Profitability of the Agrobiodiversity

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There are many studies on the importance of the biodiversity focused from different aspects (biological, social, ethnic, etc). Very few studies focused the issue from an economic view. This article tries to contribute in such a neglected dimension. I will base in three studies conducted by the Center IDEAS in 1988, 1998, and 2000.

FRAMEWORK OF DISCUSSION

The topic of biodiversity is very extent so first I will define what parameters of my work are agrobiodiversity and within it I will mention some experiences of ecological agriculture.

The ecological agriculture, by design and vision, is diverse and seeks a high productivity. The ecological farms have annual crops, fruit and forest, small and large animals, and often fish, bees, etc. That diversity is handled and is aimed to make an intensive use of the land, water, air, and sun, and of the fauna and microfauna biomass.

It seeks a balance with nature and also with the society, which means that it does not damage the environment, but it tries to be profitable and to improve the conditions of the producer family.

I will contribute to demonstrate that the ecological agriculture is a way to protect the biodiversity, generating sufficient incomes to the families that use it, reviewing three studies, two of them already published and the other one in press.

First study:

It is a pioneering study conducted by the Center IDEAS in Cajamarca, published in "Proposal of Organic Agriculture for the Sierra. Systematization of the experience in `San Marcos`, Cajamarca" in 1988. The profitability of diverse crops on an agro-ecological parcel was analyzed in three campaigns (see pg. 136). From 18 parcels cultivated with different, eleven are profitable and seven non-profitable. But for the three years the global profitability is positive for the farmer.

The productivities were equal or better than the existing in the area, an interandean valley at 2500 meter above sea level having utilized neither a gram of chemical fertilizer, nor a drop of chemical pesticide. The analyses of the soils were also done and these present a growing increase in organic matter, nitrogen, phosphorus, and potassium.

In the finest analysis of the crops it is confirmed that the crop associations (corn with beans, kiwicha, quinoa and pumpkin) are always more profitable than any of the monocultures (wheat, lupinus, oats, barley, alfalfa, flaxseed, common rye, lentil) in any of the campaigns.

This work, incorporated in the first book that was published in Peru on organic agriculture, pointed out the way to go forward in the demonstration that the agroecology was technically, socially and economically feasible. Ten years later was published the results of an interinstitutional work that advances in the same direction, but presenting twelve cases of different geographical and economic realities of Peru, which is presented below.

Second Study

In the book "**Agro-ecological Offers for small-scale farmers. Twelve successful experiences of ecological agriculture**" published by the Center IDEAS in 1998 are presented twelve case-studies and a synthesis of the lessons that we can rescue for all those who want to initiate the enriching process of transition toward the ecological agriculture.

As it was impossible to have reliable economic information for the twelve case-studies, an economic analysis of the profitability of six experiences was done utilizing the methodology of chrematistic economy. It is confirmed that five of them have a positive profitability global of the property. It is a pioneering work in Peru that despite the progress in the agro-ecological promotion, the topic of profitability has not been mentioned. Unfortunately in this study the analysis is not focused from other inputs, for example crossing the variable profitability and agrobiodiversity.

In this work we introduce ourselves into the database of this study and we incorporate new criteria to interpret those chrematistic results. The results are surprising, the complexity of the experiences is high, and this does not affect the profitability, instead there would be a positive correlation between both variables.

In the basic data of the farmers under study it could be found 33 agro-ecological practices implemented in aggregate form, being all of them complex and various units, having between 7 to 18 practices and at least four subsystems as annual crops, horticulture, fruit trees, forest, grasses, breedings and others.

> Having the farmers various parcels in their livestock unit, the different crops are compared in monoculture or in association, being found that from 22 cases of polyculture, 21 are profitable, with an average of profitability of 158%. The parcels with "lonely" crops (a single product) are 7 and four of them have positive profitability, with a profitability average of 4.5%.

If we make a higher analysis than the chrematistic, like the environmental economy or the ecological economy, the profitabilities will be higher. The agrobiodiversity not only is environmentally worthy but it can be highly profitable, as it is shown in these case-studies.

> Again the polyculture is always more profitable than the lonely culture, still in various parcels, agro-ecological.

Third Study

> During the year 2000 we conducted in the Alto Piura Valley a last study "The impact of the transition toward the ecological agriculture of the small-scale agriculture of Piura" that we are publishing for its publication.
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> In this study two of its most interesting conclusions are related to the sustainability in time of the ecological agriculture. It was verified that the profitability of the property, considered a set with all its subsystems, is between 23 and 52%, which is a great deal higher than many other activities, even non-agrarian. Another conclusion is related to the capitalization. It is always said that the agriculture is abandoned and it continually becomes undercapitalized, but this does not happen with the agro-ecological properties. The capitalization of the property is growing with time, it can begin with an increase of 15% on the price of its property in two years, to 200% in 4 years, and can increase to 300% in ten years or to 400% in 20 years of patient work in ecological agriculture.

Some general conclusions

1. In all cases doing the transition or conversion toward the ecological agriculture represent an important initial investment, especially in work force and in knowledge and innovations.

2. It always implied an increase in the diversity, both of annual and permanent crops, breeding, etc.

3. An ecological farm is more intensive in the use of soil, water, sun, biomass and human resources.

4. The greatest investment to do agriculture ecological is corresponded with the economic income, often higher than in others imaginable investments.

5. The associated culture is more profitable than the “lonely” crop in the case-studies.

6. The capitalization of the property is ascending and very significant in its increase in the first 10 years.

It is important to demonstrate the profitability of the agrobiodiversity with conventional criteria from the chrematistic economy, but the best way to show it is talking with the ecological farmers and women farmers, whose daily work give us courage to continue with the promotion of this alternative, the only one that can be ecologically, economically and socially sustainable.