SPARKLE

Sustainable Precision Agriculture
Research and Knowledge for Learning
how to be an agri-Entrepreneur

ITLAY

IL RACCOLTO
SOC. COOP. AGR.

BUSINESS MODEL CANVAS in the field of SUSTAINABLE PRECISION AGRICULTURE

STUDY CASES COLLECTION

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INFO COMPANY

Il Raccolto Rural Cooperative

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Founding date:
The "Società Cooperativa Agricola Il Raccolto" was born from the merging of three big cooperatives of the province of Bologna, themselves originated from previous mergings among farmhands and farmers cooperatives established in the early post war time..
Cooperative "Il Raccolto" is member of the "Terre del Reno" network of farms. Within the network manages on average 2.000 hectares, in cooperation with other enterprises.

Extension: 2000 hectares, 1300 owned and 700 land tenancy and co-management (in the area of the provinces of Bologna-Modena)
Crops: cereals, soya, sunflower, alfalfa fodder for dairy cattle of the consortium Parmigiano Reggiano, wine for the consortium Pignoletto and agroenergetic crops.
Number of employees: 40 in the Summer, 20 in Winter, besides the farmers associated to the coop, the contractors and the processors.

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Date of the interview: 07/12/2018
Name of the interviewed person (specifying his/her role in the company):
Eros Gualandi, President - Sandro Barcellesi
Name of the interviewer: Euroteam Progetti

INFO PA introduced

What kind of PA innovation was introduced in the company?

Il Raccolto carried out the project "**Technological and process innovation for the improvement of the productive and environmental efficiency of the cooperative**" – financed by Action 124 of the Rural Development Programme of Regione Emilia-Romagna – to integrate the PA technologies already present.

I.Ter, a local cooperative was in charge of the scientific and technological aspects and guaranteed the correct methodological approach, acquisition, processing and management of data in environmental resource study projects.
Several the outputs:

- "Carta delle terre" - Land map identifying the main soil environments and describing the characteristics of the soil, including agronomic characteristics;
- "Soil compaction risk map" correlated and validated with agro-mechanical responses and company experience in selecting suitable tyres;
- Identify the correlation between the production geo-referenced data of the grain and the characteristics of the soil, to obtain a cartographic tool to support future economic and planning choices;
- Introduction of a new precision agriculture technology to monitor the main quality characteristics of wheat (moisture, protein, gluten, starch) in the harvest phase and to start a feasibility study for the elaboration of qualitative data in correlation with the input of cultivation (for example fertilization) and the characteristics of the farm soils;
- Further reduce energy costs and the means of production (use of fertilizers, seeds, working hours of agricultural machinery and labour);
- Implementation of a monitoring protocol in sample areas, representative for pedology and agronomic management of the potential effects of sludge use and/or digestate on soil and surface water;
- Varialized distribution of fertilizers on sugary sorghum through the use of YARA N-sensor optical technology, able to evaluate the vegetative state of the plant in real time, mounted on Kuhn axis fertilizer spreaders. In particular, the use of the Granit sensor allows the mapping of the quality by intervening in the process of agronomic management of crops (for example, improving fertilisation according to quality). Moreover the use of optical technology YARA N-sensor, carrying out the mapping of the vegetative state, allows to intervene in real time optimizing the fertilization;
- On the other hand, the distribution of plant protection products can be improved thanks to Kuhn Telimat technology, which prevents the spreading of products on edgings (neckline, hood), resulting in lower costs and reduced use of plant protection products;
- The same seeding operation is made more efficient by the use of two Kuhn devices that save seed. The project mainly concerns wheat, but the technologies, once tested, can also be used for other crops. The process is carried out in two ways: detailed tests and satellite tests, located in the

main pedological environments. The advantages are manifold: reduction of the costs of the agro-mechanical activities, of the quantities of purchase of the technical means, of the unproductive times of the workings yards and optimization of the labour use;

There are also other improvements expected, but difficult to quantify, which mainly concern the safety of workers, by increasing the ease of use of the equipment during processing and greater support for the worker by assisted driving systems

The company has also introduced a drone for tricogram and spectrometer for irrigation.

When?

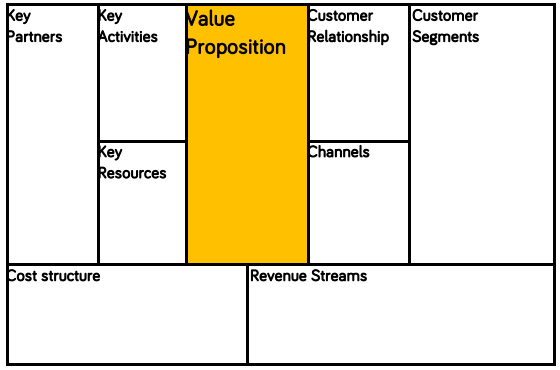
The technological innovation of 1°level has been introduced since 1990.

Why? What was the motivation / problem to solve?

Having reliable, comparable data for better management and cost reduction; that on productions that have very narrow margins and compete with imported products at very low cost are essential in order not to exit the market

BMC - report

Value Proposition



- Arable land, cereals, fodder, seed
- Parmigiano-Reggiano and drinking milk
- Wine growing sector
- Services for associated farms (contractors): agro-mechanical activities and biomass processing
- Agro-energy chain (cogeneration, bio gas)
- Holiday Farm

The consortium operates mainly in the area of the plain and at the foot of the hills, in the typical supply chains, historically present and characterizing the Emilia Romagna Region for the high level of quality of the productions and the processed (linked to normative production specifications such as PDO, DOC, PGI, etc. and transformer production specifications) in order to contribute to the objectives of improvement and continuity over time.
The network “Terre del Reno” includes producers and service providers, the sectors represented in the Network include the production and marketing of the main regional agro-food excellences.

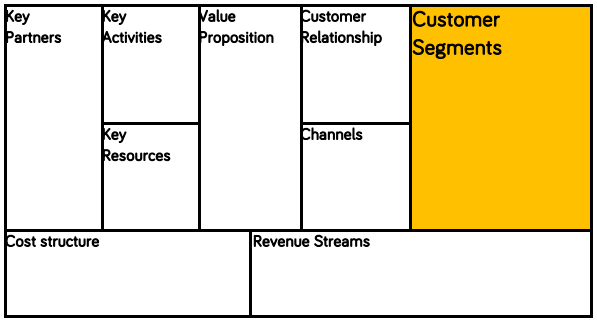
THE COOPERATIVE VISION AND GUIDELINES

To be sustainable agriculture must:

- Ensure profitability
- Meet a growing food market
- Develop processes of intensification
- Increase quality and healthiness of production
- Improving soil fertility
- Improving environment and rural areas

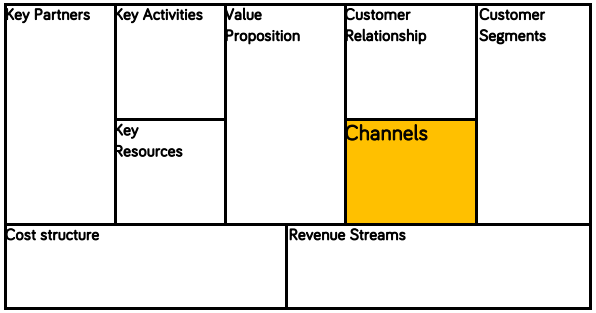
INNOVATION AND PRECISION AGRICULTURE ARE THE LEVERS OF THE AGRICULTURAL ENTERPRISE TO IMPROVE SUSTAINABILITY

Customer Segments



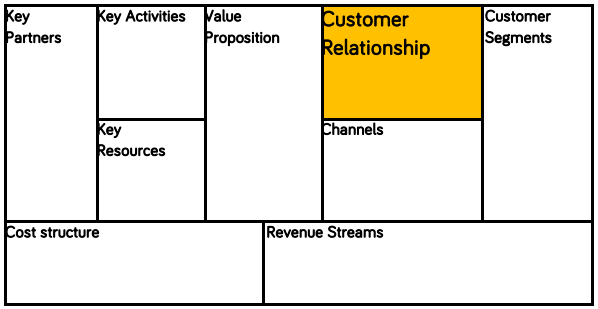
- Network of associated farms that purchase services (contractors)
- "PROGEO" for feed: https://www.progeo.net/
- Consorzio Parma Reggio for milk
- Cantine "RIUNITE" for wine
- "Barilla" for wheat and cereals

Distribution Channels



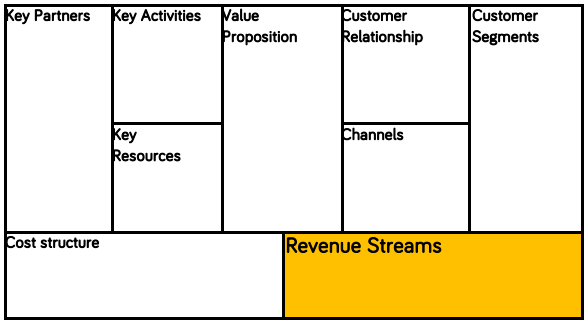
The distribution is direct.
A large proportion of this is done through the system of cooperatives associated with the consortium "Terre del Reno"Restaurants.

Customer Relationship



Within a quality chain, operating in a certified system of DOC, PDO, IGT, and binding disciplinary, the customer relationship is based on the sharing of technology innovation and precision agriculture projects to ensure quality and quantity at competitive prices.
In this respect, the customers themselves are project partners for the overall improvement of the sector's performance.

Revenue Streams



At this stage of the cooperative, the main income is made up of agri-energy products, which guarantee significant turnover, constant financial flows and short-term receipts.

Equally significant are the margins for the production of hay and feedingstuffs for the farming of cattle for the dairy industry linked to the production of Parmigiano Reggiano.

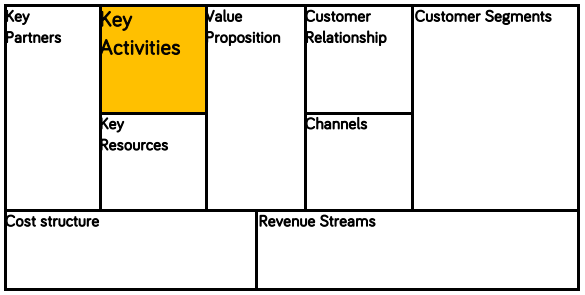
Exited from a strong crisis, the market of Parmigiano has resumed and above all has increased the exports as consequence of the EXPO2015.

Even the wine production is going through a positive phase, with the growth of the status of sparkling wines from Emilia Romagna, “pignoletto” and “lambrusco”, in the wake of the boom of Prosecco all over the world.

Cereals are the sector that suffers most from imports from emerging countries at dumped prices, with downward competition that the local system cannot counter fight.

In this area, the development of the PA can reduce waste and consequently costs, but it does not solve the problem. This sector should be abandoned if it were not functional to the network system and linked to the agro-mechanical services that the cooperative offers to other farmers.

Key Activities



- Production
- Introducing PA to get to SMART FARM
- Training of human resources
- Internal data management
- Analysis by cost centres
- Agri-energy production, which is a constant source of finance
- Set up a process

Investments

- Assess sustainability by activating management modalities with networked companies if the sustainability of costs is not reached individually

Focus

- The main objective must be sustainable intensification, including the increase in production yields and the quality of agricultural production

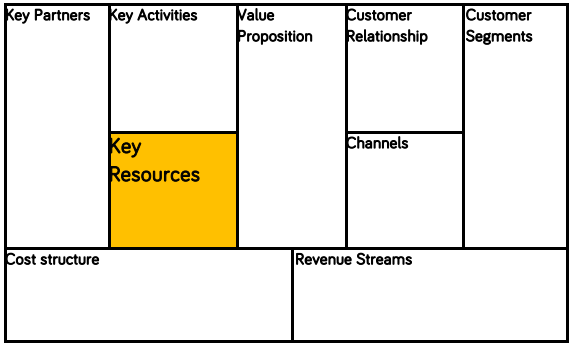
Advantages

- Creating benefits for the entire supply chain through comparison and collaboration between all actors

Know How

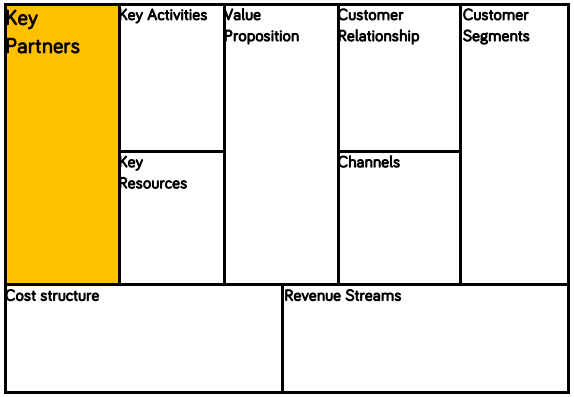
- Developing internal expertise
- Acquire, maintain and directly improve the know-how within

Key Resources



- 2000 ha of cultivated land
- Associated companies
- Innovative PA machinery and technologies
- Internal agronomic office which manages and processes the acquired data
- Qualified human resources

Key Partners



- Other farmers associated to “Rete Terre del Reno”
- Holdings to which products are delivered (cooperative system)
- Providers: New Holland, Khun, I-Ter
- University and Research Centres e Centri di Ricerca

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A difficult and important work also involves the processing companies to whom we must make understand the value of the traceability of the product data, starting from the cultivation of the raw material. This system of reporting will also make it possible to translate into value all the work of collecting and controlling production data. Knowledge of this data also allows customers to improve the processing stages and give value to the whole supply chain.

Cost Structure

Key Partners	Key Activities	Value Proposition	Customer Relationship	Customer Segments
	Key Resources		Channels	
Cost structure		Revenue Streams		

- Production. Shortly the water for irrigation will no longer be paid per hour but per litre, so the costs will rise and it will be even more important to save this resource together with the others.
- Technological innovation PA, new machinery and maintenance
- Training of human resources

IMPACT ANALYSIS

Barriers:

- Capital investment
- Difficult relationship between farm and research. Research often does not apply to concrete and urgent problems of farms
- Difficulty in involving processing companies, getting them to value traceable crop data. Poor awareness of the value that precision agriculture can also bring to the processed final product
- Training of staff and entrepreneurs plays a key role, can facilitate or slow down the innovation process

Drivers

- The initial thrust was the need to replace beet with other profitable crops
- In the near future, the lever for the spread of the PA will be given by the cost of irrigation, in fact, for the implementation of European legislation, the cost of water will be measured on the actual consumption and not per hectare
- Guarantee profitability
- Need to collect precise production data in order to manage them

Sustainable Precision Agriculture

Benefit

- Meeting a growing food market
- Developing processes of intensification
- Increase quality and healthiness of production
- Water saving (this will shortly be a sensitive issue for producers)
- Reduction of production costs
- Monitoring and optimisation of agricultural "yards": better use of resources, rationalization of consumption and working hours
- Increased knowledge of the company's production system, the need to collect accurate production data in order to manage them; in the future we could have automatic, real-time and remote data collection

Impact

- Improving soil fertility
- Reduce water use
- Improving environmental impact