CASE STUDY:

Daniel Bentancur Farm
Valle Alegre, San Bautista, Canelones, Uruguay

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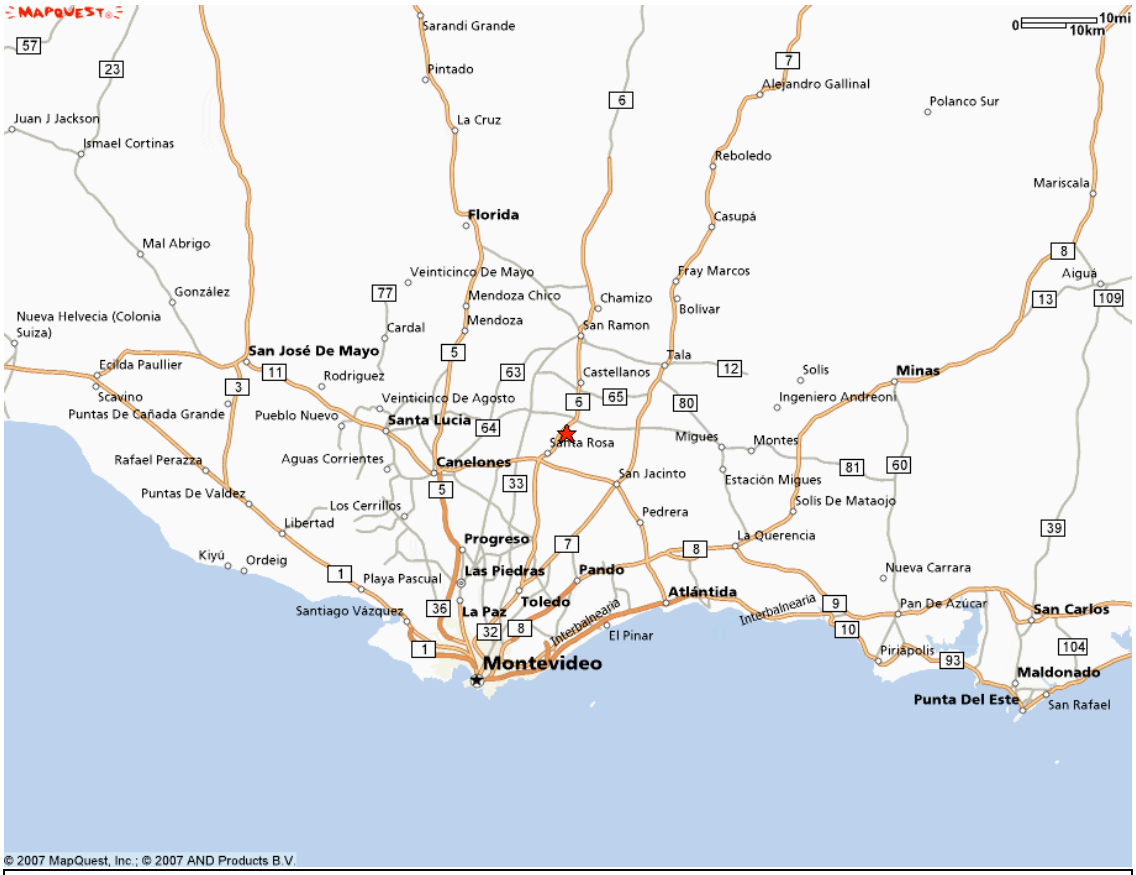
Introduction:

There is nothing in the world as good as spending time with family. Daniel Bentancur knows this well, because he makes a living farming with his 3 brothers. Their father, Juan, got them interested in farming as small boys and willed his land to Daniel when he passed away. This happened in the 1990's and they decided to put their separate lots of property together to make a business entity. This proved to be a good business decision because now they can boast that their farm and family is profitable. The farm is located very close to Montevideo, the capital of Uruguay. Montevideo is home to 1.5 million people. This puts the Bentancurs in a good position to sell their produce to lots of consumers and businesses.



The Daniel Bentancur Farm is located in Valle Alegre or Happy Valley very close to Montevideo, the capital of Uruguay.

General Farm Description:

The Daniel Bentancur Farm has 80 hectares with only 20 hectares in production. This is approximately 198 acres. He grows only small quantities of vegetables to try to reduce risk. He and his 3 brothers work on the farm. They also have 5 workers that are there year round and 8

during harvest time. When Daniel inherited the farm, it was growing vegetables conventionally. They switched to growing vegetables organically because they wanted it to be a viable business. Their goals are to keep farming and to be a part of a community.

Daniel Bentancur is shown here with the lettuce in his greenhouse.

The farm does not have any control over the manure being organic, because they are limited in what they can feed the animals. The Bentancur's are incredible worried about nutrients and fertility. Because of this concern, they compost their own dairy manure from the farm to make potting soil. They put a metal tin over the manure compost pile to help it heat up. The manure is composted for 4 months which sterilizes it by the sun. It is turned periodically to help it compost faster by allowing the microbes to get oxygen. The compost is then passed through a screen to get any chunks out. Fresh manure is also used as a biofertilizer.

Compost pile

The Bentancur Farm had yield reductions at the beginning, when they converted from conventional farming to organic. Because of yield reductions, the brothers almost decided to get out of the business altogether. They decided to stick it out, and 7 years later it became stable. The risk in growing vegetables organically is greater than with traditional farming. There are lots of climate fluctuations in Uruguay and they use greenhouses to help with this. The Bentancur's grow many vegetables including spinach, lettuce, broccoli, cabbage, shard, tomatoes, pumpkins, beets, parsnip, turnips, beans, radishes, peas, melons, squash, and basil. They also grow apples, peaches, and plums. All the fruits and

vegetables are grown organically. They also raise cattle conventionally. They own a rotar tiller, hoe, tractor, drip irrigation, and use vertigation fertilizer in the water.

Radishes in the greenhouse.

Tomatoes in the greenhouse.

The Bentancur's make the fertilizer that is put in the irrigation or sprayed as a foliar application themselves. The ingredients include ¼ manure, 15 kilos of molasses or sugar kane which helps with fermentation, 4 additives which includes salt, zinc sulfur, boric acid, and 100 grams of molybdenum, as well as water all mixed up in a barrel. The foliar application is diluted 10 times. To help with pests, they do sometimes put bacteria or fungus in the liquid fertilizer. The soils are rich in potassium, so that they don't have to add it to the mixture. They do use crop residue to decompose into the soil, but not for tomatoes because they have a lot of pathogens. They reuse the plastic from crops much during the summer.

The Liquid Fertilizer is mixed in barrels.

In 1995, the family got involved in a farmer organization called Punto Verde Organico. The organization helped them to increase their production and taught them how to commercialize their product more effectively. Punto Verde is an organization that consumers associate with quality, and joining the group was an opportunity that they could not pass up. The members of Punto Verde share a community truck and broker. They want to build a packing house in the future. Their marketing strategy includes selling to 3 of the 4 markets which include the Open Air Market, Eco Tienda, and the Supermarket. They do not sell at the Feria Organica market. He needs a different label to sell to each one, which is very costly.

The Punto Verde sign is located in front of the farm.

Sustainability Analysis- Ecological and Environmental:

The Bentancur's are very ecologically aware of what they are doing in the farming business. They are careful with their production practices to ensure environmental integrity, practice, and design. The brothers use the manure resources on the farm, to make their own potting soil. We do, however, see a potential possibility of contamination because the compost pile was not covered at all times. This causes valuable nutrients to leach into the soil from rainwater, and possibly contaminate ground water because there is not enough crop in that small area to take up the nutrients. We don't believe erosion to be a problem because there is no slope to the land. They do a washing process for the vegetables, which uses a lot of water. Since the farm shares a water source with neighbors, it could pose a problem for sustainability in the future.

The farm does very well with natural resources such as using manure as fertilizer. This strategy makes good use of materials naturally found in the environment which means they are protecting it from synthetic chemicals. They seem to be a very sustainable entity since they have been farming since the 1990's. However, their dependence on external inputs such as seed and water is a bit worrisome. This problem will be discussed later on in the paper. They could also improve on using more hectares of land in a productive manner, and still not put a strain on the

environment. They do not till the land unless absolutely necessary. This is very good for the environment, because it reduces the chance of erosion. The farm recycles the black plastic, which protects the environment from waste material.

The Farm makes good use of bacteria and fungus in the liquid fertilizer to prevent pests, instead of using chemicals. They also use natural bioculture such as inoculated fungus that attacks white flies. There is no commercialized fungus product to control them yet, which is a huge problem. The product is being researched more because once the predator kills all the whiteflies, they will then attack the fruit after all the pests are destroyed. The farm uses a fungus and copper sulfate on a metal pole to control pests like the leafcutter ant which destroys crops. The Bentancur's use a process with placing shiny strings over the crops in the greenhouses to naturally scare away birds. They also use incarzia wasps that act as a parasitoid on white fly eggs and Tricagrama wasps parasitize horn worm eggs. Their soil management practices include no-till and raised beds. They do soil testing, which is very good so that they know exactly what is lacking in the soil. Even when an organic farm is self-contained, some mineral materials such as lime and other rock powders that contain nutrients not supplied by organic matter and humus might be needed. Their sources of agricultural information, includes working with INIA research school. They also use the public University to get a fertility analysis, as well as information from Alda at BIOURUGUAY.

Wasps are parasitizing the pest eggs shown here on the upper left hand corner of the leaf.

Sustainability Analysis- Social

Daniel Bentancur's ability to improve his lifestyle and family nutrition is very good. He said that he really enjoys life. In the Northern part of Uruguay where mostly only cattle is grown, the nutrition is very poor, but not on his farm. Daniel and his family farms full-time so the farming operation is the sole source of income for the family. They have good access to technology, knowledge, and resources for what is there. They stated that the government does not help much, but Daniel cited the Universities and research stations as a big help. They provide their own community outreach to school children much like the farmers in the United States do. They do this because they want to ensure that the children understand agriculture and provide sustainability for all farming by having school children to work in the greenhouse. They

have also done projects previously with children with handicaps by using raised beds. This is very good for the community to reach out to the children.

Daniel enjoys relaxing with his family on his beautiful porch.

Daniel combines work time with family. Shown here is the children's swing located right beside the livestock pasture.

Sustainability Analysis- Economic:

The Bentancur Farm is an economically viable and profitable farm. It took them 7 years to provide a stable income, but they were patient and it paid off. The Bentancur Brothers are faced with lots of challenges. There is a lack of organic seeds and seeds in general and this makes the stability of production very difficult. They must import seed from Ecuador, Chile, and many other places. The demand is there for their products, but there is no premium for it being organic. They have to pay their workers more because they have to keep up with the wages that poultry workers receive. Rowing vegetables is more expensive than other forms of farming, because of the labor involved.

They do have a certain degree of dependency on external inputs because of having to get seed from somewhere other than their own farm. They also must purchase plastic and drip tape from someone else. They need diesel gas for the tractor and the rotor tiller. They depend heavily on outside labor. Raising vegetables organically uses more labor then traditional farming does. However, since synthetic fertilizer and pesticides are a higher cost, because they are imported, the farm is saving money by using naturally occurring ones. The Bentancurs' are actually at the same yield as they were growing conventionally in 1995. They increase the variety of vegetables grown which decreases their risk because of disease problems. They do

need a consistency of production because they can't meet the demand of their clients each week. Weather fluctuations are a problem. They are trying to manage these problems by using the greenhouses. There are no pests in the greenhouses because they dangle silver pieces of paper over the plants that scare the birds away. The material that they were using on the top of the greenhouses before was actually burning the plants, so they had to put plastic on the top. They have learned many things by trial and error. The farm does not have its own water source which makes him dependent on others. They use wood from the eucalyptus trees on the farm for the greenhouses. This is a great use of the natural resources on the farm. They have until about 4 or 5 years until they have to purchase more plastic. The farm energy use is low as compared to conventional farming. The irrigation is mostly gravity which is a good way to take advantage of the lay of the land. The drip tape cost is very low regardless of whether they use a pump or not. They are not heating the greenhouses so cost is saved there. The intensity of production per unit of land is good on the farm because they are densely planting the vegetables, however they are not using all of the available hectares. The profitability is ok since they decided not to quit farming. Daniel inherited the land which helps them a lot on cost. The market is stable and growing. Daniel employs 4 brothers and 5 full time people which is good for the community. The Bentancur's do rely heavily on the Universities and consulting companies for research based information, which makes them technically sound. They particularly rely on the technical advice from Imperior.

The Bentancur's grow several varieties of tomatoes to try to reduce their risk.

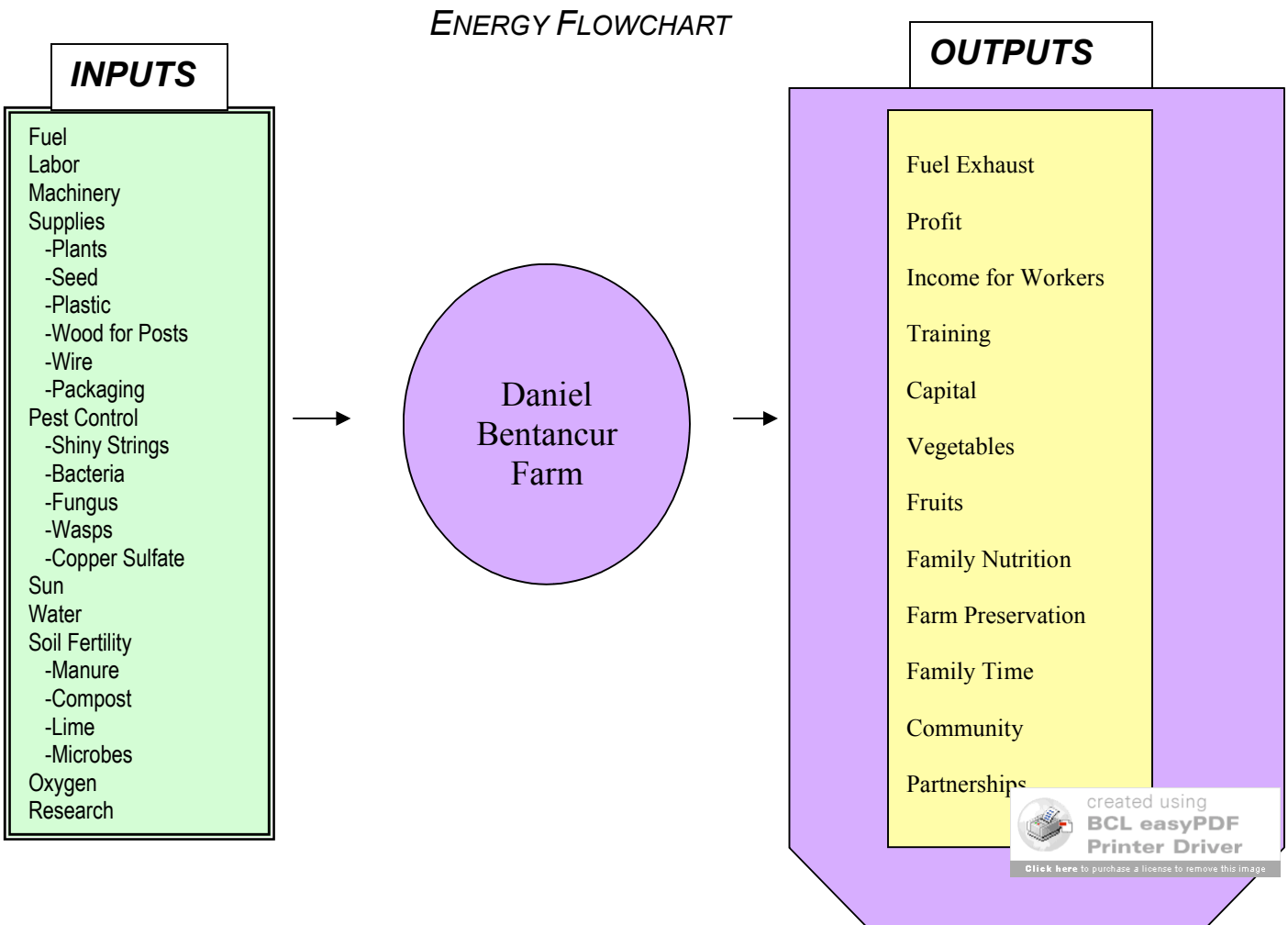
Summary and Ideas for Improvements:

We think the Bentancur's could help the environment quite simply by covering the compost pile, and help themselves if they could grow their own seed. Daniel talked about cattle only a little bit, but he could probably make more use of animals for an integrated farming

approach. They could use chickens to clean up crop residue and to eat worms on the pastures. In this case, rotational grazing would need to be implemented. The Bentancur's have proved themselves very success in raising fruits and vegetables. Because of this, we think that they would also be very successful at trying to raise their cattle organically.

We also see the Bentacur's having a great potential for agritourism since they are located so close to Montevideo. They are already doing outreach with the school children, and they could also invite tourists out to the farm and charge them a few dollars for a tour. They could also incorporate a pick your own vegetable operation which would solve some labor issues.

We see a very sustainable and hard working group of family members on this farm. A successful future seems inevitable because they are willing to try new things and never give up on their ideas. We think their farm will continue in the future with their children and grandchildren. The future of this farm will rely on the Bentancur brothers' willingness to change with the trends to ensure a long term sustainable operation. The Bentancur's seem willing to commit to growing and distributing food for present and future generations in a manner that is environmentally sound, economically viable, and socially just.



Resources:

Center for Environmental Farming Systems CEFS Organic Livestock Production and Marketing Manual written by: David Zodrow and Harold Rachuonyo

Center for Environmental Farming Systems CEFS website: http://www.cefs.ncsu.edu/index.htm

Debbie Roos's Growing Small Farms website: http://www.ces.ncsu.edu/chatham/ag/SustAg/

Montevideo website: http://professionaltravelguide.com/montevideo/Destinations-138427

Uruguay website: http://www.state.gov/r/pa/ei/bgn/2091.htm

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