SIPPO
Swiss Import Promotion Programme

Product Strategy for Aguaymanto.

State of affairs, product strategy and interventions for market entry in Europe.
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About SIPPO SIPPO, the Swiss Import Promotion Programme, is a mandate of the State Secretariat for Economic Affairs, SECO, within the framework of its economic development cooperation. It is carried out by Osec, the official Swiss foreign trade promotion agency.

The programme helps SMEs in developing and transition countries to gain access to the Swiss and European markets by providing information, training courses and other matchmaking services. SIPPO also assists importers from Switzerland and the European Union with finding suitable partners and high-quality products from selected developing and transition countries. The programme has five main goals:

- To inform the Swiss and European import economy about new market sources
- To strengthen trade institutions and business sector associations in the trade promotion process
- To increase the competitiveness of SMEs in selected partner countries
- To develop the manufacturing and exporting skills of SMEs in selected partner countries
- To establish qualified trade contacts between SMEs from emerging markets and markets in transition and the Swiss and European import economy

Report Content Within the scope of the project Perubiodiverso, an initiative supported by the State Secretariat for Economic Affairs (SECO) and Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH (german cooperation), in convention with the Ministry of Foreign Trade and Tourism (MINCETUR), the Peru Export and Tourism Promotion Board (Promperu) and the Ministry of the Environment (MINAM), SIPPO is mandated to support Peruvian companies in accessing the European market. In this context, SIPPO compiled product strategies for: Maca (*Lepidium ssp*.), Sacha inchi (*Plukenetia volubilis linneo*), Tara (*Caesalpinia spinosa*), Aguaymanto (*Physalis peruvianna*), Algarrobo (*Prosopis ssp*.), Camu Camu *(Myrciaria dubia)* and Native cacao (*Theobroma cacao*).

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List of abbreviations

API	Active Pharmaceutical Ingredient
APOs	Asociaciones de Productores Organizados
EOI	Expression of Interest
EU	European Union
FAO	Food and Agriculture Organization
FLO	Fairtrade Labelling Organization
GACP	Good Agricultural and Collection Practice
GIZ	Gesellschaft für Internationale Zusammenarbeit, Eschborn, Germany
GMP	Good Manufacturing Practice
HACCP	Hazard Analysis and Critical Control Points, See Codex Alimentarius and ISO 22000
HR	Human Resources
INRENA	Instituto Nacional de Recursos Naturales del Perú
IPPN	Instituto Peruano de Productos Naturales (Business association, Lima, Peru)
IU	International Unit (Measures biological activity in pharmacology)
LDL	Low Density Lipoproteins
MRL	Maximum Residue Level
MSDS	Material Safety Data Sheet
PBD	Perúbiodiverso (Phase I, Phase II)
R&D	Research and Development
REACH	Chemical legislation in European Union (Registration, Evaluation, Authorization and Restriction of Chemicals); European Community Regulation: Regulation (EC) No 1907/2006
SECO	Staatssekretariat für Wirtschaft (Bern, Switzerland)
SIPPO	Swiss Import Promotion Programme (under Osec)
SMEs	Small and Medium-size Enterprises
SNV	Dutch Development Organization
SWOT	Strengths, Weaknesses, Opportunities and Threats
TDS	Technical Data Sheet
UN	United Nations
USP	Unique Selling Proposition
WHO	World Health Organization

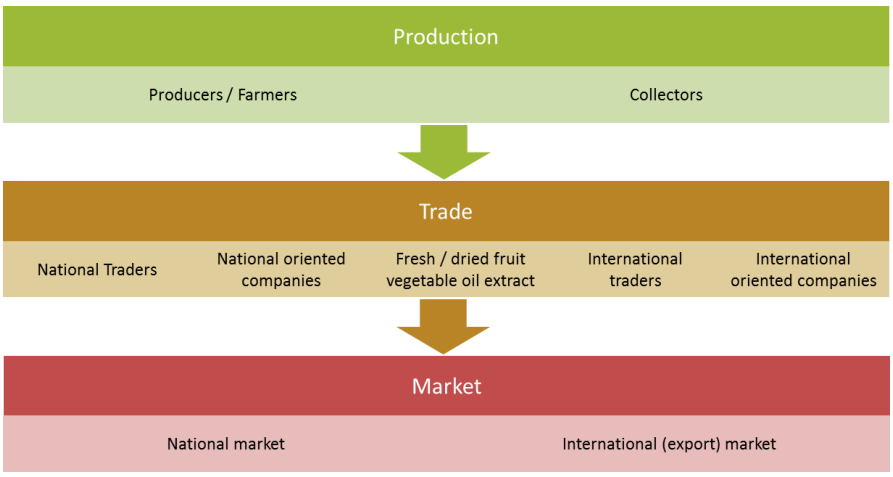
1. Product relevance.

Physalis peruviana, known as aguaymanto (in Peru), uchuva (in Colombia), Inca berry, Cape gooseberry (Codex Alimentarius Standard 226-2001), golden berry or lampion fruit, grows as perennial herb in hot, dry areas near the Amazon and Andes mountains. Aguaymanto is native to the high altitude tropics from Venezuela to Chile where the fruit grows in the wild throughout the 11 ecological regions populated by a very rich range of medicinal and fruit plants. The area planted to aguaymanto has expanded significantly as a result of efforts to tap the great opportunities for Peru resulting from growing increasing interest in this fruit in recent years.

The plant grows to a maximum of 1 m (though commercial plants are pushed up to 3 m). Its yellowish orange berries are individually protected by an inedible paper-like husk. This exotic fruit, with a bittersweet taste, belongs to the Solanaceae family and is additionally grown in Ecuador, Colombia, India, Australia, Kenya, some Caribbean islands and Zimbabwe. Currently, the main producers are Colombia and the Caribbean.

Originally introduced by the Portuguese in South Africa, where it has a long history being cultivated as Cape gooseberry, this Andean berry's wide range of by-products are traded internationally along separate channels, including for seeds, flowers, fresh and dried fruits, vegetable oil and extracts. Their commerce spans further to Asia, Australia, USA, Caribbean and Central America and it is even cultivated in the South of France, and in glasshouses in UK. Physalis can be found in European markets all year around with Colombia as the main exporting country.

Figure 1.Sector map of Aguaymanto



2. Product status.

Introduction to the market

Aguaymanto is mainly used as fresh and dried fruit, and for making jams, juices and processed snacks, all in the food sector, but may also find use in the cosmetics and medicine industries. It is an exceptional source of pro-vitamin A, various other vitamins, protein and is a potent antioxidant. In cosmetics it is used as an anti-cell aging and skin regeneration agent. Its medicinal use is broad and its properties range from cancer prevention to blood purification to use as tranquilizer and in treatments of diseases such as malaria, asthma, hepatitis and rheumatism, all of which are now being scientifically audited.

Aguaymanto, mainly grown in the high altitude regions of South America, is exported mainly as snacks, pulp, fresh and extract, in descending order. In 2010, international demand reached 12 907 tonnes of fresh aguaymanto, worth almost US$ 50 million. Colombia accounted for 50% of the world market.

The Netherlands were the main European aguaymanto buyer in 2006 but in 2010 Germany, the United Kingdom, Finland and Sweden combined became the largest European import market for aguaymanto. Also, the most important European markets for organic-certified value added Aguaymanto in 2009 and 2010 were Germany and the United Kingdom. In 2010, Europe´s production of Cape gooseberry was first reported in Southern Bulgaria. As European demand for aguaymanto grows, the quality standards and requirements become more stringent. Despite a still small market, European demand for aguaymanto is stable. Moreover, enforcing high quality standards and introducing value adding certification ─such as organic and fair-trade─ should create good market opportunities for these fruits. The annex provides more information on trade figures and characteristics of Aguaymanto.

Constraints and opportunities

Constraints are of various types, including concerns about the appropriate business climate, funding and business acumen in place, as well as market opportunities. But they also regard concerns about the environment, labour rights and ethical issues. Moreover, golden berries have been given almost no serious horticultural attention in the past 50 years.

In what follows, we present a SWOT analysis that specifically reviews the core needs for export marketing and market entry in Europe. This analysis points to specific bottlenecks to increasing agricultural production of the raw material based on strict cost calculation for product development. It also reviews the documentation regarding market access requirements.

Table 1. SWOT Analysis (Biotrade 2005, reviewed by K. Duerbeck 2011).

Strengths	Weaknesses
• Peruvian biodiversity as an established agricultural/horticultural global genetic source. • Traditional knowledge in Peru. • Sector associations available (IPPN). • Appropriate legislation governing conservation and sustainable use. • Source of innovation for the development of new products. • High acceptability by population of lesser known fruits and their natural ingredients.	• Difficulties in domestication leading to insufficient and heterogeneous national agricultural production (standardization). • Access to high yielding seed material • Failure among most processors of Good/Best Practices procedures. • Reality gap in enforcing international and regional laws and regulations. • Land tenure issues. • Insufficient cost management.
Opportunities	**Threats**
• Global trends: Super-fruits and certification (organic, fair trade, etc). • New potential in cosmetic and medicinal uses. • Research needed for genetic selection, fruit quality, agronomic and end-use research. • Implementation of marketing strategies. • Institutional support to companies. • Income generation for rural areas to expand sustainable production.	• Growing competition from growers in other countries. • Loss of markets for not complying with the international quality standards and buyer requirements like hygiene and quality conditions (HACCP, GACP, GMP).

Table 2. Constraints, opportunities and objectives.

Constraints	Opportunities	Objectives
Resource management and control mechanisms	Access to improved varieties for cultivation Research for sustainable wild collection Introduction of best practices	Plant breeding programs Rural income generating for wild collection and farming as horticultural crop
Enabling environment Socio-economic	Market information available Access to markets Product quality	Organize access to market information and increase transparency of value chain
Enabling environment Policy	Policy framework conditions Access to credits, subsidies Access rights/land tenure policy	Support stakeholder involvement and representation; market oversight and facilitation
Enabling environment Institutional	HR development for crop management Access to rural extension	Encourage capacity building in technical and management skills
Enabling environment Production and processing	Access to services and resources Land tenure in remote mountain areas	Access to communications and services

Trade barriers

European product requirements and specifications, and European companies' own internal control systems, are constantly expanding (e.g. API, REACH, GACP, GMP etc.). More strict EU regulations have a direct effect on the market of supplier services for finished products. To sell their produce in Europe exporting companies must comply with regulations based on international guidelines provided by different UN organisations (WHO, Codex Alimentarius of WHO/FAO), or otherwise identify new markets outside Europe which might be easier to penetrate.

3. Product strategy.

The aim of the SIPPO product strategy is to achieve consistency of Perúbiodiverso II (PBD II) with SIPPO's indicators. It also seeks to develop a common platform for any other potential project and business partners that SIPPO may work with so that they can develop separate interventions and still be consistent with this strategy.

The strategies for the products preselected by PBD II will revisit earlier recommendations for entering European markets using the following filters:

- market access
- achievable target for March 2013, and
- work planning for 2013 and beyond.

Our SWOT analysis allows identifying short and long-term strategies to leverage true strengths while simultaneously mitigating those weaknesses that might create significant disadvantages.

The short-term strategies focus on efforts to introduce growers and processors to the specifications and guidance available in the aguaymanto global product portfolio, including fresh and dried fruits, fruit extract or vegetable oils produced by Peruvian companies.

In the longer term, a strategy to conduct a comprehensive review of the value chain can help to eliminate structural weaknesses, which significantly hinder greater competitiveness.

The principal weaknesses to be considered are the lack of local research about cost-effective resource management, use of aguaymanto products, claim substantiation of ingredients, and local culture, but as well about quality and sanitary requirements. At present, these facts result in insufficient supply of raw materials in Peru. Growers think the product is too resource intensive and not sufficiently profitable to encourage larger cultivation in agricultural and horticultural production regions. Lack of agricultural services providers and post-harvest treatment and processing discourage investors from investing in expanding crop areas. In present growing areas, aguaymanto is considered a pesticide-intensive crop but enforcing maximum residue levels (MRLs) is not urgent because of this fruit's specific protection.

SIPPO sees four core elements of the product strategy to achieve this target:

- Increase collection and production accompanied by biodiversity-related marketing activities
- Strengthen value adding for export aguaymanto products by
  - increasing production accompanied with appropriate certification
  - Moving up the value chain to extraction of active principles through investment in modern technologies
- Reduce production costs
- Develop a promotional strategy that supports these initiatives through:
  - Creating greater awareness in strategic markets and of the value proposition
  - Creating private sector interest in representing this industry in global markets.

As seen from the above section, the industry is too small to compete with any economy of scale even when it expands to its full potential. Hence, the option for Peru is to utilise a strategy focused in product differentiation. It seems that the Peru national and regional governments are focusing on moving the industry along the specialty (differentiation) route based on organic production and rural value adding.

4. SIPPO Focus.

Guiding criteria
This section explains where SIPPO will focus its attention along the value chain to have the greatest possible impact on the industry's competitiveness and export orientation.

Clear guiding criteria for the intervention area are articulated by the three questions that follow. They should help identifying the greatest impacts that can be gauged through SIPPO's indicators:

- Is the desired change feasible for the selected target group?
- Can the project output be delivered in a sustainable way?
- Can this be done in the time frame and with available project resources?

This rationale / logic helps SIPPO determine what may be the industry's evolution. As facilitator the SIPPO national expert will therefore focus on local governance, resource management training for the participating companies and their sourcing partners in wild collection and farming. Institutional building is also needed to raise awareness among resource owners and users of aguaymanto's potential to increase incomes.

Table 3. Assessment of market-based solutions

Type Value Chain Constraint/Opportunity	Identified potential market-based and commercially viable solutions
Raw material production Product development	• Organize training courses for personnel of companies in quality standards, export requirements, new technologies, and product documentation based on own available data. • Promote the domestication of selected plant species that have become endangered or vulnerable in the wild
Service Providers	• Assist sector service providers, such as consultancies, research institutions, to improve service capacities • Support promotion of authentic products
Organization and Management	• Encourage companies to introduce business plans and management plans and to implement good practices • Organize trainings for producers on development of management, marketing and business plans
Regulatory (Policy)	• Support national legislation development in accordance with UN guidelines and to enable its appliance • Generally improving the business enabling environment
Finance	• Micro-finance schemes for collectors and companies • Identification of service providers for access to finance
Input Supply	• Promotion and support of cultivation of plants, especially threatened, vulnerable and endangered plant species • Conservation of traditional knowledge and practices
Infrastructure/Human Resources	• Collectors training • Logistics
Business Membership Organisation	• Keep permanent dialog and cooperation among all stakeholders in the value chain • Strengthen sector work and develop into competent sector representatives on national, regional and international levels • Organize education trainings • Leverage associations to provide services and generate income

The assessment of market-based solutions should result in identification of:

a) Existing service providers: agricultural extension service consulting firms, institutes, etc.
b) Existing and potential users: collectors, farmers, companies, etc.
c) Constraints to provision (by type of service provider)
d) Proposed providers of sustainable market-based solution
e) Commercial feasibility of market-based solution (by service provider type).

The two major targets that can guide establishing priorities in choosing market-based solutions are

The two major targets that can guide establishing priorities in choosing market-based solutions are:

- The potential value chain growth resulting from an expansion of raw material production, and
- The enhanced competitiveness and greater number of SMEs in the target group that will directly and indirectly benefit from this initiative (outreach potential).

Supply and strategy

The main supply issues relating aguaymanto growers and processing companies were described earlier in the strategy and are as follows:

- Need to assess the production area and expand it (both for cultivation and wild collection),
- Develop appropriate technologies
- Build better working and business environments
- Raise interest of national and regional authorities to become more actively involved in the traditional fruits sector
- Foster product marketing in local and foreign markets.

Visibility and control can be achieved through better and more documentation, transparency and open pro-active communication all along the supply chain. Such transparency will eventually also become visible in consumer markets. Certified labelling or verification framework help to preserve trust along the whole supply chain. Over the long term fair trade certification for these products will help to mitigate any supply risks.

Partners

The core partners in the implementation of the project's interventions are:

- Intervention: Implementation of rural income generation and sustainable sourcing based on compliance with market access requirements for national and international markets. With this intervention PDB's role focuses on facilitation and linkage between research and development, service providers on one side and companies on the other.
- Intervention: Export promotion through partnering with PromPeru, which convenes export oriented companies and supports IPPN, the organic products industry association.
- Other interventions: PBD will work on identifying other partners by type of intervention, for example, regarding assistance in drafting national legislation together with partners from the concerned government agencies, etc.

5. Interventions.

The interventions considered in the context of this product study are primarily part of component II in Perúbiodiverso II. Component I will get included once the company and product documentation becomes available.

Ongoing interventions.
The interventions considered in the context of this product study are primarily part of component II in Perúbiodiverso II. Component I will get included once the company and product documentation becomes available.

Types of interventions needed
The overall objective of this SIPPO project PBD II is to enhance the exporting competitiveness of companies and thereby assist in alleviating poverty. To assess progress made in accomplishing these objectives, similar indicators should be used as for the other SIPPO activities, namely increased sales or exports, larger revenues, employment, market, product and services diversification, and number of participants at promotional events.

Sequencing of SIPPO interventions
After mapping the productive environment, human resources and miscellaneous basic infrastructure needs, and determining the categories of interventions, the context and the sequencing of activities, it will be required to identify access opportunities, available service providers, and leading firms. After the first intervention the number and expertise of the leading firms is expected to unfold and develop. The leading firms and the service providers may vary for the different interventions and their sequencing.

Consistent with the temporary nature of the interventions, there needs to be a clear exit strategy defined from the beginning. The access strategy must be linked to the achievement of the development objective, like the creation of sustainable service providers for the target group of companies. In the course of the first two interventions the intervention pipeline for additional interventions in the context of PBD II a number of raw ideas will be validated and further developed into new interventions. For additional interventions new sourcing and funding can be made available by national interest groups, service providers or national government and donors.

Ranking and prioritization of issues
During the stakeholder meetings the expert presented the "gap analysis" findings including the prioritization on the basis of the identification of potential market-based and commercially viable solutions. These are all to be based on the new focus of research and development along the value chain for Physalis peruviana with special emphasis on:

1. Increasing agricultural production of raw material based on strict cost calculations
2. Developing products and documentation to meet with identified market access needs and requirements.
3. Promoting exports.
4. Assisting service providers.
5. Organizing training courses.
6. Creating an enabling environment (national and international).
7. Encourage business planning.

The stakeholder meeting reviewed the expert´s findings and recommended the aspects of R & D for raw material production, product development and documentation and access to markets to be included in the national priority listing.

Table 4. Priority matrix.

Interventions	Aim	Actor	Time	Lead by
		Producer performance		
Identification of R&D inputs	Agricultural production, product development	National research institutions, universities	April 2011 - March 2013	PBD
Product development: Elaboration of production/process parameters	R&D for MRL, HACCP, Codex Alimentarius requirements, audit and certification / verification	National research institutions, universities	April 2011 - March 2013	PBD
Product documentation	Product profiles, specifications, TDS and if required MSDS	Companies, national service providers	June 2011 – June 2012	PBD
Resource management	Sustainable resource management and raw material procurement, including finances	Companies, national service providers	August 2011 – March 2013	PBD
		Market development		
Access to market	Market entry in Switzerland, and Europe based on the regulatory status and requirements: trade fairs buyer missions	PromPeru, SIPPO	June 2011 – March 2013	SIPPO

In the course of the first two interventions the intervention pipeline for additional interventions is validated in the context of PBD II. A number of raw ideas will be developed into valid ideas and further materialized into new interventions.

Intervention pipeline

First Intervention: Resource management.

The sustainable increase of agricultural production of raw material is considered the main challenge to provide the quantities and qualities for market entry. The scaling up of agricultural production documentation has been identified as one of the main constraints for the companies. Specifically bottlenecks were apparent in the identification of suitable areas for agricultural production and the build-up of agricultural extension services in identified areas. Differentiation from the large scale production from outside Peru through certification is opening options for market entry of a genuine biodiversity product of Peru.

Table 5. Impact logic and indicators for impact logic for sustainable procurement.

Impact Logic		Indicators of Impact Logic
Activity	Identification	Identify potential growing regions, and companies interested in this supply chain and their requirements, products and parameters
Output	Documentation	Documentation of potential regions and the respective soil and climatic characteristics, potential supply chain partners, potential service providers, interested farmers Marketing strategy
Use of output	Contacts Offers	Appropriate areas identified for cultivation Cost calculation and pricing for different supply chain levels Supply chain partners identified
Outcome	Contracts, orders	Opportunities for adding value (certification, extraction) Development of product standards based on Codex Alimentarius guidelines Regional marketing activities Decentralized processing
Impact	Sales	Extension service available Increased rural income
Aggregated impact	Increase of employment	Increased number of jobs

The Results Chain for this intervention with indicators at each level is as follows:

Table 6. Indicators and measurements used

Indicators	Measurements used
New areas for cultivation	Description of climatic and soil properties & participatory cost calculation Evaluation and transparency for alternative option for farmers income
Diversification of products and documentation	New products identified Specifications (TDS, MSDS), Manuals for cultivation, post-harvest, price calculation and logistics
Interest of companies	Promotion of supply chain and options for value adding
Preparation of companies	New products identified and developed Completeness of documentation Audits and certifications
Marketing strategy	Management documents Information for dissemination through brochures, posters, website Marketing support for company as Peruvian biodiversity product

SIPPO's market access intervention requires the support of the second intervention for sustainable resource management to be executed by components 2 and 3 of PBD II.

Second Intervention: Access to market

The implementation of market access requirements based on national and international legislation is considered the life line to support the future increasing agricultural production. To differentiate the Peruvian biodiversity products from large scale and competing agricultural production in the global market the denomination of origin provides the stepping stone. The main requirement to access markets is to guarantee a minimum supply of aguaymanto. Differentiation can be achieved by supplying organic and fair trade certified raw materials and ingredients. Since a number of companies in the production of aguaymanto are organically certified, Bio-Fach was considered the most interesting trade fair for Europe to deploy these products and get market exposure in the European market. Companies selling aguaymanto raw materials and organic-certified ingredients may join the PromPeru Pavilion at this fair together with a range of other experienced and new companies preparing to enter European markets.

Table 7. Impact logic and indicators for access to markets.

Impact Logic		Indicators of Impact Logic
Activity	Trade fair	Preparation for Biofach or food ingredient trade fairs
Output	Documentation, Market entry strategy	Documentation, (e.g. brochures, business contact sheets) Market Entry Strategy available for individual companies
Use of output	Contacts Offers	Market research, intelligence Contacts, marketing activities
Outcome	Contracts, orders	Pre-fair: company/product documentation, tools for fair Fair: form of presentation, booth, HR, documentation, EOI Post-fair: contacts, trail orders, contracts
Impact	Sales	Increased turnover
Aggregated impact	Increased employment	Increased number of jobs

The Results Chain for this intervention with indicators at each level is as follows:

Table 8. Indicators and used measurement within the result chain.

Indicators	Measurement used
Preparation for trade fair	Completeness of documentation; samples preparation; booth arrangements; marketing strategy
Market research Contacts	Number of new ideas as genuine and authentic biodiversity product
Marketing activities	Number of brochures distributed, Number of mailings done
Increased visibility and transparency	Product profile and promotion of product quality, USP, and country image
Increased use of service providers	Number of service providers engaged after intervention
Orders and contracts	Number of contracts signed and orders made Percent business growth
Increased employment	Number of new workers hired after intervention

Two categories of interventions were studied, namely (1) producer performance, and (2) market development. For Andean fruits, a specific development potential is identified in production and processing to increase the opportunities for rural income generation.

A target group for each intervention is specified consisting of leading firms and the respective sourcing framework, and companies with interest in diversifying their present portfolio, as a result of outreach efforts.

For different categories of Aguaymanto the following leading firms were identified:

a) Value added through (organic/fair-trade) certification:
   - Villa Andina, Cajamarca, dried fruits
   - Peruvian Nature, Lima, dried fruits
   - Candela, Lima, dried fruits
   - Ecoandino, Lima, dried fruits
   - Algarrobos Orgánicos, Santa Maria Locuto, Piura, dried fruits

b) Extraction of active principles
   - Villa Andina, Cajamarca, vegetable oil

The leading firms are considered the main pillars of the PBD II in Peru blazing the trail for other sector companies in the business association and in liaising with national service providers and moreover facilitating an enabling environment.

What is missing in the country portfolio of aguaymanto products is the processing of freeze dried fruits as an innovative starting product and ingredient for national health food markets. International demand for this product is already opening roads for new product ideas to meet emerging consumer preferences.

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7. Annex.

Aguaymanto

Aguaymanto, scientifically known as Physalis peruviana, is known variously as uchuva (in Colombia), Inca berry, gooseberry or golden berry, and lampion fruit. This exotic fruit grows as a perennial herb in warm, dry areas in the Amazon and Andes mountain range. The plant reaches a maximum height of one meter and yields yellowish orange berries individually protected by an inedible husk of paper-like texture.

Aguaymanto mainly is used in the food sector as fresh and dried fruit, in jams and juices and in many other preparations. It is also suitable for cosmetic and medicinal use.

It is an excellent source of provitamin A (3 000 IU of carotene per 100g) and vitamin C and certain B vitamins (thiamine, niacin and vitamin B12). Also its protein and phosphorus content is exceptionally high. Aguaymanto is an ideal natural energy food for daily consumption, since it acts as a potent antioxidant, counters cell aging, and helps prevent cancer.

Aguaymanto is recommended for patients of all types of diabetes as a blood cleanser and to stabilize blood glucose levels. It increases production of red blood cells, improves the cardiovascular functions and lowers blood levels of harmful LDL cholesterol (Low Density Lipoproteins).

Aguaymanto is widely used as a medicinal plant in folk medicine for its anticancer, anti-mycobacterial, antipyretic, and immune-modulator properties, as well as for treating diseases such as malaria, asthma, hepatitis and rheumatism. In addition, aguaymanto is used as a natural tranquilizer, for the treatment of prostate problems, to enhance digestive functions and to control amoebiasis.

Dehydration is an ancient method to preserve food's nutritional properties and taste, and to extend storage life. Particularly, in tropical and subtropical regions agricultural products are prone to damage due to inefficient storage and preservation between harvest and sale on the market, resulting in lost economic value for producers. Alternatively, transforming the fruit through a high quality drying process preserves the fruit's economic and guarantees its nutritional value.

Trade

Since aguaymanto is only recorded in the general category of fruits and is not specified elsewhere, no updated EU import statistics are available. However, export data from Peru can provide some indication for developing aguaymanto trade.

Generally, aguaymanto is exported in extract, fresh, iced, juice, jam, honey, powder, pulp, dried and snack forms. The main European purchaser used to be the Netherlands until 2006. In 2010 Germany, the United Kingdom, Finland and Sweden combined imported the bulk of aguaymanto to Europe.

Supply

Aguaymanto, which originates from Peru, is also grown in Colombia, Ecuador, Africa, New Zealand, and other countries. Production of aguaymanto has also been reported from southern Europe, notably Spain and Portugal. Although aguaymanto is grown in various countries in the Southern Hemisphere, Colombian growers and exporters have developed a particular expertise in supplying the international market. Fruits from Colombia now dominate supply to Europe. According to Proexport (Colombian government trade promotion agency), exports of aguaymanto have increased from US$8 million a year at the end of the 1990s to US$23 million at the turn of the century.

In 2010 the international market demanded 12, 907 tons of fresh aguaymanto, worth close to US$50 million, of which 50% came from Colombia. Table 9 shows Colombia as the main South American supplier of fresh aguaymanto, with Ecuador and Peru exporting very small amounts.

Table 9. Fresh aguaymanto exports from South America (tons)

	2005	2006	2007	2008	2009
Colombia	64212.7	6171.9	6320.9	6464.3	6401.8
Ecuador	45.6	10.9	6.9	20.5	20.6
Peru	0.0	0.0	1.0	1.0	0.5

Source: Villa Andina, 2011.

Demand

Holland was the main aguaymanto importer in Europe until 2006. In 2010 Germany, the United Kingdom, Finland and Sweden combined imported the bulk of aguaymanto into Europe.

Table 10. Aguaymanto exports from Peru to Europe.

AGUAYMANTO	2006		2010		Total 2006-2011*	
Peruvian exports to:	**FOB value US$**	**Net weight Kg**	**FOB value US$**	**Net weight Kg**	**FOB value US$**	**Net weight Kg**
France			4,250	966	28,076	4,169
The Netherlands	3,000	1,000	747	51	8,645	2,552
Belgium	12	3	333	53	987	145
Spain					1	2
Hungary					20	2
Sweden			5,130	1,350	5,130	1,350
United Kingdom	2,595	174	20,452	1,461	43,881	3,107
Germany			17,835	1,702	23,184	2,160
Czech Republic			3,305	247	5,190	401
Austria					1,206	100
Finland			15,657	1,200	18,825	1,440
Switzerland					28	5
Italy			860	40	860	40
Norway			792	60	792	60
Poland			5,240	400	5,240	400
Turkey			5,640	470	5,640	470
Ireland					1	0
Total	**5,607**	**1,177**	**80,241**	**8,000**	**147,706**	**16,403**

Source: PromPeru, *Data 2011: until April

Table 11. Organic aguaymanto exports from Peru to Europe.

ORGANIC AGUAYMANTO	2009		2010	
Peruvian exports to:	**FOB value US$**	**Net weight Kg**	**FOB value US$**	**Net weight Kg**
Austria	1,206	100		
Belgium	431	35		
The Netherlands	1,395	100	740	50
United Kingdom	2,770	200	5,322	360
Germany			10,650	1,000
France			747	50
Total	**5,802**	**435**	**17,459**	**1,460**

Source: PromPeru

The main European buyers of organic aguaymanto were Germany and the United Kingdom in 2009 and 2010.

Cape gooseberry classified as Physalis peruviana was included in the Codex Alimentarius and amended in version 2005 of Codex Stan 226-2001, including guidelines on quality, classification, sizing, tolerances, presentation, marking or labelling, contaminants and hygiene.

Global berries market

An overview of the berries market is a good source of references when it comes to examining opportunities for aguaymanto. This market is versatile, since it involves not only fresh soft fruits, but also dried products, extracts, juices and beverages, oils and other very special ingredients. Along with expanding trends toward convenience, naturalness and health food, the market for berries is becoming increasingly important and growing significantly.

The most striking feature of the berry market is its polarization between fresh berries and processed berries. Their value creation chains and market rules are quite different and at times, it seems that the companies work in quite different industries even though they are using the same raw material. Fresh berry companies are more one-dimensional and focus on serving the retail end of the market with fresh products. They concentrate on better consistency, improved flavour and year-round availability of berries. These companies are large, operate internationally and source berries from all over the world where the season is at its best. Companies working with processed berries vary depending on their line of business. Their customers may be food processors, dietary supplement makers, and cosmetic and/or ingredient manufacturers. They may have developed different strategies for their berries: beverage strategies, ingredient strategies, etc. (Table 12).

Another major emerging challenge for the berry industry is the issue of its environmental impact. Production-wise, the use of irrigation and pesticides, as well as transport and logistics are the major burdens. A central concern related to the environmental issue is the use of packaging. Particularly retail is demanding reduced packaging. Major producers are looking at new schemes to reduce the cost and impact of logistics from field to supermarket, improve shelf-life of products, optimize the packaging process and increasingly use recyclable or biodegradable materials and also require high hygienic standards for fruits and vegetables.

Table 12. The main market segments for processed berries.

Market Segment	
Beverages	The most successful strategies for berries are those involving beverages. It is generally said that the future for healthy and functional foods will be dominated by beverage concepts. Consumers are increasingly looking to beverages of all kinds to deliver health benefits. The reasons are beverages offer superior convenience; there is more scope for packaging innovation with beverages; they can be single-served (a common success factor); and beverage formulators are particularly skilled at making most things taste good.
Food ingredients	Food ingredients (purees, pieces, powders, extracts, etc) are seen as important drivers for the berry market development. An explanation is that in processed forms, berries are made available for consumers in more convenient forms.
Cosmetic ingredients	Food-based ingredients are not new to beauty products, but are increasingly used in cosmetics, e.g. blueberry, arctic cloudberry, sea buckthorn, cranberry and açaí. Berries are used as ingredients in cosmetics as oils, extracts or seeds (exfoliators). For instance, blueberry contributes to overall skin health and scavenging free radicals. The number of products on the market is growing due to the fact that "superfruit" ingredients are consistent with the general trends on the cosmetic market. Berries like arctic cloudberry, sea buckthorn and cranberry are used in cosmetic products basically as antioxidants. Berry solids, i.e. seeds, are also used as exfoliators, especially in natural/organic products. The main packaging claims associated with for instance sea buckthorn based products are that they are plant-based, organic, with no additives and featuring antiaging properties). Companies providing these ingredients for cosmetics include e.g. Mibelle Biochemistry.

Source: Prepared by the author with Invenire Data.

Superfruits
In recent years the term “superfruit” has gained popularity. Superfruits combine exceptional nutrient properties, antioxidant quality with appealing taste. Moreover, Superfruits possess a particular potential for functional foods, cosmetics and pharmaceuticals. Among berries, e.g. goji, cranberry and blueberry are widely said to have Superfruit status.

The six elements of Superfruit success are the following:

1. Sensory appeal
When marketing whole fresh fruits as potential Superfruit to consumers, their sensory qualities –appearance, aroma, texture and taste – are very important.

2. Novelty
The idea of novelty – or, to say it differently, “newness to the consumer” - can have multiple interpretations. The forms that novelty can take include:
- new fruit
- new colours, tastes, aroma
- new way of consuming.

Novelty is one point of difference, but by itself it will create no sustainable value unless the strategy is designed to encompass the requirements of all the six elements.

3. Convenience
In some markets sales of fresh berries grow 20% to 30% annually, thanks to their high convenience, couple to a strong health food image. These small fruits need no peeling and are easy to eat. If other fruits can achieve the same level of convenience then they also might enjoy more popularity with time-starved but health-conscious consumers.

There is a wealth of benefits for everyone in the supply chain by focusing on processed fruit rather than fresh: hence growth in Superfruits and the real added value will always be overwhelmingly in juices.

4. Control of supply
One important way to maintain a point of difference is to retain control over the supply of the fruits.

5. Health benefit
The primary purpose of science in relation to creating and marketing a Superfruit is to generate health-benefit substantiation so that the company can make convincing claims. This is the key to develop a trust-worthy and sustainable health position in the mind of the consumer. There is a positive relationship between the number of scientific studies that have been published about a fruit’s health benefits and its Superfruit status. Cranberry, blueberry and pomegranate all have a large number of studies behind them, particularly in proportion to the percentage of the world’s fresh fruit production they account for.

6. Marketing
No matter how strong the basis for the benefit, the science will be of no value, unless the marketing strategy is able to communicate the benefit in a credible way to an appropriate target group of consumers. The centrality to success of effective market positioning and marketing communications can be seen persistently on the Superfruit market.

Trends and perspective

Aguaymanto was virtually unknown in the 1980s but now European demand for this fruit is increasing, slowly but steadily. Also the quality standards for this fruit have been tightened over the years and to be able to compete with other countries, exceptional quality needs to be achieved.

Moreover, it is important to make sure that aguaymanto is charged by weight, rather than by volume, since the husk is redundant, but adds volume to the fruit.

As shown in Table 13 Peruvian organic aguaymanto is consumed in Europe mainly as dried fruits, and as processed food in snack preparations.

Germany is a very interesting market for both conventional and organic aguaymanto. Recent trade-fairs showed an obvious trend towards aguaymanto in snacks, as addition to sweets, in cosmetics and also for medicinal use.

Although the market is small, European demand for aguaymanto is stable and with high quality standards and value adding certification, such as organic and fair-trade, these fruits should be able to profit from good market opportunities.

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Table 13. Organic aguaymanto exports in 2009 and 2010.

AGUAYMANTO	2009		2010		Total 2006-2011*	
Peruvian exports:	**FOB value US$**	**Net weight Kg**	**FOB value US$**	**Net weight Kg**	**FOB value US$**	**Net weight Kg**
sample	2	1			2	1
not classified			306	25	306	25
dried	8,563	686	74,936	6,559	83,498	7,245
snack	16,729	534			16,729	534
Total	**25,294**	**1,221**	**75,242**	**6,584**	**100,536**	**7,805**

Source: PromPeru, *Data 2011: until April

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