

Farming Practices

Applied in Welthungerhilfe-Lashio

Contributing to

Sustainable Agriculture

Sustainable agriculture

- **The production of**
- **food, fiber, or other plant or animal products**
- **using farming techniques**
- **that protect the environment,**
- **public health,**
- **human communities,**
- **and animal welfare.**

Sustainable farms

- **produce crops and raise animals**
- **without relying on**
- **toxic chemical pesticides,**
- **synthetic fertilizers,**
- **genetically modified seeds,**
- **practices that degrade**
- **soil, water, or other natural resources.**

- **Sustainable farming allows farmers**
- **to transform their farms into giant recycling centers.**
- **They can turn crop waste and animal manure into fertilizers,**
- **use crop rotation to enrich the soil and**
- **reroute rainwater to fuel the irrigation system.**
- **Not only does this save money,**
- **But it also conserves natural resources.**

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Conservation Agriculture

- ❖ “A concept for
- ❖ resource-saving agricultural crop production
- ❖ that strives to achieve acceptable profits
- ❖ together with high and sustained production levels
- ❖ while concurrently conserving the environment”
(FAO 2007).

- ❖ **CA is characterized by**
- ❖ **three sets of practice**
- ❖ **which are linked to each other**
- ❖ **in a mutually reinforcing manner, namely:**

- 1. Continuous no- or minimal mechanical soil disturbance (direct sowing or broadcasting of crop seeds, and direct placing of planting material in the soil)
minimum soil disturbance from cultivation, harvest operation or farm traffic**
- 2. Permanent organic matter soil cover, especially by crop residues and cover crops;**
- 3. diversified crop rotations in the case of annual crops of plant associations in case of perennial crops, including legumes.**



A farmer practicing mulching by crop residue after corn harvest

No tillage, perfect mulching



No ploughing



Mix-cropping of corn & soybean



Rotation of garden pea following corn



Mulching effect on crop growth



Mulched and traditional tilled



No mulched at the front and mulched at the back with the same date of sowing



Residual action of mulching in next cropping season with no mulching in that season

- **Area of arable cropland under CA by continent**

- (source: Kassam et al., 2014; FAO AquaStat: www.fao.org/ag/ca/6c.html)

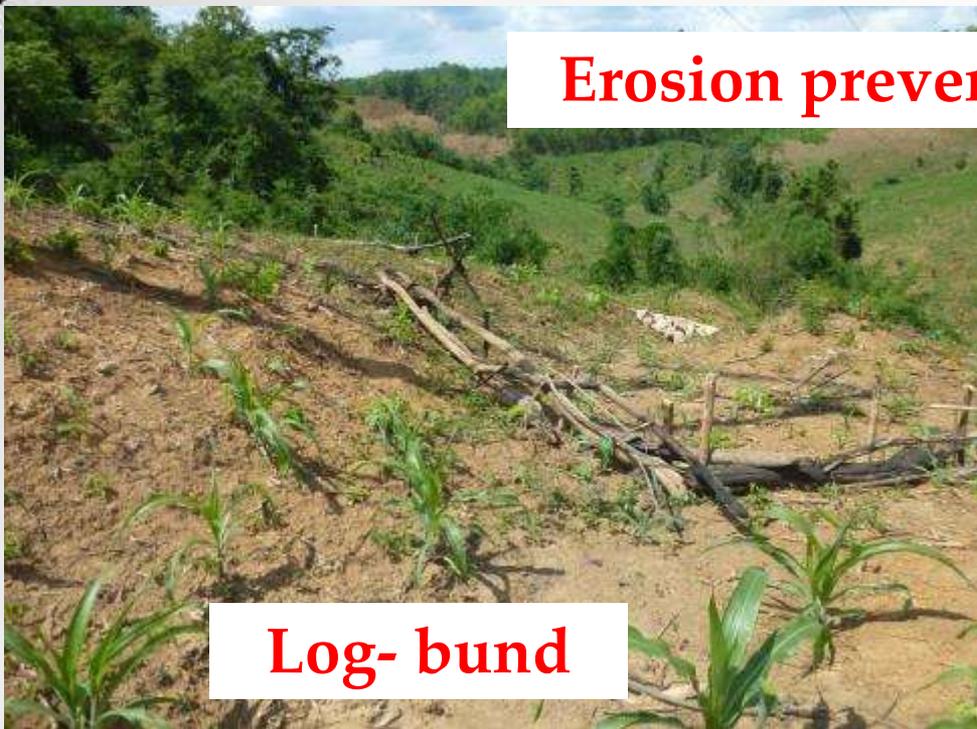
| Continent | Area (Mill. Hec.) | % of (Global Tot.) | % of arable land of reporting country |
|---------------------|----------------------|-----------------------|---|
| 1. S. America | 64.0 | 41.3 | 60.0 |
| 2. N. America | 54.0 | 34.8 | 24.0 |
| 3. Aust. & N.Z | 17.9 | 11.5 | 35.9 |
| 4. Asia | 10.3 | 6.6 | 3.0 |
| Russia & Ukr. | 5.2 | 3.4 | 3.3 |
| 5. Europe | 2.1 | 1.4 | 2.8 |
| 6. Africa | 1.2 | 0.8 | 0.9 |
| Global Total | 155 | 100 | 10.9 8.8% of Global arable |

Sloping Land Management practice

- ❖ a system in which dense hedgerows of fast growing
- ❖ perennial nitrogen-fixing tree or shrub species
- ❖ planted along contour lines
- ❖ thus creating a living barrier
- ❖ that traps sediments and
- ❖ gradually transforms
- ❖ the sloping land to terraced land.

- ❖ **a technology package of**
- ❖ **soil conservation and food production**
- ❖ **that integrates several soil conservation measures.**

Erosion prevention measures



Log- bund



Stone-bund



Check-dam



Check-dam

Slope before any of soil prevention measures -16.5.13



Established contour bunds - 5.6.14



10.10.14 Corn growing in the allies of hedgerows



Pineapple grown along the contours



Bare slope land in Pan Phat 5.5.13



7.7.13 Contour hedge row with pigeon pea; maize along the contours



Pigeon pea, and pineapple hedge row, July, 2014



Gliricidia hedge row, October 2014



Seen in July, 2014



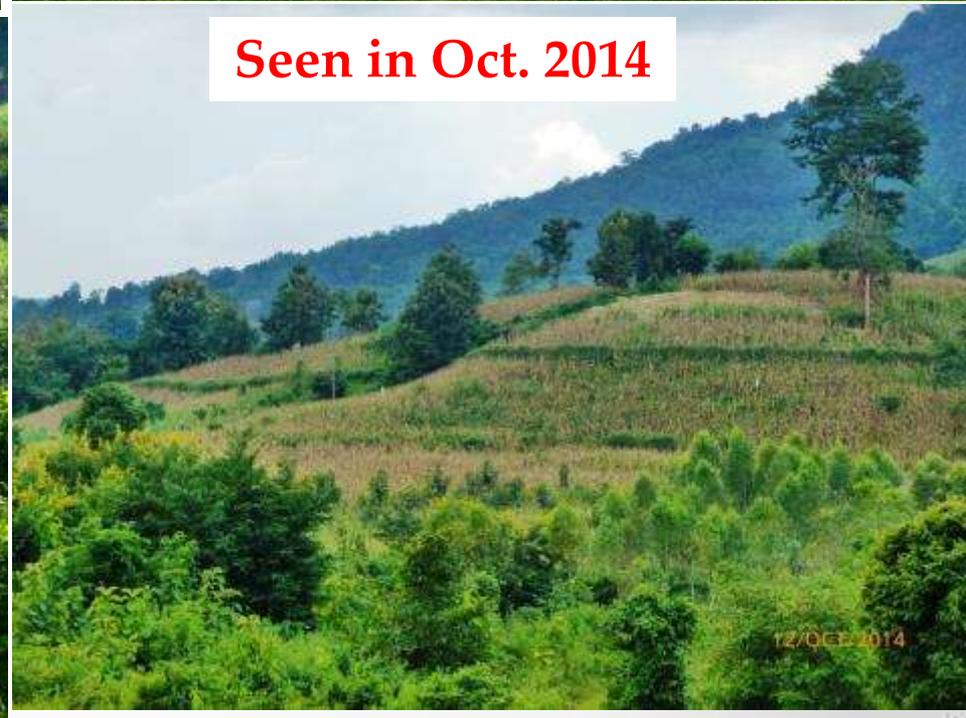
Seen in July, 2014



Seen in Sept. 2014



Seen in Oct. 2014



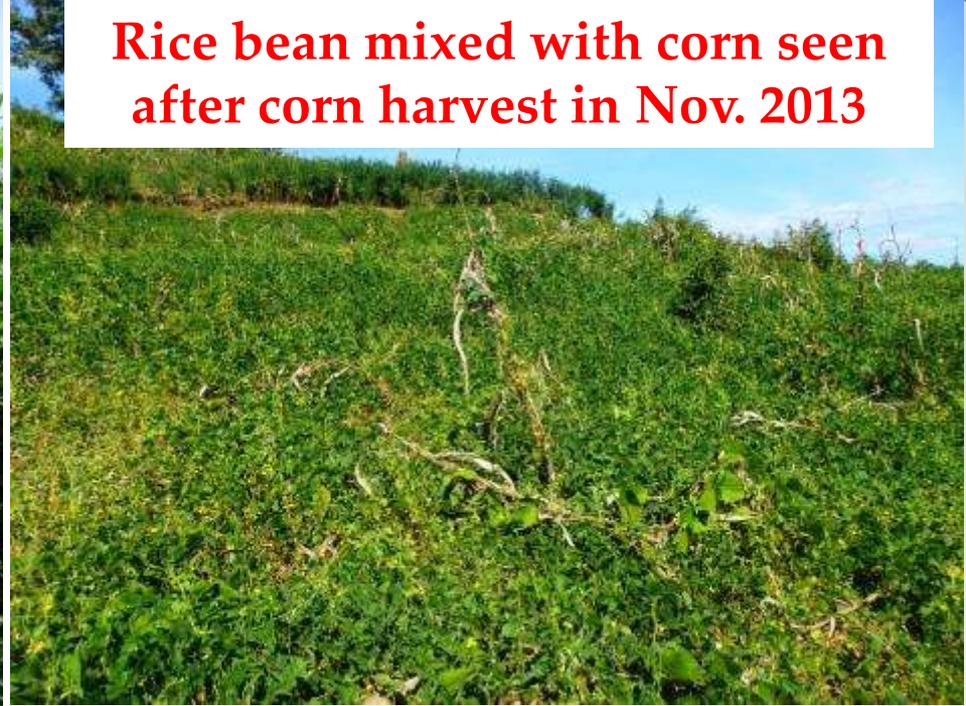
Promotion of Rice Bean growing

- ❖ **a neglected crop**
- ❖ **cultivated on small areas by subsistence farmers**
- ❖ **in hilly areas of Northern Shan**
- ❖ **grow in diverse conditions**
- ❖ **well known among farmers for its wide adaptation and production even in marginal lands**
- ❖ **drought-prone sloping areas**
- ❖ **rice bean is called as Palaung-Pe, and**
- ❖ **Paung-Naing-Pe (weed suppressing bean)**
- ❖ **sowing time can be from April–May to September**

Rice bean and pigeon pea hedge row seen in Nov. 2013-Panphat



Rice bean mixed with corn seen after corn harvest in Nov. 2013



Rice bean can suppress weed growth



Rice bean growing well on hill sides



System of Rice Intensification – SRI

- developed by Fr. Henri de Laulanié, S.J.,
- in the early 1980s in Madagascar,
- after 20 years of working with farmers
- to assess and learn from their rice-growing practices.
- particularly accessible to and beneficial for the poor
- maximum benefit from their limited land, labor, water and capital.
- can be adapted and used with *any scale of production*,
- from small-scale to large-scale.



Young seedling age for transplanting

ဝေါင်းမြတ်နို့စ်နှင်းခြင်း



- Weeding by rotary weeders, only possible in plots sown in lines •



Paddy plot seen after one month of trasplanting



● **Panicles seen at near harvest** ●

Promotion of Direct Seeded Rice – DSR

- ❖ a resource conserving technology**
- ❖ no need to raise nursery beds**
- ❖ reduces money, labor, time, and other input resources.**
- ❖ no need to transplant the seedlings**
- ❖ Escape from transplanting shocks and root damages**



26.7.14-Paddy sowing by direct seeding



11.8.14-After 16 days



14.8.14-Weeding by rotary weeder



30.10.14-Ripening stage



Farmers Training



Practical demonstration



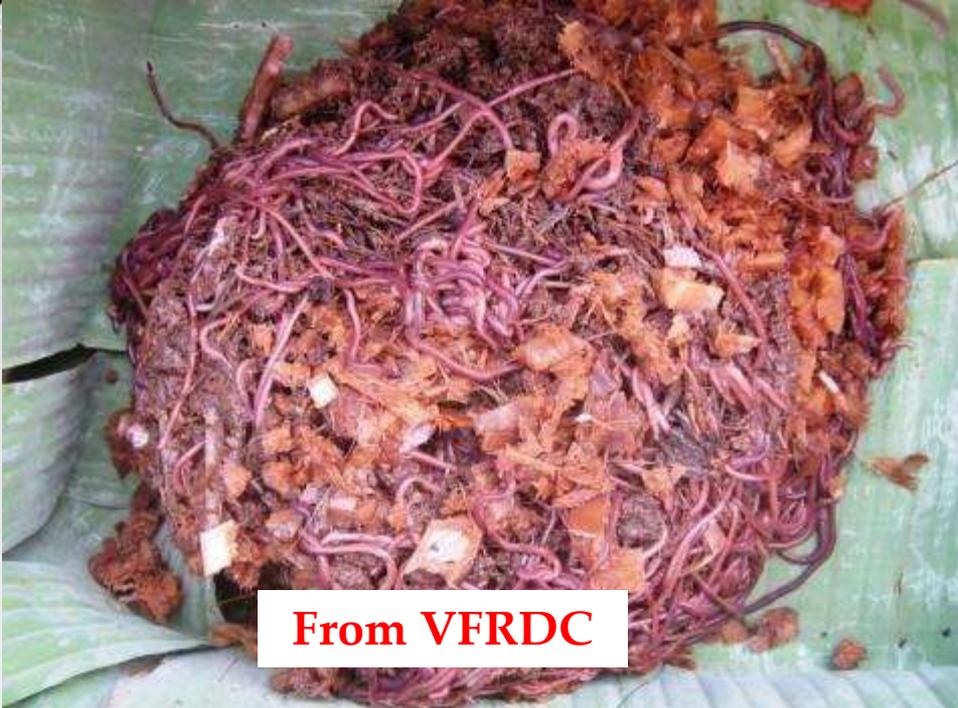
Let them practice



DSR field day

Vermicomposting

- ❖ worm composting
- ❖ simple technology
- ❖ converting biodegradable waste into organic manure
- ❖ with the help of earthworms (the red worm *Eisenia foetida*)
- ❖ fast production of compost.



From VFRDC



29.4.10 Worm introduction in the tank full of feed stuff



29.4.10 Worm introduction in the tank full of feed stuff



6.7.10 Vermicompost ready to be used

Highly breeding of worms



Collecting vermicompost, sorting worms



Vermicompost bags to apply in the field



Liquid vermicompost



Sustainability

- ❖ **Meeting the needs of present generation**
- ❖ **without compromising the needs for future generation.**

When all the trees have been cut down,

When all the animals have been hunted,

When all the waters are polluted,

When all the air is unsafe to breath,

Only then will you know

**You can not eat the Money... (Cree
Prophecy)**

**Thank You
for your patience**