Conservation Agriculture In Practice: Rice in Northwestern Dominican Republic

Derek Sindler, Pilar Useche PhD, Catherine Tucker PhD, Xin Zhao PhD

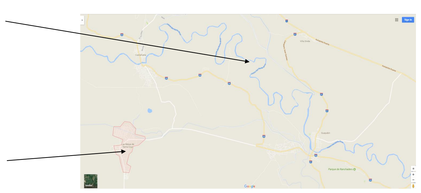
Introduction

The purpose of this project was to determine the socioeconomic and environmental impacts of, feasibility of, and roadblocks to, converting to certified organic for rice farmers in the area of Las Matas de Santa Cruz, Montecristi province of the Dominican Republic (DR).

Why change from conventional?

The main reason for pursuing conservation practices is to protect downstream ecosystems from agricultural runoff, particularly synthetic pesticides in this case.

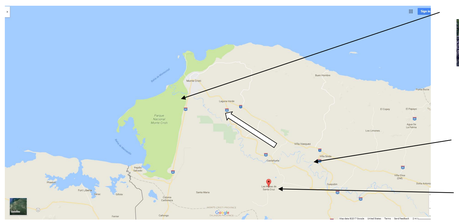
Yaque del Norte River



Las Matas, where the rice is grown

All irrigation and drainage for rice production is tied into Yaque del Norte. Pesticide residue flows from the fields to the river.

Parque Nacional de Montecristi



Yaque del Norte

Las Matas

Pesticide residue flows downstream to mangrove habitats and the Caribbean Sea, affecting ecosystems and livelihoods.

Rice in Las Matas:

- Agriculture, Fishing & Forestry is the highest employing sector of the province.[1]
- The NW region accounts for about 30% of rice production in the DR, having around 40,000 hectares of rice, with the General Fernando Irrigation District in Las Matas being the principal area, with around 15,700 hectares of rice production.[2]
- Rice is vital to the economy of the Las Matas area, as “it is estimated that a total of 11,500 people in the area of Las Matas de Santa Cruz are directly involved in the rice production value chain”.[2]

Methods

Interviews with rice industry stakeholders

I interviewed one mill owner, two finance service providers, and worked alongside AgroFrontera staff daily.

Informal Interviews with rice producers

I went out to the rice fields with an AgroFrontera agronomist to talk to rice producers, mostly about what their main challenges are.

Interviews with banana industry stakeholders

I talked to 4 different growers associations, one export company, and an organic certifying agency to get an idea of how the organic banana industry came to rise and the keys to its success.

Analysis of rice harvest data

I looked at the data from the most recent harvest provided by AgroFrontera.

Interviews with banana producers

I interviewed 8 different certified organic banana producers to understand their experience of converting to organic production.

Analysis of U.S. to D.R. rice trade data

I looked at the quantity and value of rice being imported by the D.R. from the U.S. This is important because the U.S. and D.R. are both part of the Central American Free Trade Agreement (CAFTA), and a provision is that the D.R. gradually eliminates protections for the Dominican rice industry, allowing for U.S. rice to enter the market.

What do bananas have to do with rice?

The D.R. has an established organic banana industry estimated at $268M value, and is made up of a multitude of small producers, similar to rice production in Las Matas. Knowing how the banana producers became so successful at growing and marketing organic bananas could be useful for rice producers considering a move to organic.

Financing Survey

I surveyed 50 ArroEcoz members about what type of financing they use, whether there are restrictions that come with their type of financing, and if they have any carry-over debt.

GLOBAL GAP Informal Audit

At the request of AgroFrontera, I did an informal audit of ArroEcoz members of the latest GLOBAL GAP checklist. GAP stands for “Good Agricultural Practices”, and ArroEcoz’s readiness for GAP is an indication of their readiness for organic or other agricultural certifications.

Results

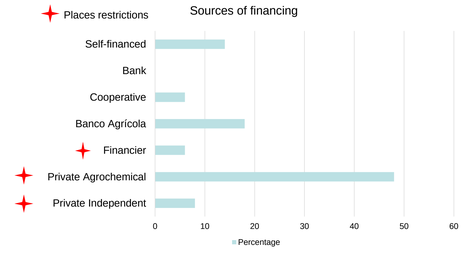
Organic is not feasible.. For now

The conservation practices used by ArroEcoz (the growers association AgroFrontera helped start) reduce synthetic input use, but do not exclude them. To the right are substances and respective quantities currently being applied.

Input	Use	Quantity used
Triumph	Herbicide used for grasses, broadleaf and narrow-leaf weeds	0.15L/tarea (1 application)
Balanced Fertilizer	Various formulas of the three essential elements	0.9K/tarea (1 application)
Nitrogen Fertilizers (Ammonium Sulfate)	Added nitrogen for use just before grains form	0.2K/tarea (1 application)
Uhmi-Arroz	Foliate	0.06L/tarea (1 application)
Agrosol	Growth hormone	0.06L/tarea (1 application)
Cipemetria	Spodoptera (armyworm) control- kills larvae	0.016L/tarea (between 2 applications)
Imidacloprid	Sogata, Whiteflies, Hydrelia moths	0.023L/tarea (between 3 applications)
Muralla	Sogata, Whiteflies, Hydrelia moths (also effective against larvae)	0.0078L/tarea (1 application in rotation with Imidacloprid)
Mancozeb	Fungicide	0.06K/tarea (1 application)
Kasumin	Bactericide	0.04L/tarea (1 application)
Carbendazim	Fungicide	0.04L/tarea (1 application)
Surfacid	pH regulator	0.023L/tarea (between 3 applications)

Financing is a big issue.

Access to credit is essential for all rice production and an organic conversion would require additional investments. **Only about 38%** of ArroEcoZ members use financing that don’t have restrictions, and that charge lower interest rates compared to other financing sources.



YEAR	TARIFF %	QOUTA FREE (MT)	SAFE-GAURD (MT)	SAFE-GAURD (%)
2017	83.16	14,720	19,136	99
2018	75.24	15,280	19,864	99
2019	67.32	15,840	20,592	99
2020	59.40	16,400	21,320	89.1
2021	47.52	16,960	22,776	86.13
2022	35.64	17,520	22,776	83.16
2023	23.16	18,080	23,504	61.38
2024	11.88	18,640	24,323	55.44
2025	0.00	0	0	0.00

DR-CAFTA will likely have a major effect on the Dominican rice industry

The price for processed white rice I observed was US$767/Metric ton (MT). According to the USDA Global Agricultural Trade System (GATS), rice coming into the D.R. Jan 2017 – Apr 2017 is US$505/MT, making **Dominican rice 51% more expensive than U.S. rice**.

Conclusions

Organizing small-plot holders into growers associations makes possible for them to gain:

- Access to credit
- Economies of scale
- Ability to be certified.

The leadership of grower’s associations is vital and must be free of corruption, and able to resolve conflicts in a way that holds members together.

Recommendations

Lowering the cost of production by an amount that makes Dominican rice competitive with U.S. rice

- Use incremental investments.
- Start with economies of scale to negotiate bulk prices of inputs and machinery services.
- Use savings to invest in newer technology, such as mechanical transplanters and/or harvesters.

ArroEcoZ act as an intermediary between members and a financial institution to provide alternative financing

ArroEcoZ continue looking for additional marketing partners in the long-term.

References

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