Biotrade Facilitation Programme (BTFP)

Second Sector Assessment: Natural Ingredients for the Food Industry (NIFI)

(Version 3)

Prepared by:
Iniciativa Biocmercio Sostenible – Ecuador

October 2004

INDEX

I. Background

During 2003, the Biotrade Initiative of Ecuador, with the support of UNCTAD/Biotrade and within the Biotrade Facilitation Programme, selected the first sector to be supported as the Natural Ingredients for Cosmetics and Pharmaceuticals (NICP). For this sector proper documentation related to assessments, strategic and work plans were elaborated and are under implementation starting 2004.

For 2004, the BTFP required that a second sector should be identified and selected. According to preliminary evaluations, the Biotrade Office at Ecuador identified the potential of the Natural Ingredients for the Food Industry as a suitable counterpart for the NICP sector, noting that in many cases, several companies and community based enterprises could seek additional income within the Food Ingredients Sector (NIFI).

The current document wills asses the potential of the NIFI sector, analyzing current demand, market potential and supply side structure.

II. Products included in the NIFI sector

Some of the HS Codes included are the following:

Code: 1211.90.90 Aloe
Code: 1404.10.10 Annato/Bixine food colorant
Code: 3203.00.19 other colorants
Code: 0810.90.90 other fresh fruits
Code: 0811.90.90 other frozen fruits
Code: 1202.10.90 peanuts
Code: 1207.99.90 other seeds, nuts and Oil seeds
Code: 1008.90.10 quinoa
Code: 1008.90.90 other cereals
Code: 0708.90.00 other vegetable items (ex: lupinus mutabilis-chocho)
Code: 0714.90.00 other tubers (ocas, mellocos, heirloom potatoes, etc.)
Code: 1801.00.10 cocoa traditional arriba flavour

As it will be explained in this assessment, most of these products are not currently traded (exported) in significant volumes, except for the case of cocoa. Nevertheless, this document will explore the potential of export markets considering the existing information at major trading partners of Ecuador.

Current trade Statistics

For the indicated HS Codes, the following chart (Chart 1) shows a summary of the exports for the period 1999-2003:

Table 1
Exports from Ecuador - Some natural ingredients for the food industry (NIFI)
FOB Value in 000 USD

Some NIFI Products	HS Code	1999	2000	2001	2002	2003
Cocoa	1801.00.10	63.930,71	37.625,40	55.047,64	90.989,55	81.326,83
Other tubers	0714.90.00	31,64	144,19	235,25	21,58	0
Other horticulture	0708.90.00	9,1	79,9	42,46	764,64	30,23
Other cereals	1008.90.90	0,06	0,92	1,77	7,48	4,87
Quinoa	1008.90.10	52,99	64,89	137,03	198,14	255,33
Other seeds and fruits (inchi)	1207.99.90	0	26,92	16,12	11,89	13,07
Peanuts	1202.10.90	0,35	0,5	14,88	68,31	445,14
Other frozen fruits	0811.90.90	5.822,63	5.432,58	6.289,66	7.880,47	5.493,81
Other fresh fruit	0810.90.90	434,65	511,38	800,7	299,27	17,22
Other colorants	3203.00.19	1.703,24	2.333,79	2.866,55	825,07	518,27
Bixine-Annatto	1404.10.10	0	6,51	83,53	9,78	54,73
Aloe	1211.90.90	270,14	336,24	777,15	829,19	398,36
TOTAL		72.255,51	46.563,22	66.312,74	101.905,37	88.557,86

Source: Central Bank of Ecuador
Elaborated by: Corpei´s Information Center

This information does not show in detail, which are the importing countries, however these data is presented in Annexes 1 and 1a. Nevertheless, it is easy to conclude that most of trade is received by Ecuador's usual trading partners: UE, the North America and Andean countries (especially Colombia).

In terms of the importance of these products, cocoa represents the only commodity with important trade levels. However, the available statistics do not differentiate among several types of cocoa. Regarding the NIFI sector, it is only referred to the "traditional cocoa" also known as "cocoa nacional" or the famous ARRIBA flavour. Also, and similar to the natural ingredients, this assessment is only concerned for specialty cocoa (ARRIBA), with further value addition such as biodiversity, organic and fair trade certifications.

It is also important to note, as was the case for the assessment of the NICP sector, that available trade statistics do not offer clear information of the trends or history of exports since in most cases these products do not appear in individual HS Codes. However from the available information, it is possible to conclude so far:

a.- Except for cocoa beans, the figures of other NIFI exports are very small as compared to the total export figure of the country or even to relative export volumes as required by most target markets.

Table 2
TOTAL NON PETROLEUM EXPORTS
in 000 USD FOB

	1998	1999	2000	2001	2002	2003*	Growth 99-00	Growth 00-01	Growth 01-02
Traditional	2,669,623	2,295,998	1,814,780	1,994,682	2,156,404	2,267,552	-20.96%	9.91%	8.11%
Non-Traditional	610,481	675,404	669,425	785,760	782,303	810,468	-0.89%	17.38%	-0.44%
Total Non-Petroleum Exports	3,280,104	2,971,402	2,484,205	2,780,442	2,938,707	3,078,020	-16.40%	11.92%	5.69%

** numbers for 2003 (Jan -Nov)*

Source: Central Bank of Ecuador
Elaborated by: Corpei´s Information Center

b.- Target markets for existing exports are the same for most Ecuadorian exports: the US, UE, Japan and Andean market.

Organic Products Market

In relation with organic food, the market size has increase. The annual increment is between 5 to 20 % depending on the country. Based on the concerted digits, the organic market has a 2% of the total food market. Is important to upset that the organic market stills being a niche, and maintaining the increasing tendency the market share will be between 3 to 5 % in middle terms[1].

According to the IFOAM, in 2003 the world sales of organic products will be around USD 23.000 millions. The main markets are United States (45%), European Union (46%), Canada (4%), other European countries (3%) and Japan (2%). This last one is an especial case, cause the market is bigger, however there is no stratification between certified organic products and natural products without chemicals.

The consumers behavior have changed in the last years, giving more importance to: Secure food, healthy food, fresh food or at least they look the more fresh possible; environmental consciousness, organic food, reduction of meat and or carbohydrates consumption; practical food; snacks food; exclusive food for "connoisseurs" and ethnic food.

[1] Market research of organics, Cinthia Mayer, Corpei.

The migration and the worldwide tourism make that the consumers try and approve the new flavors. All products considered as exotic or tropical have an important impact over the consumers. A 23% of the consumers with a trend to consume ethnic food have a preference for the Latin American food.

III. Legal information

In order to analyze the legal aspects involved with the natural ingredients sector, it should review many of the legal bodies related to sustainable use of biodiversity, access to biological resources, phito-sanitary legislation, ex-situ and in-situ conservation and research, agricultural practices, organic agriculture and control, among others. In general, the legal environment is not adverse to the development of these sectors. Most elements have been properly legislated, although some bureaucracy may be involved. Nevertheless, the most sensitive issues are related to the wild harvest of local species and especially to the rights to access biological and genetic resources.

According the Ecuadorian Constitution, biodiversity must be considered as a public asset of common use. Therefore, all the related legislation has been issued around that concept. As above-mentioned, the application of access contracts and other bilateral sui-generis negotiations have been avoided in Ecuador due to the non-implementation of the Decision 391 issued by the Andean Community (CAN) since 1996. The difficult implementation and the absence of a local norm have limited the subscription of access contracts. At the same time, there has been continuous extractions from bio-pirates who have unlimited access to the country due to poor controls and sanctions.

In December 2002, CAN issued the Decision 486 that links the concession of a patent to the emission of an access contract. Unfortunately this legal body is applicable only in the Andean region and therefore researchers from abroad could only be held liable if local controls work and demonstrate flagrant crime. It is worthless for future complaints.

According to Ecuadorian laws, all food products (processed) must include a Sanitary Permit issued by the National Institute of Health. In the past, compliance with this legislation has been a limiting factor for local production since the paperwork for such permits could take more than a year. However, efforts have been made to reduce the process time to 3-6 months.

IV. Assessment of NIFI products

A. Amazon fruits and derived products

Although in the above mentioned HS Codes, fruits and nuts are mentioned, it is important to single out amazon basin products as a specific sector. This is due to the rich biodiversity of the region, as well as for the specific and singular characteristics of trade and products originated there (mission of Biotrade).

Several institutions are currently working to define a strategy in favor of the development of these niches. However it is clear that most companies and projects are far from being ready for export.

According to a recent report by Lucy Ruiz Mantilla of Fundación Ambiente y Sociedad - Bolsa Amazonía Ecuador (Situational analysis of the productive Chain of Amazon Fruits in Ecuador – Sept 2003), the following are some of the identified native and introduced plant species in the region:

Table 3
Native and introduced Amazon species

Scientific Name	Family
Persea Americana	Lauraceae
Persea Americana	Lauraceae
Bellusia	Melastomaceae
Caryocar nuciferum	Cariocaraceae
Eugenia stipitata	Mirtaceac
Orbignya olcifera	Palmaceae
Pasiflora quadrangularis	Pasifloraceae
Borojoa patino	Rubiaceae
Pachira aquatica	Bombacaceae
Chrysophyllum cainito	Sapotaceae
Averrhoa carambola	Oxalidaceae
Eugenia aggregata	Mirtaceae
Annona cherimola	Anonaceac
Guilielma gasipaes	Palmaceae
Guilielma sp,	Palmaceae
Cocos nucifera	Palmaceae
Theobroma grandiflorwn	Esterculiaceae
Artocarpus altilis	Moraceae
Pasiflora ligularis	Pasifloraceae
Rhodomirtus tomentosa	Mirtaceae
Inga edulis	Mimosaceae
Inga feuillei	Mimosaceae
Annona muricata	Anonaceae
Psidium guajava	Mirtaceae
Citrus limón	Rutaceae
Citrus aurantifolia	Rutaceae
Rheedia madrufio	Guttiferaceae
Lecithis	Lecithideaceae
Citrus reticulata	Rutaceae
Ma6niifera indica	Anacardiaceae
Pasiflora edulis	Pasifloraceae
Citrus aurantium	Rutaceae
Citrus sinensis	Rutaceae
Canariun ovatun	Burseraceae
Carica papaya	Caricaceae

Carica cundinamarcensis	Caricaceae
Eugenia malacensis	Rutaceae
Citrus grandis	Rutaceae
Salacca edulis	Palmaceae
Matisia cordata	Bombacaceae
Sterculia pilosa	Sterculiaceae
Colocarpum mwnmosum	Sapotaceae
Annona purpurea	Anonaceae
Tamarindus indicus	Cesalpiniaceae
Eugenia jambos	Mirtaceae
Cyphomandra betaceae	Salanaceae
Citrus paradisi	Rutaceae
Jessenia bataua	Palmaceae
Pouruma minor	Moraceae

Source: Garcia Luis, Gomez Gonzalo, Romero Marcos. Frutales from Apafano s/f

Based on that initial list, the mentioned study proposes a prioritized list of potential plant species based on:

- Available research information
- Availability of plant collections at local institutes, universities or others
- Available information regarding plant propagation, production and harvest
- History of local and regional consumption
- At least basic knowledge of them at markets
- Available basic market studies and business plans

The proposed list is as follows:

- Araza, *eugenia stipitata*
- Borojo, *borojoa patinoi*
- Uva de árbol, *pouroma cecropiifolia*
- Cocona, *saolanum sessiliflorum*
- Guava (or guayaba in Spanish), *psidium guajava*
- Yellow Pitahaya, *hylocereus triangularis*
- Naranjilla, *solanum quitense lam*
- Copazu, *theobroma grandiflorum*
- Maní de árbol or inchi, *caryodendro orinocense*

Of the above list, four fruits were defined as with most potential:

- Araza, *eugenia stipitata*
- Borojo, *borojoa patinoi*
- Naranjilla, *solanum quitense lam*
- Yellow Pitahaya, *hylocereus triangularis*

Markets for Amazon fruits

The International Trade Center (UNCTAD/WTO), for the period 1994-1998 estimated that the value for world trade of fruits and vegetables increased from USD. 58,000 to USD 65,000 millions, with an estimated annual increase of USD. 1,300 million. The biggest increase comes from trade of fresh fruits and vegetables. However, this information does not reflect the segment of amazon or other exotic fruits that, depending on the case, reflect different levels of consumer's knowledge. Even though, the recent trends show that consumers in target markets have a growing interest for exotic and rare foods and fruits.

A recent study by USAID " Alternatives for the industrialization of fruits and vegetables from Latin America and the Caribbean" confirms that the future is promissory for the marketing of processed fruits and vegetables, specially for:

- Pre-cut fruits and vegetables – fresh.
- Processed fruits and vegetables – frozen.
- Tropical fruits: juices, pulps and concentrates.

The juice industry in the United States has also important growth levels and now it is the second most popular non-alcoholic beverage among U.S. consumers, with a consumption of 13 gallon per capita per year[2].

For the current year 2004, special considerations have appeared for the US market. First, the Bioterrorism Act imposes new restrictions and compliance consideration to the trade of food products. Also a new Free Trade Agreement (FTA) is under negotiation between Ecuador, Peru, Colombia and the United States (US) that could change the current trade environment.

The European market offers benefit tariffs to a limited list of tropical fruits such as: guavas, mangoes, mangosteen, papayas, tamarind, cash apples, lychees, jackfruit, sapodilla, passion fruit, carambola and pitahaya. Other fruits such as acerola, guanabana, tuna, etc., must still pay high tariffs[3].

In the other hand, current market trends show opportunities for niches such as diet products, diabetes products, mixed flavours, tropical fruit liquors, among others.

European and US are the main importers of pitahaya as fresh product and frozen pulp worldwide. Concretely, the main European importers are Belgium, Denmark, France, Sweden, United Kingdom, The Netherlands, Spain, Switzerland, Germany and Finland. Ecuador exports to Germany, Switzerland, The Netherlands and United Kingdom since 1999, but to US have been limited due to phito-sanitary restrictions as they are produced in areas where the fruit mosquito lives.[4]

[2] Idem.
[3] Market News Service, Fruit Juices Report, International Trade Center (ITC).
[4] Pitahaya market study, CORPEI

At the local level, there is a growing demand for araza[5] and naranjilla pulp and fresh pitahaya.

<u>Actors</u>

Since the early 80s, many NGOs and regional governments (with foreign financial assistance) have been promoting productive activities in Amazon basin provinces. Some of these activities involve production and collection of local fruits but with a very local scope and without business considerations such as logistics, pricing and other marketing concepts.

The following are the actors that are now involved in the value chain for Amazon fruits:

- Indigenous groups and communities, most are owners of traditional knowledge about fruit production and their properties
- Science and Technology Centers
- International Organizations
- Non Governmental Organizations
- Producer or sector associations
- Agro-industrial projects and initiatives

The following is a more detailed list of value chain members according to the above categories:

Table 4
Amazon Fruit actors

Actors	Level of Intervention	Contact	Others
Indigenous groups and communities: Quichua, Shuar, Achuar, Cofan, Siona, Secoya, Huaorani, Zapara and Shiwiar	Knowledge about plant use, collection and domestications.		
Science and Technology Centers:			
National Herbarium	Fruit trees Collection/ publications		
INIAP – DENAREF	Take care of phylogenic resources / information	Cesar Tapia	593 2 2 693359 denaref@ecnet.ec

[5] RODRÍGUEZ, Luis. 2001.Guava's market research and operation strategies for the Processing Plant "La Delicia". Fundación Ambiente y Sociedad. Quito.

INIAP Stations	Experimental stations / tree nursery	José Antonio Fiallos Robalino	
Ambato Technical University	Fruit trees processing technology	Galo Sandoval	593 3 2 849520 sandoval10@hotmail.com
National Polytechnic School (EPN)	Fruit trees processing technology	Dra. Jenny Ruales	593 2 2 507 138 Av 12 de Octubre y Madrid, Quito
Central University of Ecuador	Fruit trees processing technology / Sanitary Register	Dra. Ximena Chiriboga	593 2 2 528704 Natural Science Institute, Quito
Catholic University (PUCE)	Research on fruits plague		
Gamboa Agro-industry School	Training on fruit processing	Antonio Espinoza	593 6 2 881105 labsu@andinanet.net
Loreto Agro-industry School	Tree nursery of Amazon fruit trees		
NGOs			
CORPEI	Biotrade – Technical assistance, market information, among others	Giovanni Ginatta	593 4 2 681550 gginatta@corpei.org.ec
FUNDAFOR	Nursery, agro-forestry production.		
EcoCiencia	Research on promissory fruits	Maria Arguello	593 2 2 522999 Fco. Salazar y Av. La Coruña
Jatun Sacha	Research and testing with promissory fruit trees	Michael McColm	Quito
Fund. Ambiente y Sociedad	Strategy guidelines for the fruits production	Lucy Ruiz	593 2 2 904815 Alemania 550 y Vancouver
FEPP / Orellana	Agro-forestry production support	Ernerita Villareal	593 6 2 880312 / 881585
International Organizations			
DED - FAS, German Technical Cooperation	Commercialization strategy for fruit trees	Santiago Hellbach	593 3 2 795134 shellbach@yahoo.de
GTZ - PAC	Technical assistance and co-funding for training for sustainable agricultural activities	Reinhild Bode	593 2 2 546724 Edif. MAG 4to piso, Quito rbode@gtz-gesoren.org.ec

FOMRENA	Competitive fund for value added products that are produced under sustainable principles	Gunther Viteri	593 2 2 231931
Government and Public agencies:			
PROMSA	Enhancement of livestock services	Dr. Chang	593 2 2 564531/555815 Ed. MAG, Quito
ECORAE	Research and financing of sustainable development projects	Jorge Dobronski	593 9 9 497824 / 593 2 2 544831 jdobronski@ecorae.org.ec
Municipalities	Fruit plants production		Mera Loreto
Province Government	Infrastructure for agro-industry projects		Napo Orellana Sucumbios
SESA	Phito-sanitary certificates		593 2 2 865212
INH Izquieta Perez	Sanitary registers/permit		593 4 2 81542
IEPI	Brand registers		593 2 2 508000
FUNDACYT	Funding to INIAP for research		593 2 2 505142
Sector associations and agro-industrial projects/companies:			
Palora Agriculture Center (Centro Agrícola Palora)			Palora
Nueva Esperanza Women Association (Asoc. Mujeres Nueva Esperanza)			Nueva Loja
La Delicia Producers Association (Asoc. Productores La Delicia)			Madre Tierra, Municipio de Mera, Pastaza.
San Jorge Women Association (Asoc. de mujeres San Jorge)			Municipio de Santa Clara, Pastaza.
FOCAO			Orellana

- Agro-industries initiatives

There are three settings in the fruit usage: artisan, small agro-industries and private agro-industries companies with records and certificates. Pioneer efforts to take advantage of the fruit's biodiversity are synthesized in the following chart:

Table 5
Agro-industries operating with Amazon fruits

Name- Place	Organization/institution	Products
La Gamboina - Orellana City (Coca), Orellana.	Gamboa School of Orellana	Jam and borojo ice cream, cocona and arazá
Frutiselva – San Jorge, Municipality of Santa Clara, Pastaza. Sanitary Register for guava jam	Woman Association of San Jorge – CEDIME	Honey cane
La Delicia - Madre Tierra, Municipality of Mera, Pastaza. Sanitary Register for pulps	Madre Tierra Producers Association of Guava– Fundación Ambiente y Sociedad/Bolsa Amazonía	Jelly, jam and pulp of guava, arazá and pineapple
Yachan Gourmet, Napo (Product certified by United States Food and Administration) Rivera del Napo in Orellana.	Funedesin	Jam of pineapple, papaya and lemon, guaba and lemon, orange and banaba, papaya and arazá

Elaborated by: Lucy Ruiz/Fundación Ambiente y Sociedad

Table 6
Exporting Company

Company	Product	Contact	Other
Ecuadorian Tea Company (CETCA)	Pitahaya in fresh to Europe Is currently under R&D for VA products	Jaime Flores	593 2 2 222360 12 de Octubre y Lincoln, Quito

Source: CETCA

<u>Strengths and weaknesses of this Value Chain</u>

- Strengths:

1. Creation and establishment of the Regional Committee for Amazon Fruits, with the participation of Biotrade/CORPEI, GTZ and Bolsa Amazonía. To capture the potential and to strength the productive chain of Amazon fruit trees
2. Currently there is basic productive and transformation infrastructure, with one renowned company already exporting the product in fresh and willing to explore VA products (e.g. CETCA)
3. Europe and US markets have an increasing demand for exotic fruits

4. Due to the characteristics of the community Amazon initiatives, they could obtain FLO and organic certifications
5. The pitahaya is native from the Amazon and due to its quality is preferred from the ones of other neighboring countries (e.g. in UK Ecuador's pitahaya is preferred from Colombian and Vietnamese varieties)[6].

- Weaknesses:

1. Low level of awareness of the importance or potential of Amazon fruits both at local and international markets.
2. These fruits are not included in the list of preferences by the European Union (EU) and therefore share higher import duties.
3. In some cases these products have stronger flavours that require target markets to use them only as blends, hence reducing direct consumption.
4. There is a productive chain for Amazon fruits, which allows to consider the possibility of accessing national and international markets. However, this requires the strengthening on research, technology transfer and especially a systematic promotion and diffusion to guarantee that the contribution of production will be efficient. In that way, the life conditions of the citizenry will improve, as well as the forest pressure will decrease. Value chain formation at very immature stage.
5. The production volumes and surfaces are small and dispersed. Producers can only provide the local demand but not the national one. Hence, small producers with small production units are creating a dispersed network.
6. The producer's associations do not have organic certifications or green labels; and, most of the products do not have Sanitary registers. Producer's associations do not have organic certifications of other type of product certifications.
7. There is a low level of diversification of products, which are based on fruit trees.

B. Organic Cocoa

<u>Market for cocoa (arriba flavour)</u>

Out of the 100% of cocoa worldwide production, 5% belongs to fine cocoa. On this variety Ecuador has a competitive edge, because it has a 60% of participation in the international market, which makes it the first producer of fine cocoa in the world.

[6] Pitahaya market study, CORPEI

Table 7
World supply of fine cocoa (thousand of tons)

Countries	Annual Production	% Market Participation
Ecuador	70	60%
Indonesia	12	10%
Papua New Guinea	10	9%
Colombia	9	8%
Venezuela	7	6%
Trinidad and Tobago	2	2%
Costa Rica	1	1%
Granada	1	1%
Jamaica	1	1%
Panama	1	1%
Sri Lanka	1	1%
Saint Thomas and Prince	1	1%
Madagascar	1	1%
Dominica	0	0%
Total	**117**	**100**

Source: ICCO (2002)
Elaborated by: IICA

From the total exports of dry grain, Africa is the leader on the positioning table with four countries: Cotê d´Ivoire, Ghana, Nigeria and Cameroon. These countries control the 68% of the total world's exports of cocoa. Indonesia has the second place with a 13% of the world's market. Ecuador and Dominican Republic (each one with a 2% of the world's exports), are the two only Latin American countries that appear in the first exporting places.

The main importer countries of cocoa in grain are: The Netherlands, United States, Germany, France, United Kingdom and Malaysia. They represents a 69% of the total imports, and, excepting Germany and UK, they all have an increasing rate on their annual purchasing.

Table 8
World's imports of cocoa grain (tons)

Countries	Import 1992 (TM)	Import 2001 (TM)	Part. 1992	Part. 2001	Average growth. 92-01
The Netherlands	334,274	567,998	18%	23%	5.7%
United States	378,980	434,105	20%	18%	3.1%
Germany	319,586	212,137	17%	9%	-4.7%
France	70,644	162,295	4%	7%	7.5%
United Kingdom	172,105	148,279	9%	6%	-0.3%
Malaysia	1,904	139,440	0%	6%	44.9%
Belgium – Luxembourg	58,090	95,523	3%	4%	2.8%

Italy	63,970	73,898	3%	3%	2.5%
Russia	37,000	63,279	2%	3%	4.1%
Estonia	235	60,794	0%	2%	61.6%
Rest of the World	434,322	504,225	23%	20%	3.1%
Total World	**1,871,110**	**2,461,973**	**100%**	**100%**	**3.5%**

Source: FAOSTAT (2002)
Elaborated by: Competitividad – IICA (2003)

As well, there is an important demand of cocoa butter. The European Union (EU) countries stand out as cocoa butter importers. Germany and United States are the two firsts importers with a 15% of the market. Other important importers are: Belgium, France and United Kingdom. (Chart No. 5)

Table 9
World's importation of cocoa butter

Countries	Import 1992 (TM)	Import 2001 (TM)	Part. 1992	Part. 2001	Average growth. 92-01
Germany	44,906	80,839	12%	15%	6.5%
United States	99,512	80,806	26%	15%	1.0%
Belgium – Luxembourg	31,904	51,578	8%	10%	7.0%
France	25,211	51,145	7%	10%	7.5%
England	25,917	41,827	7%	8%	5.1%
The Netherlands	31,702	36,687	8%	7%	-1.9%
Canada	11,358	23,307	3%	4%	9.3%
Japan	15,835	21,665	4%	4%	3.6%
Australia	10,418	20,633	3%	4%	8.2%
Switzerland	17,415	20,604	5%	4%	2.5%
Rest of the World	64,192	106,126	17%	20%	4.3%
Total World	378,370	535,217	100%	100%	4.1%

Source: FAOSTAT (2002)
Elaborated by: Competitividad – IICA (2003)

Referring to chocolate, the following countries have an important demand: United States, France and Germany, with a 34% of the world's market. These countries have a double way trade, cause at the same time they are importers and exporters of chocolate. (Chart No. 6)

In the other hand, Ecuador is not a high consumer of cocoa butter nor chocolate at the international scale. Even though, it has a minimum record on imports of semi-elaborated and elaborated cocoa, which is detailed in the second part of the research.

Table 10

World's import of chocolates and derived products

Countries	Import 1992 (TM)	Import 2001 (TM)	Part. 1992	Part. 2001	Average growth 92-01
United States	132,212	342,913	9%	13%	10.6%
France	171,246	295,510	11%	11%	6.4%
Germany	188,167	270,781	12%	10%	4.2%
United Kingdom	146,644	187,729	10%	7%	3.2%
Japan	114,882	138,640	8%	5%	2.5%
Russia	37,500	123,498	2%	5%	-3.9%
Canada	75,492	122,918	5%	4%	5.0%
Belgium- Luxembourg	62,510	109,642	4%	4%	8.3%
The Netherlands	100,237	102,875	7%	4%	1.6%
Italy	37,954	78,234	3%	3%	7.3%
Rest of the World	439,643	961,923	29%	35%	7.0%
Total World	1,506,487	2,734,663	100%	100%	5.4%

Source: FAOSTAT (2002)
Elaborated by: Competitividad – IICA (2003)

The main niches for organic cocoa are the EU and North America, were the industrialization process takes place, especially with the manufacture of chocolate[7].

Due to the special cultivation characteristics of cocoa production, it is controlled by a small group of producers. In Central America, particularly Dominican Republic is the main producer; in Africa, Madagascar and Tanzania have an important production. Ecuador is part of the first five producers with a 8% of participation of the total market. Brazil, Cuba, Cameroon, Cotê d´Ivoire, Ghana and Philippines, have experience on organic cultivation.

However, is estimated that the participation of organic cocoa in the European market is 1% and a lower proportion in the US market. This represents a market for the organic cocoa in UE of 13,000 tn/yr. and in the US of 2,000 tn/yr. giving a total of 15,000 tn/yr.

The access to these markets is conditional under requirement of certification and commercialization, which are in force in both regions. In Europe, a product could not be placed in the market if it is related to biologic agriculture, at least it should have a special register conceded by a control organism which should be guaranteed by the EU.

In addition, since July 2002, the EU Commission demanded that the original documents of the import certificates and authorizations should be presented by the importer in the customs process. The customhouse verifies if the import

[7] Dominican Republic, is the main organic cocoa producer. They commercialize not grain cocoa, but also they trade industrialized organic cocoa as: sweet powder cocoa, cocoa butter, raw cocoa oil and organic cocoa liqueur

authorization is in order with the file of documents given and they approve or deny its circulation in the EU.

The demand for organic cocoa had an important increase in the last decade. Chart No 7 shows the imports of organic cocoa certified by other countries in the European market. As it is shown, in Europe the main importer countries are Germany, The Netherlands and Switzerland, being the former two re-exporters of the product. Even though, Belgium and the United Kingdom, does not appears in the chart, they have a minimum percentage of direct imports.

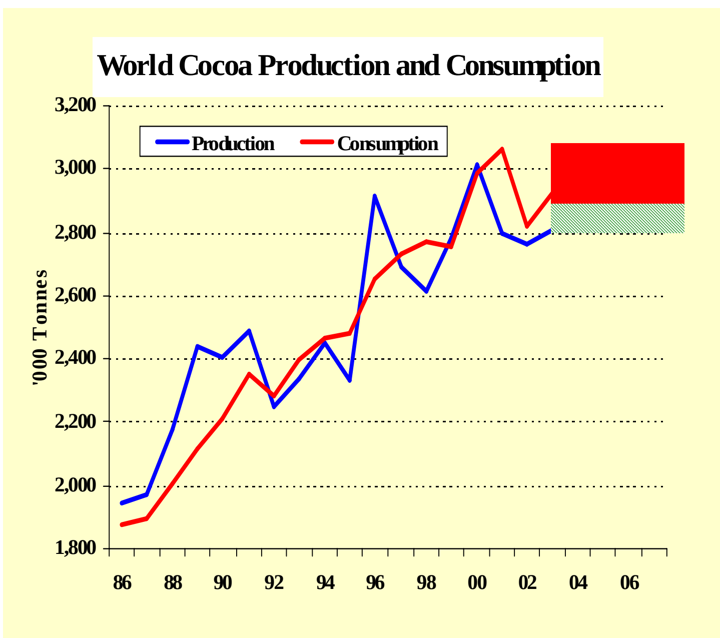
Table 11
Imports of organic cocoa certified by other countries (2002)

Countries	Imports (TM)	% Participation
Germany	4.675,0	35,3%
The Netherlands	4.100,0	31,0%
Switzerland	2.200,0	16,6%
Italy	870,0	6,6%
France	1.200,0	9,1%
Spain	200,0	1,5%
Total	13.245,0	100,0%

Source: FLO, ITC, FIBL (2003)
Elaborated by: IICA

In addition, the consumption of chocolate has increased. There is an estimation that this market takes a 90% of the cocoa grain world's production, becoming an expanding niche, which according with the preliminary estimations could increase between a 5 and 10% annually.

Figure 1



Source: IICA

An attractive product in the market is cocoa with fair trade certificate. Additionally, according to information of the Cocoa World Organization, the annual increase rate of the market under fair trade is of 10 to 15%. There is an estimation that around 50 fair trade organizations exists around the world. Some examples are the Fair trade Foundation (England) and the Max Havelaar (The Netherlands), which guarantee fair price for small producers.

The elements previously shown had created some important expectations in the main cocoa producer countries that have foreseen potential markets[8]. Two key attractions are the market growth expectation and the demand of a quality product. At this moment, the fine cocoa country producers, within them Ecuador, have some great opportunities. Another potential element is the entrance to niches with a reduced organic participation.

The organic cocoa price is higher than the conventional, however it is still related to climate effects and other economic factors which reduce or expand the supply and demand, and force the prices to rise or on the contrary decline. According to preliminary estimations in 2001, the price could have a variation between USD 1300 and USD 1500 per ton.

However, in the scope of fair trade, the prices could be higher (with a premium). In "Fair Trade"[9], the minimum price for conventional cocoa is USD 150 over the international price of conventional cocoa, and for organic certified cocoa there is an additional premium of USD 200 per ton. Including a premium, the minimum price for certificate organic cocoa is USD 1950 per metric ton.

- *Associative export initiatives with a Fair Trade*

In 2003, the UNOCACE is formed of 17 cacao small producers associations of four Ecuadorian Provinces (Mountainrange and Coastal regions). They have exported 537 tons of organic cocoa to Kaoka (France), hence participating in the European fair trade market. It is expected that for 2004, it will achieve 700 tons. At this point, there are 3875 hectares of certified organic cocoa, with 416 owners of the following areas: El Empalme, Mocache, Ventanas, Echeandía, Milagro, Yaguachi, San José del Tambo, Villanueva, Tenguel and Pasaje.

Actors

Following are a detailed list of the actors involved, grouped in:

- Organic Producers & sector associations/unions

[8] Initially the organic products were sold in exclusive "bio" stores, currently the demonstration effect has increased sales in traditional stores and supermarkets.
[9] Additionally to the organic production development, it has appeared movements related to fair trade, which guarantees a fair price for the small producers.

Cocoa producers are organized under strong second grade producers associations (7 associations and 1 private company) with a total of 3,500 families. The two major exporting associative initiatives are UNOCACE and Maquita Cusunchi (MCCH) with 66% (1,250 tn) of the total Ecuadorian exports in 2005. Furthermore, MCCH has an export capacity of 10,000 tons / year of conventional cocoa[10]. On the other hand, the associations APROCANE and the Amazon Cocoa Producers Corporation (Corporación de Cacaoteros de la Amazonía) are the major producers of cocoa under organic practices but do not have the certification. If considering all the crops organically certified (in transition and those that could be certified) the sector counts with 3,545 tons of cocoa for 2005.

Further information as well the diagram of the value chain can be obtained in Annexes 3 and 4. The latter shows the relationships among the value chain actors from harvesting to exporting.

- Cocoa exporters

A comprehensive list of exporting companies can be seen in Annex 2 and in 2005 two more companies (COFINA and Gonzalo Martinetti) are expected to participate.

Some companies have already established strategic alliances with organic producers associations such as G. Martinetti and APROCACAO S.A that involves 100 small cocoa producers.

- National and international cooperation

Several of the producers associations receive technical assistance, training and co-funding for infrastructure from national and international cooperation. Particularly, GTZ is focusing on developing the Cacao Value Chain with already identified three regional chains, two in the Coastal region and one in the Amazon region.

More information of the actors can be seen in the annexes.

Strengths and weaknesses

- Strengths:

  1. The market absorbs 90% of the world's production of cocoa grain, being a growing niche that according to the preliminary estimations could increase between 5 and 10 % annually.
  2. The annual growth rate of the market under fair trade is of 10 to 15%, according to the information of the Cocoa World Organization. For the associative nature of Ecuadorian producers, they could obtain fair trade certification and take advantage of this niche market.

[10] Information provided by the initiatives, August 2004.

3. The growing demand of quality products gives great expectations to the producers of fine cocoa. In this niche Ecuador have great possibilities of expansion, as it is already well known and positioned worldwide.
4. Strong producer associations well organized, which allowed an evolution and growth of the productive chain.
5. Cause of the associative nature of the producers that could approach to fair trade, which presents a stable panorama regarding the cocoa price and an increasing tendency of the demand.

- Weaknesses:

1. Not all the rural organizations are certified as fair trade nor have organic production recognized by the EU.
2. The variety of cocoa used presents high mould and *pizarro* levels that reduce its price at the international markets.

C. Quinoa

Market

In the international market is known the pearled quinoa and some primaries as flour, pipoca and flakes.

The international market presents an increasing trend for the consumption of certificate organic quinoa. This is because a good diffusion of the nutritional values of the product and an increment of the consumption in Western Europe.

In the year 2003, EU imported 1300 tn; while the United States 900 tn; the main European consumers are France with 500 tn and the European solidary/fair trade market with 600 tn (France 400 tn, Germany 80 tn, The Netherlands 80 tn, the rest of the countries 30 tn)

The cereal's imports in the United States suffer an increment of 58,4 % between the years 2002 and 2003. Details in Table 12:

Table 12
US General Imports
HTS - 100890: cereals nesoi, including wild rice
General Customs Value by General Customs Value for ALL Countries

Annual Data

HTS Number		2000	2001	2002	2003	Percent Change 2002 - 2003
		In 1,000 Dollars				
1008900040	CEREALS, NESOI	974	1,452	1,397	2,212	58.40%
1008900020	WILD RICE	1,449	1,500	1,489	1,741	16.90%
Total		**2,424**	**2,952**	**2,886**	**3,953**	**37.00%**

Source: US Imports Department

During the four last years, export volumes have increase (chart No 9) reaching volumes in 2002 of 119,17 tn, which represents 198,140 USD FOB value. As well in these years, the product valuation has been enhanced, incrementing its price in the international market, cause is organic quinoa.

Table 13
Ecuador Exports
Product: Quinoa; Code: 1008.90.10

COUNTRY	1999 FOB VALUE (MILES USD)	2000 FOB VALUE (MILES USD)	2001 FOB VALUE (MILES USD)	2002 FOB VALUE (MILES USD)
UNITED STATES	41.31	50.77	122.48	181.9
BELGIUM-LUXEMBOURG	0	0	4.37	8.97
SPAIN	0	0.55	5.13	4.03
FRANCE	0	0	0	3.24
COLOMBIA	11.68	4.2	4.05	0
GERMANY	0	1	1	0
CHILE	0	4.05	0	0
UNITED KINGDOM	0	4.32	0	0
TOTAL	52.99	64.89	137.03	198.14

Source: Central Bank of Ecuador

According to the market survey for certified ecological quinoa elaborated by Annette Bernd from ADVICE, for Asian and European countries which normally do not import quinoa, concluded that:

- In countries as China, Egypt, Saudi Arabia, Israel, the quinoa is almost unknown.
- In Spain, Portugal, Norway, Finland and Austria the quinoa is known in some reduced groups, especially in natural product stores, or in fair trade; and in Austria and Norway in some supermarkets. In these cases the quinoa is imported mainly through other European countries, especially France, Germany and The Netherlands, in all cases is the real quinoa type.
- There is not one case of conventional quinoa; it is always certified ecological quinoa.
- Quinoa derived products of quinoa in the referred countries are not imported, with exception of the fair trade of Austria which imports snacks, salty and sweet products, through Germany and Spain. In the latter, there is an importer company of noodles free of gluten from Bolivia.
- Even though, biodiversity is an extra argument in marketing as an ecological product, there is no real market identified could profit from it.
- In the EU the transnational trade of ecological products is free. This is one of the reasons why distributors and small-scale importers prefer to purchase quinoa in other European countries instead from the direct producers, hence being called as “Third Country”.

The main producers of quinoa are Peru and Bolivia, they cover 88% of the world production, and Ecuador represents only 2%. Other countries have marginal production such as Canada and US.

Actors

- National cooperation

Institution	Contact	Telephone	City
INIAP	Eduardo Peralta	02 269 3360	Quito
CORPEI	Giovanni Ginatta	04 2681550	Guayaquil
SICA	Analia Junovich	02 256 9172	Quito
PROMSA – CIDAR – EPN*			Quito

* The National Polytechnic School (EPN) in agreement with Promsa and Cidar are developing a project for the diversification of quinoa based-products since 2004. Currently, they have identified the formula for thin and long pasta without gluten. Furthermore, it is developed in cooperation with the companies: Fideos Paca and Inagrofa that establish a partnership to prepare Pasta free of gluten.

- International cooperation

Institution	Contact	Telephone	City	Email
World Food Programme	Luis Fernandez	02 2690 330	Quito	Luis.Fernández@wfp.org
GTZ – PAC*	Beate Weiskof	02 250 0195	Quito	iniapgtz@impsat.net.ec
GTZ – FOMRENA	Gunther Viteri	02 223 1931	Quito	gviteri@iica.org.ec
FECD	Armando Grijalva	02 246 8441	Quito	Agrijalva@fecd.org.ec
CRS	Carlos Novillo	02 250 0808	Quito	cnovillo@crsecuador.org.ec

* GTZ-PAC was supporting this chain until 2004 because it has not identified niche market where the product is competitive.

- Organic Producers

Institution	Contact	Telephone	City	Email
FUNDAMIF	Maria Eugenia Lima	02 2236385	Quito	fundanyf@andinanet.net
INAGROFA	Rodrigo Arroyo	02 2920231	Quito	inagrofa@interactive.net.ec
ERPE	Juan Perez	03 2961608	Riobamba	ferpe@erpe.org.ec
INCAFOOD	Marcos Tapia	022 861269	Quito	andeanecua@aol.com

- Grain wholesaler and retailers

Institution	Trader	Processor
INAGROFA	Wholesaler and retailer	Flour processor
ERPE	Wholesaler	---
Mercado Mayorita / Wholesaler Market	Wholesaler	---
FEPP – Camari	Wholesaler and retailer	---
MCCH	Wholesaler and retailer	---
Mercado Mayorita / Wholesaler Market	Wholesaler	---
Mas Corona	Retailer	Flour processor
La Pradera	Retailer	Flour processor
Supermaxi	Retailer	---
Santa María	Retailer	---
INCREMAR	---	Quinoa Oak processor
Productos del Campo	---	Flour processor
Alimentos Vitales	---	Quinoa Oak

- *Associative experience*

ERPE is a private foundation dedicated to social education and to the development of indigenous and mestizas urban marginal families of the provinces in the Center of the Mountainrange region. Its HQ is located in

Riobamba, Chimborazo Province. The foundation works with more than 2,600 producers' families from 170 communities of three Ecuadorian provinces. It promotes organic crop and environmentally friendly practices. ERPE mainly exports bulk quinoa and quinoa flour to the US and England.

For the local market, ERPE manufactures noodles (mixture of quinoa and wheat) and cookies (mixture of quinoa and barley), which are commercialized 50 % through the organic ERPE store in Riobamba and the other 50% is for the consumption of the producers.

Strengths and Weaknesses

- Strengths:

    1. Organic certified national production that allowed the entry to the European market.
    2. The manufacture of products without gluten opens possibilities in new markets, which are not exploded or saturated.
    3. The native variety has a high protein concentrate comparing to the improved varieties. This information needs to be supported with an analysis of international laboratories accredited by the FDA and the EU.
    4. By the end of 2004, one company expects to launch instantaneous quinoa manufactured products in the Andean market
    5. The project PROMSA-CIDAR-EPN that involves private companies to develop new products with quinoa as a base ingredient.

- Weaknesses:

    1. High production costs and the dollarization of the country's economy, makes to the Ecuadorian quinoa more expensive and less competitive over neighboring countries.
    2. In the exports of pearled quinoa, the Ecuadorian grain presents a disadvantage of size and color against with the real quinoa from Peru and Bolivia.
    3. Ecuadorian quinoa variety is not known at international markets nor its nutritional values validated, hence allowing it to be placed at international markets
    4. For the supply of the local market, the illegal quinoa imports from Peru and Bolivia at a lower price, does not leave way out to the excessive Ecuadorian production. Some producers and companies were not able to sell their production (almost 1,000 tons) at national nor international markets during 2003 - 2004

D. CHOCHO

Market

In the HS code it could not be determined the exported volume of chocho, however it's just known the existence sporadic exports and in small quantities amounts to Ecuadorian migrants in other countries such as Colombia, US, Spain, Italy and Puerto Rico.

Table 14
Ecuadorian Exports
Products: The rest vegetables (chocho); Code: 0708.90.00

COUNTRY	1999 FOB VALUE (000 USD)	2000 FOB VALUE (000 USD)	2001 FOB VALUE (000 USD)	2002 FOB VALUE (000 USD)
COLOMBIA	0	39	0	744.17
ITALY	0	0	0	9
UNITED STATES	9.1	40.79	41.69	6.51
SPAIN	0	0	0.77	4.68
PUERTO RICO	0	0	0	0.28
AFGHANISTAN	0	0.11	0	0
TOTAL	9.1	79.9	42.46	764.64

Source: Central Bank of Ecuador

The US imports of other leguminous (including chocho) have declined in the last 3 years. On the other hand, imports of the HSC0708903 *Pigeons peas, Fresh or Chilled* had the major sector growth, and 82% of those imports are from Ecuador.

Table 15
U.S. General Imports

HTS - 070890: LEGUMINOUS VEGETABLES, NESOI, FRESH OR CHILLED
General Customs Value by HTS Number and General Customs Value for ALL Countries

HTS Number		2000	2001	2002	2003	Percent Change
		In 000 Dollars				2002 - 2003
0708900500	CHICKPEAS (GARBANZOS), FRESH OR CHILLED	434	652	280	863	2.09%
0708901500	LENTILS, FRESH OR CHILLED	113	168	247	261	0.06%
0708902500	PIGEON PEAS, FRESH OR CHILLED	70	65	358	176	-50.8%
0708903000	PIGEON PEAS, FRESH OR CHILLED	447	404	479	522	8.90%

0708904000	LEGUMINOUS VEGETABLES, NESOI, FRESH OR CHILLED	2370	799	230	93	-0.6%
Total		3,435	2,088	1,595	1,916	20.10%

Source: US Imports Department

In 2004, the Industria Conservera Guayas started to export canned chocho to Spain. This is the result of the demand of Andean products by migrants from this region that requested.

Actors

- Producers

The producers are dispersed in the entire north - center of the Mountainrange region; important areas regarding the grains´ quality are Chillanes in the Bolivar province and Guayama in Cotopaxi province.

The only producers association is ERPE, for who is an alternative product. Until 2003, they exported the dried grain to Europe, however its high costs does not make them competitive. Currently, they will like to place the dried grain in the national market.

- Processors

There are two well-distinguished groups, the artisan processors, and the small and medium industry.

Among the artisans are the ones store and wash away the chocho´s bitterness without respecting any sanitary conditions and later sell them to retailers of different Mountainrange cities.

Otavalo city is an important center where chocho´s bitterness is washed away, additionally all the grain from this city is commercialized in the three Mountainrange provinces: Pichincha, Imbabura and Carchi. Moreover, another center to wash away the chocho´s bitterness is located in Riobamba City and supplies with significant quantities the provinces of Chimborazo, Bolivar and Guayas.

Company	Product	Contact	Telephone	City
Flor del Valle	Chocho without bitterness	Monica Avila	096010870	Quito
Laverde	Chulpi Chocho Super chocho	Mario Laverde	02 2391970	Quito
Empromet	Chocho without bitterness in bulk	Rodrigo Morales	03 2 821671	Ambato
Ind. Conservera Guayas	Canned chocho	Fernado Fernadez	04 2354850	Guayaquil

- Wholesales and retailers

Institution	Trader
Wholesaler Market/ Mercado Mayorista	Wholesaler
Drompet	Wholesaler
Wholesaler Market/ Mercado Mayorista	Wholesaler
Wholesaler Market /Mercado Mayorista	Wholesaler
Laverde	Retailer
Flor del Valle	Retailer
Supermaxi	Retailer
Industria Conservera Guayas	Retailer

<u>*Strengths and Weaknesses*</u>

- Strengths:

  1. The migrants from Andean countries in EU and US have been growing in the last 5 years, hence increasing the demand of Andean products at foreign markets.
  2. Ecuador's chocho is a bitter variety different to one available in Europe; hence it does not compete with the European variety.
  3. Well organized small industry with growing perspectives and possibility of accessing markets in neighboring countries.
  4. Elaborate chocho flour that is widely used in the Ecuadorian cuisine and has superior nutritional value than the wheat and corn flour.

- Weaknesses:

  1. The producers dispersion do not satisfies the national demand, hence there are imports of dried grains from Peru. Furthermore, at the national market there has been a preference for neighboring countries grains rather than the Ecuadorian variety therefore promoting the cultivation of an introduced variety rather that the native one.
  2. Lack of seriousness in the negotiations at wholesaler markets: impurities level, grain in poorly stage, etc., hence incrementing the percentage of waste in the productive process and its costs.
  3. Lack of quality standards for dried grain, which difficult the storage of products for export as the latter requires a hard grain that supports transportation.
  4. Lose of the native products market against fast food, prepared food and imported ingredients. People under 25 years consume the product only as part its family food and not cause their self – will.

E. Andean Roots and Tubercles (RTA)
Products: Melloco, oca and white carrot

Market

Tubercle exports have suffered a drastic decrease, especially the exports assigned to the United States, which is Ecuador's main importer.

Table 16
Ecuadorian Exports
Product: The rest tubercles (mellocos, white carrot, etc.); Code: 0714.90.00

COUNTRY	1999 FOB VALUE (MILES USD)	2000 FOB VALUE (MILES USD)	2001 FOB VALUE (MILES USD)	2002 FOB VALUE (MILES USD)
UNITED STATES	31.59	132.6	234.45	21.58
COLOMBIA	0	11.58	0	0
UNITED KINGDOM	0.01	0	0	0
SWITZERLAND	0.04	0	0	0
THE NETHERLANDS	0	0.01	0	0
BÉLGIUM-LUXEMBOURG	0	0	0.44	0
SPAIN	0	0	0.36	0
	31.64	144.19	235.25	21.58

Source: Central Bank of Ecuador

The local consumption of RTA had an important decrease. People older than 50 years still consuming these products due to its known nutritional value. Nevertheless, people under 25 years (young families) don't like them nor know about them.

In general, RTAs don't have a high culinary status. Even though the mashua is the product directly associated with poverty and rusticity, the melloco and the oca share this stigma in a lower or higher level.

Actors

Producers are in crop areas, without any established organization, and the commercialization takes place in wholesaler and retailer markets.

In relation to melloco, 59% of the farmers use to sell their products to dealers; the 34% are not for sale as is the basic ingredient for rural families food; and the remainder 7% is sold to the community dealers and/or to dealers who purchase it at the community. However the oca crop is not commercialized as is considered a bad business due to its reduced demand.

Strengths and Weaknesses

- Strengths:

  1. The white carrot or *arracacha* doesn't have as a deteriorated reputation and it is a potential basic ingredient for babies' food. This is why it has a great opportunity to increase its demand. As a popular knowledge in the Mountainrange region, this product has quality to eliminate the lack of appetite of babies who are finishing the lactation stage.
  2. Nestle company tried to make a pilot project for processing white carrot as soup thickener, however it doesn't work because of the difficulty to obtain continuous raw material with homogeneous quality in industrial amounts (at least one ton).

- Weaknesses:

  1. The rural population of the Mountainrange region links the Andean tubercles with poverty and "indio" food, which is why it has a limited demand. Families consume this product only in their homes, as they know their high nutritional values. However it is never offered to guests and they don't even recognize their consumption in public.
  2. In the Coastal region there is a poor knowledge of recipes based on tubercles.
  3. The physical appearance of some tubercles is ugly and people associated it with spoiled/ruined products.

V. Conclusions and recommendations

VI. Workplan 2005