
100 cm
40 cm

CA efforts in VietNam

- CIRAD projects (SAM, ADAM): 1997
- ACIAR project (NW): 2011

1. Design practices and systems
2. Dessemination (Outreach strategy)

Participatory Approach of R4D



Metal model study

- **Scenario 1: Change to sustainable cultivation**

  Farmers change their practices toward a sustainable soil management system that has positive impacts on farmers' income and livelihood.

- **Scenario 2: Multinational Investment**

  Farmers sell degrading land to multinational company leading to under -employment in the long term. Farmers who thought they had a good deal after a few years spent all money and start to sell their labour

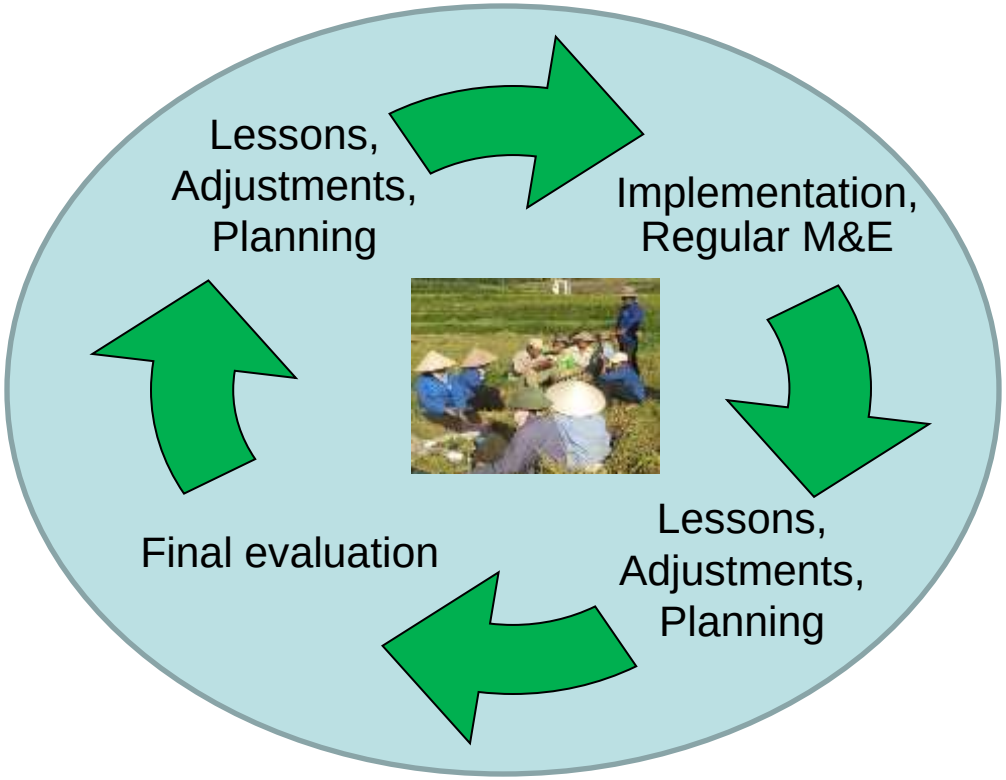
- **Scenario 3: No change**

  Projection of conditions over a 10 year period if unsustainable practices are not change and risks associated with that – including food security, education and flow on effects to livelihoods.

Creating different scenarios, open discussions with farmers

Methodology

- Participatory conduction of a serry of adaptive trials and demonstrations
- Participatory development and piloting of different outreach components
- Capacity building of core group of master trainers and facilitators



- Production of complementary materials and media:
  - Training manuals: technical and facilitation
  - Video modules
  - Leaflets

Adaptive and/or partial CA

- No-burning
- Reduced tillage
- Intercrops
- Alley cropping
- Contour farming
- Second crops

Different levels and means of reduced soil disturbance

Different cover/inter/relay - crops:

- **Intercrops**
- **Relay crops**
- **Crop rotation**

Plus băng cỏ


THANK YOU