



Climate Resilient Agriculture Practices Investment Prioritization

Investment Prioritization for Region XI: Davao Region on Intercropping

Overview

Davao Region is blessed with good climate as it experiences Types II and IV climate and lies outside the typhoon belt. Rainfall ranges from 1,673.3 mm to 1,941.8mm while average temperature ranges from 28° C to 29°C.

However, like any other regions, it is vulnerable to floodings, droughts, temperature rises, and abnormal increases in rainfall. Davao del Norte and Compostela Valley are at very high risk for temperature change and flooding. Davao Oriental is at high risk for El Niño-induced droughts or abnormal increase in rainfall. Davao del Sur and Davao Occidental are at very high risk for El Niño-induced droughts or abnormal increase in rainfall.

Apparently, this climate variability affects the region's agricultural production like cacao, banana, coconut, rice, corn, and many others. Hence, losses in soil fertility, reduction in yield and income, and increased incidence of pests and diseases are experienced by farmers in the region.

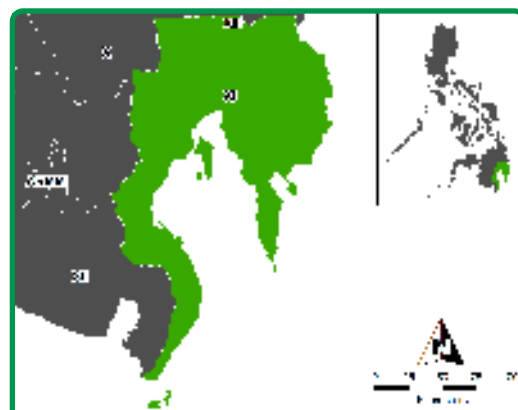
Some of the common agricultural production practices are multiple cropping, crop rotation, contour farming, and monocropping.

Prioritized Climate Resilient Agriculture (CRA) Practice

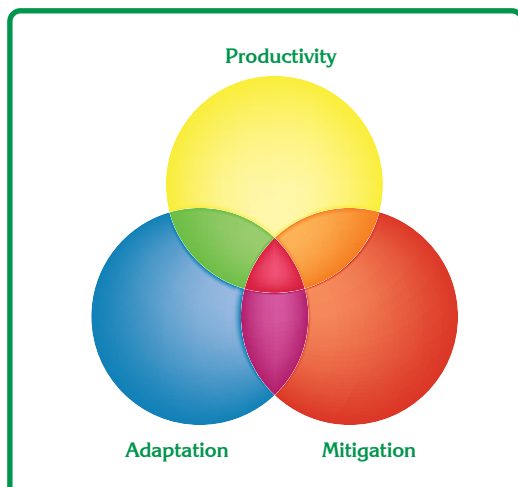
Intercropping is the cultivation of two or more crops simultaneously on the same field. It is a type of multiple cropping system where farmers manage more than one crop at a time in the same field. Some of the commonly intercropped commodities in the region are coconuts with fruit trees, bananas and/or legumes, cacao under coconuts and/or other fruit trees.

This CRA practice is one of the ways to reduce soil erosion and surface run-off hence protecting the topsoil. Intercropping also utilizes the farm area efficiently resulting to potential increase in total production and farm profitability. It reduces plant diseases and attracts more beneficial insects resulting to reduced insect pest population because of the diversity of the crops grown. Thus, intercropping maximizes land use potential and labor, and payback period in less time.

Davao region ranks first in the production of coconuts, cacao, durian, and banana. Some farmers are already practicing multiple cropping. However, some are still practice the monocropping. Hence, intercropping cacao with the established bearing coconuts are considered as priority climate resilient agriculture practice in the region.



Davao Region is located in the Southeastern portion of the island of Mindanao surrounding the Davao Gulf. It is composed of Compostela Valley, Davao del Norte, Davao del Sur, Davao Oriental and Davao Occidental.



Practices are considered CRA if they enhance productivity and at least one other objective of CRA (adaptation and/or mitigation). The CRA pillar (diagram shown) was used as basis for the prioritization of the CRA practices in all regions.

Data Gathering Methodology

The data were gathered through Key Informant Interviews (KII), literature reviews, opinions of experts, and survey among the farmers who practice intercropping as identified climate resilient agriculture practice of the region. Coordination with the Department of Agriculture personnel was done in reaching the prospect respondents. Municipal Agriculturists and Agricultural Technicians were also invited during workshops and interviews. Twenty-five farmers who practiced intercropping and three farmers using monocropping as conventional method were interviewed.

Results

Based on the current and predicted real prices of intercropping cacao in established coconuts, it was found out that profitability of intercropping the two crops could potentially increase profit as indicated in the net present value (NPV) of Php623,305.43 (USD 12,791) and an internal rate of return (IRR) of 40 percent which is higher than the discount rate of 7 percent. Investment is expected to be recovered in 6 years.

Moreover, from the point of view of the society as a whole, the incorporation of cacao crops with coconuts as CRA practice seems to be more attractive with a potential NPV of Php654,492.63 (USD 13,431) and IRR of 43 percent after assessing the positive externalities of reduced soil erosion and enhanced soil fertility.

Recommendations

It is recommended that the government promote the adoption of the CRA practice on intercropping cacao with established coconuts on the ground of the existing aggregated benefits in terms of private and social gains.

Also to minimize the uncertainty in the evaluation, the authors would also recommend to allocate funds to finance research process aimed to gain more information on the CSA practices and other externalities.

CBA Tool Summary Results

Farm-level Analysis	Net present value (NPV)	Social and Environmental NPV	Internal Rate of Return (IRR)	Social IRR	Payback Period	Initial Investment	Scenario in the Analysis	
	USD 12,791*	USD 13,431	40%	43%	6 years	USD 1,675	WITHOUT CRA: Mono-cropped coconut	WITH CRA: Intercropped coconuts
Aggregate analysis	Total area of intercrop	Current adoption rate	Adoption rate	Aggregate NPV		Period		
	2,000 ha	1%	60%	USD 75,216.75		5 years		

*USD 1 = Php48.73

References

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