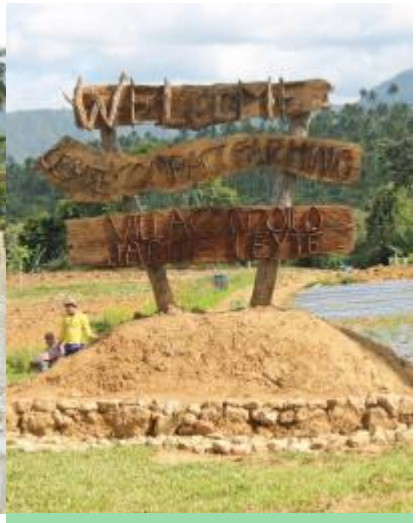


Compact Farming for Vegetables Production

Philippines

Landusers are organized into a group or association to undertake jointly activities in the farm which include operation, input procurement, and marketing of produced crops.

Compact farming in Brgy. Villaconzoilo was started by the barangay captain Mr. Alex O. Aborita wherein parcels of lands were acquired for the association to utilize. He organized the Villaconzoilo farmers' group also known as the Compact Farming Agriculture Cooperative where he introduced new technologies to improve the farming system of the community. Farmers cultivate vegetable on a contract growing scheme. Some of the farm practices consist of growing vegetables and fruits using indigenous organic materials as soil conditioner and livestock raising. Vegetables and fruits are cultivated in divided parts but in the same area.
Compact farming was organized to enhance group interactions and leadership among members of the association.The aim of the landusers in growing organic vegetables is to revive and sustain soil fertility and maximize waste management practice. Marigold was also planted in between plots within the farm to prevent and control insect and pest manifestation. Landusers in the barangay were empowered through farming and conservation of the forest area. Through this technology, marketability and available markets for the produced commodities were increased. The association received numerous award in the regional and provincial level because of their demonstration of a productive and profitable farming system in the upland area.
It started in 2011 with 18 farmers investing 1000 pesos (22 dollars) each to buy initial inputs such as land, seeds and fertilizer. The area was cleared for agricultural activities. Produced are high value crops such as tomatoes, lettuce, pechay, cabbage, carrots, beans, broccoli, cucumber, and radish. These are sold not only in Jaro but also in the neighbouring municipalities and big markets in Leyte. The barangay was dubbed as the "Vegetable Basket" and the "Watermelon Queen" because of their production.
Activities in the farm such as plowing, harrowing, establishment of plots, fertilizer application, transplanting, watering, spraying and harvesting are done in a rotational basis among members of the association.
Most of the farmers cultivated one parcel with size ranging from 1000-2000 square meters. Land ownership and land use right is communal. The farm production is managed by the cooperative composed of small scale land users. Members of the association are enganged in off-farm activities such as hunting and hired labor for additional income. The municipality of Jaro, Leyte has a type A modified climatic classification with an average monthly rainfall of 1000 to 1500 mm. Typhoons that usually come in October or November is very destructive to any standing crop. These factors discourage farmers to apply external inputs like fertilizer. The municipality has mostly acidic soil type with pH ranging 4.8 to 5.6.

left: Planting area for the vegetables produced. (Photo: Engr. Djolly Ma. P. Dinamling)
right: Vegetable Compact Farming (Photo: Engr. Djolly Ma. P. Dinamling)

Location: Barangay Villaconzoilo
Region: Jaro, Leyte
Technology area: 0.08 km^2
Conservation measure: agronomic
Stage of intervention: mitigation / reduction of land degradation
Origin: Developed through land user`s initiative, recent (<10 years ago)
Land use type:
Cropland: Annual cropping
Land use:
Mixed: Agroforestry (before), Cropland: Annual cropping (after)
Climate: humid, tropics
WOCAT database reference: T_PHI060en
Related approach:
Compiled by: Philippine Overview of Conservation Approaches and Technologies, Bureau of Soils and Water Management
Date: 2016-03-18
Contact person: Dr. Pastor Garcia, Visayas State University, Baybay, Leyte, pstgrc@yahoo.com

Classification

Land use problems:

- low soil fertility, nutrient imbalance (expert's point of view)

Land use

Annual cropping
Mixed: Agroforestry (before)
Cropland: Annual cropping (after)
mixed rainfed - irrigated

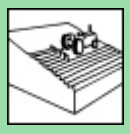
Climate

humid

Degradation

Chemical soil deterioration: fertility decline and reduced organic matter content, acidification

Conservation measure



Agronomic: Organic matter / soil fertility
Agronomic: Vegetation/soil cover

Stage of intervention

- Prevention
- Mitigation / Reduction
- Rehabilitation

Origin

- Land users initiative: recent (<10 years ago)
- Experiments / Research
- Externally introduced

Level of technical knowledge

- Agricultural advisor
- Land user

Main causes of land degradation:
Direct causes - Human induced: soil management, crop management (annual, perennial, tree/shrub)

Main technical functions:
- increase in organic matter

Secondary technical functions:
- increase in nutrient availability (supply, recycling,...)

Environment

Natural Environment

Average annual rainfall (mm)

- > 4000 mm
- 3000-4000 mm
- 2000-3000 mm
- 1500-2000 mm
- 1000-1500 mm
- 750-1000 mm
- 500-750 mm
- 250-500 mm
- < 250 mm

Altitude (m a.s.l.)

- > 4000
- 3000-4000
- 2500-3000
- 2000-2500
- 1500-2000
- 1000-1500
- 500-1000
- 100-500
- <100

Landform

- plateau / plains
- ridges
- mountain slopes
- hill slopes
- footslopes
- valley floors

Slope (%)

- flat
- gentle
- moderate
- rolling
- hilly
- steep
- very steep

Soil depth (cm)

- 0-20
- 20-50
- 50-80
- 80-120
- >120

Growing season(s): (growing of vegetables throughout the yr.)
Soil texture: medium (loam)
Soil fertility: medium
Topsoil organic matter: medium (1-3%)
Soil drainage/infiltration: good

Soil water storage capacity: medium
Ground water table: 5 - 50 m
Availability of surface water: medium
Water quality: good drinking water
Biodiversity: high

Tolerant of climatic extremes: temperature increase
Sensitive to climatic extremes: seasonal rainfall increase, heavy rainfall events (intensities and amount)

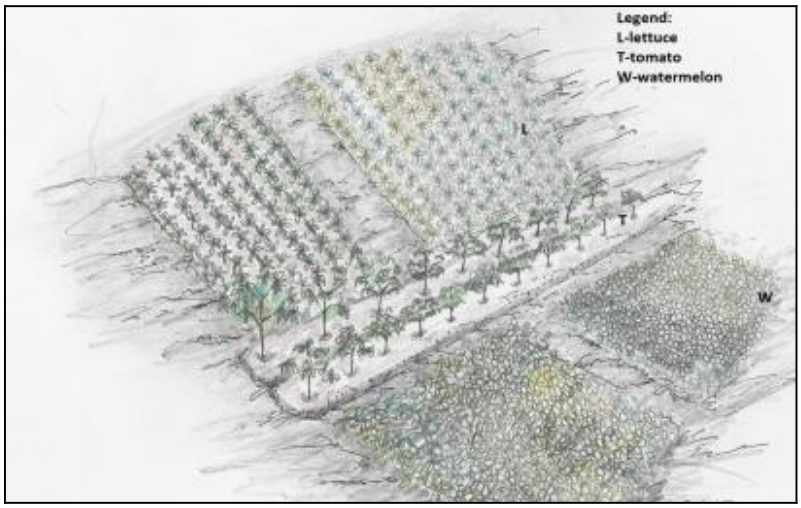
Human Environment

Cropland per household (ha)

- <0.5
- 0.5-1
- 1-2
- 2-5
- 5-15
- 15-50
- 50-100
- 100-500
- 500-1,000
- 1,000-10,000
- >10,000

Land user: cooperative, Small scale land users, common / average land users, men and women
Population density: 10-50 persons/km2
Annual population growth: < 0.5%
Land ownership: communal / village
Land use rights: communal (organised)
Water use rights: open access (unorganised)
Relative level of wealth: rich, which represents 20% of the land users; 20% of the total area is owned by rich land users

Importance of off-farm income: less than 10% of all income:
Access to service and infrastructure: low: health, education, employment (eg off-farm), market, roads & transport, financial services; moderate: technical assistance, energy, drinking water and sanitation
Market orientation: commercial / market
Mechanization: manual labour
Livestock grazing on cropland:



Technical drawing

Tomato, watermelon and lettuce planted in the compact farm of the association. (Mr. Patricio A. Yambot)

Implementation activities, inputs and costs

Establishment activities

- Clearing of the area

Establishment inputs and costs per ha

Inputs	Costs (US$)	% met by land user
Labour	222.22	%
TOTAL	**222.22**	**%**

Maintenance/recurrent activities

- Plowing
- Harrowing
- Establishment of Plots
- Organic Fertilizer Application
- Transplanting
- Watering
- Spraying of botanical pesticide
- Harvesting

Maintenance/recurrent inputs and costs per ha per year

Inputs	Costs (US$)	% met by land user
Labour	243.32	100%
Agricultural		
- seedlings	111.11	100%
- fertilizer	55.56	100%
TOTAL	**409.99**	**100.00%**

Remarks:

Assessment

Impacts of the Technology

Production and socio-economic benefits

+++ increased crop yield
+++ increased animal production
+++ reduced risk of production failure
+++ reduced expenses on agricultural inputs
+++ increased farm income
+++ diversification of income sources
+++ increased product diversification

Production and socio-economic disadvantages

++ increased labour constraints

Socio-cultural benefits

+++ improved cultural opportunities
+++ increased recreational opportunities
+++ community institution strengthening

Socio-cultural disadvantages

Ecological benefits

++ increased soil moisture
++ improved soil cover
++ increased / maintained habitat diversity

Ecological disadvantages

Off-site benefits

++ reduced downstream flooding
++ reduced downstream siltation
++ reduced damage on neighbours fields

Off-site disadvantages

Contribution to human well-being / livelihoods

+++ Through the technology, the income of landusers were increased since agriculture is the main source of income for the families in the community.

Benefits /costs according to land user

Benefits compared with costs	short-term:	long-term:
Establishment	neutral / balanced	positive
Maintenance / recurrent	neutral / balanced	positive

The total asset of the cooperative is worth 2o million after five years of starting the technology.

Acceptance / adoption:

100% of land user families (38 families; 100% of area) have implemented the technology voluntary.
There is strong trend towards (growing) spontaneous adoption of the technology. Most of the landusers in the community are encouraged to join because of the benefits that the members could gain. Members are paid higher in terms of wages compared to non-members.

Concluding statements

Strengths and → how to sustain/improve	Weaknesses and → how to overcome
Strong leadership and knowledge on farming of the barangay captain Mr. Alex O. Arborito who encouraged the landusers to invest and join the cooperative. →	Lack of irrigation system that could be utilize during dry season → Provision of solar pump project to ensure continuity of water supply to irrigate crops during dry season.
The area was opened for ecological tourism and as training sites for agricultural technicians/workers, on the job training's for students from the university to experience first hand the farming system of the cooperative. → Delineate specific areas only for training grounds as not to disrupt activities in the whole farm area.	
Landusers of the cooperative were empowered through their knowledge in growing crops and raising livestock. Their income were increased due to the diversified high value vegetables planted within the farm. → Provision of trainings by the government for the landusers in the cooperative on proper packaging of the fresh vegetables, and secondary processing of crops to increase their market value.	