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MARKET ACCESS AND PRIVATE STANDARDS: CASE STUDY OF THE PERUVIAN FRUIT AND VEGETABLE MARKETS

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PREFACE

The Peru study is one of four case studies on private voluntary standards and access to global value chains. It is based on interviews with producers, exporters, government officials and representatives of professional associations. It is a background document for the study 'Private Standards Schemes and Developing Country Access to Global Value Chains: Challenges and Opportunities'. It was prepared by prepared by Dr. Tony Salas and Ms. Gisela Camminati of ACM Consulting, Peru.

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PART 1

Introduction[1]

2. Peru is a low middle income developing country with per capita income of USD 2 600 (2006). Achieving high and sustained economic growth has been the priority of Peru's economic policy and results suggest they have been moderately successful. GDP growth rates has been increasing each year over the past 5 years, reaching 6.7% in 2005. Both prices and exchange rates have been stable. The government's tight budgetary policy as well as its intention to preserve its sovereign risk rating has improved the country's investment prospects. Trade has continued to increase and though traditional exports such as mining account for the main share of these, non traditional exports are also gaining ground so that their share is now about 22%. The United States is Peru's largest trading partner accounting for over 30% of exports, followed by China, Chile, Canada, Switzerland and Japan.

3. While the agricultural sector's share of GDP is only 8%, about 25% to 30% of the population live in rural areas. The agro-food industry is considered to be an important to the rural economy of Peru and has shown itself to be resilient even in difficult recessionary periods. Green coffee is the major agricultural export and accounts for almost half of the sector's exports. Two high value products, asparagus and mango, are two of the most rapidly growing agricultural exports and are reported to have energized the local economies where these are grown – the ICA and La Libertad regions for asparagus and the Piura region for mango.

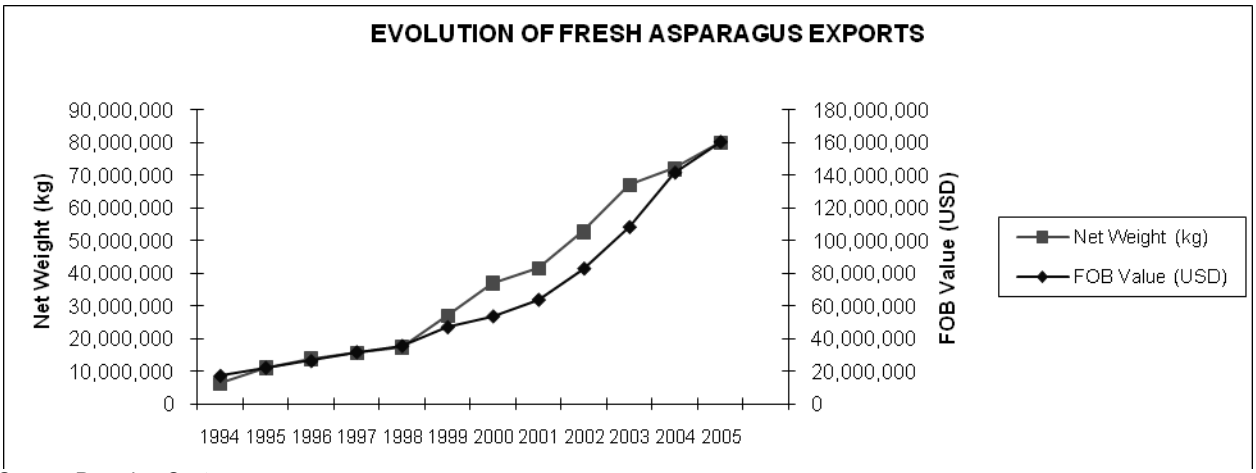
4. Economic growth and development has been more pronounced in these regions compared to other rural areas and have been a source of job creation. For example, the asparagus industry provides work for an estimated 60 000 people along the coast of Peru, 60% of whom are women. This is an important fact in terms of the effort to provide employment opportunities for women. In 2005 alone, output growth in mango and asparagus created more than 10 000 new jobs in the countryside and experts predict the job opportunities will continue to increase. Implementation of food safety standards, quality management systems, good agricultural practices(GAP) and social responsibility programs have also made a positive contribution to the economic and social development of the regions involved according to experts.

[1] Some information taken directly from PROINVERSION's official webpage – www.proinversion.gob.pe

Agricultural policies[2]

5. According to the Ministry of Agriculture (MINAG), Peruvian agricultural policy aims to improve profitability and competitiveness, to strengthen markets, to reduce poverty and to improve the living standard in rural areas while using resources sustainably. MINAG general policy measures seek to enhance the institutional capacity by promoting agricultural services, wholesale markets and producer organizations. Agricultural support measures currently in place are of a general nature and have no trade-distorting effects - Peru has no product-specific domestic support measures and there are no export subsidies for agricultural products. Furthermore, it has maintained an open trading policy since liberalization in early 1990s.

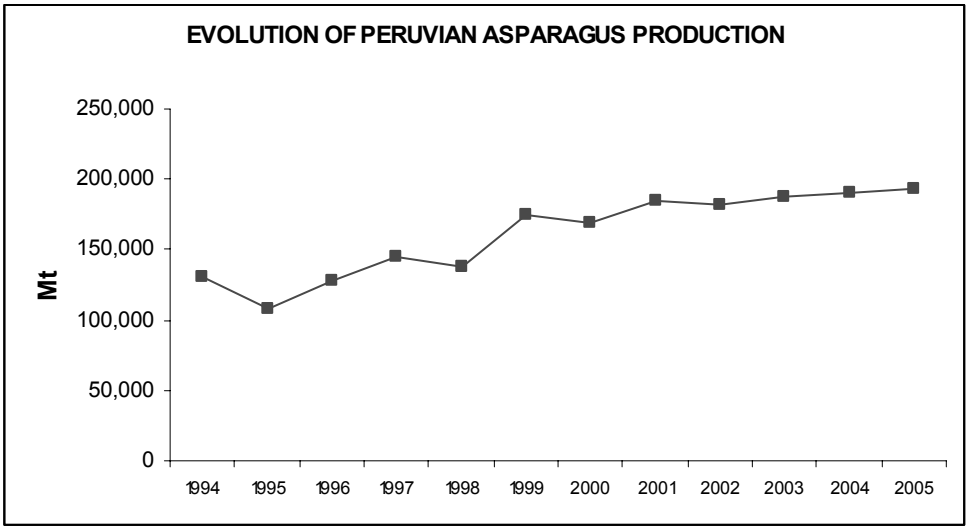
6. Nevertheless, in 1995 a drawback regime was introduced for which exporters receive a payment of 5% of the FOB value as a refund for duties paid on imported inputs, regardless of the actual cost. This payment applies to all exported products. Imports of fresh fruits and vegetables are subject to an import tariff, which in 1999 was an average of 22.6%. Imports of fresh mangoes are subject to an *ad valorem* tariff of 20% plus an additional surcharge of 5%.[3] Since 1999, imports of fresh fruits must also be accompanied by a phytosanitary certificate from the country of origin. This certificate is the basis of the phytosanitary import permit which is issued by SENASA (National Sanitary Service) when inspected.



Source: Peruvian Custom.

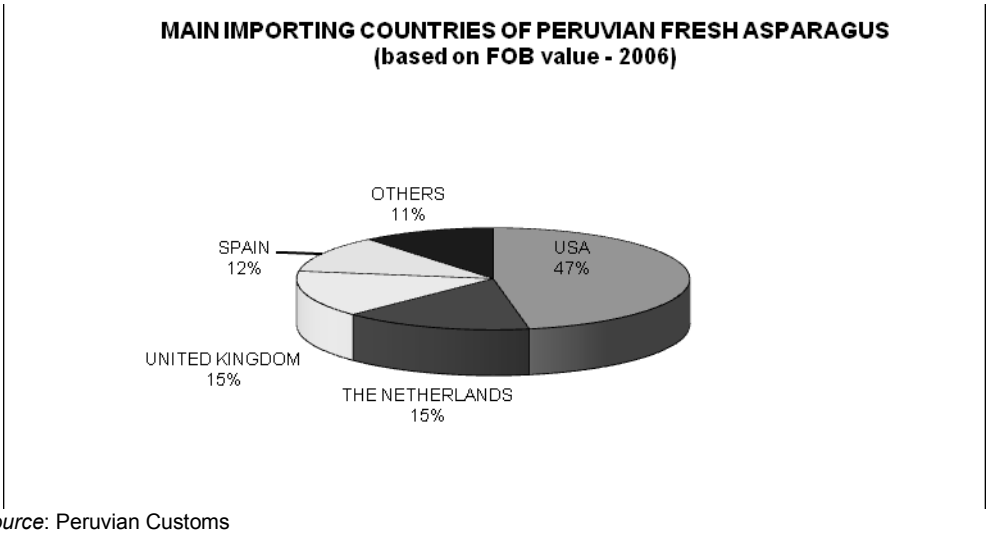
2 Some information taken directly from Ulrich Kleinwechter and Harald Grethe, 2006: The significance and adoption of food quality and safety standards in developing countries– a case study for the EurepGAP standard in the mango export sector in Piura, Peru.

3 Peru is member of two international trade agreements, the Andean Community and the Latin American Integration Association (LAIA), which means preferential treatment is granted to Colombia, Ecuador, Venezuela and Chile. For instance, no tariffs are imposed on mangoes and asparagus from these countries.



Source: FAOSTAT

7. This case study examines the impacts of private voluntary standards on asparagus and mango export supply chain. These two sectors are quite different in structure and operation. The asparagus production was essentially a business-oriented export operation from the beginning, while the mango production was a traditional, smaller holder sector with most of the product locally consumed and for which exports are a recent activity. These differences mean that private standards create different challenges and opportunities in these sectors and thus provide a comparative basis for understanding differential outcomes in terms of organization and structure. Part II describes the sectors-- their regulatory and institutional frameworks and economic structure, and Part III presents the producer and exporter survey results for both sectors



Source: Peruvian Customs

PART II. ASPARAGUS AND MANGO SECTORS: REGULATORY AND INSTITUTIONAL SETTING

A. Asparagus

8. Asparagus production (*Asparagus officinalis*) started in Peru in the late 1950s, when a family operated business established its first plantations of white asparagus for export to Denmark. Since 1985 the sector has grown steadily, thus attracting local and foreign investment. Attractive counter seasonal prices offered in the US markets- jump started the interest for small ventures. Asparagus exports have been growing and reached USD 263 million in 2005, that is 26% of Peruvian agricultural exports.

9. The first quality specifications were based on California asparagus standards. Significant volumes of exports began in 1986 with 70% of production exported, though the export/production ratios needed for the sector to be competitive is approximately 80%. This ratio was reached after only a few years in the market. The adoption of the hybrid asparagus variety called UC-157, drip irrigation technology as well as the introduction of Californian seedling beds were important innovations that resulted in a dramatic yield increase and a better product quality. Innovations were the key to the sectors 'subsequent success'.

10. Over 24,500 ha are planted to asparagus mainly in the region of Ica in the south, and in the La Libertad region in the north. The size distribution of holdings is skewed towards large holdings, with most being above 20 ha. Even this farm size generates at least USD 80 000 per year of net revenues and if market and physical conditions are optimal net revenues can reach USD 120 000. Most of the producers see asparagus as a means to diversify their investment portfolios rather than livelihood strategy.

11. Asparagus is exported in three main forms, fresh, preserved and frozen. Fresh asparagus accounts for about 60% of total Peru's asparagus exports and is the world's leading exporter.[4] The United States market absorbs 46% of its exports, while the European Union absorbs approximately 43%. Peru's main competitors are asparagus producers in Mexico and in the United States.

12. In its main export market, the United States, there has been a sharp reduction in prices over the decade: from USD 30 to USD 8-9 for a 5 kg box. Peruvian producers usually send their crop to the US market when prices are highest, that is between October and December. Some producers hold back their crops back until the holiday season when global supply is relatively low and prices reach their highest. Most asparagus is shipped by air, but over the last three years there has been a significant increase in sea freight at much lower cost, which can make use of containers equipped with atmospheric control systems. For the moment this method of transport is limited, although it provides a promising alternative for the years to come.

13. The Peruvian asparagus export sector has been influenced both by globalization and deregulation of markets as well as its position in the Andean Trade Promotion and Drug Eradication Act (ATPDEA). This has resulted in new forms of competition as well as new forms of collaboration among players. The key players, that is the growers, packers and exporters, in the asparagus value chain understand that Peru is one that must compete with business systems of other countries, such as the US, Spain, Mexico and China.

[4] Though China dominates global production with about 90% of the total output, due to local consumption it accounts for less than 1% of global exports.

14. Since 2000 the asparagus industry has undergone substantial changes in: product characteristics and packaging, global production and consumption trends, technology (post-harvest and innovations in combining irrigation and fertilization techniques), size of operation, logistic efficiencies, etc. The asparagus value chain in Peru is now characterised by larger and more competitive firms which are more tightly integrated from production through exports than ever before. Market concentration in the export sector is however moderate with the 8 largest firms accounting for only about 50% of fresh asparagus exports. However, the input supply and product processing sectors are consolidating and becoming more concentrated and integrated and this may affect producers in the near future.

Top Eleven Fresh Asparagus Exporting Companies of Peru - 2005			
Company	Net Weight	FOB Value	% FOB Value
SOCIEDAD AGRICOLA DROKASA S.A.	10,044,894	24,325,575	15%
COMPLEJO AGROINDUSTRIAL BETA S.A.	5,672,346	10,890,052	7%
AGRICOLA ATHOS S.A.	3,543,430	10,263,730	6%
CAMPOSOL S.A.	4,130,677	8,936,098	6%
AGRICOLA CHAPI S.A.	4,013,303	8,142,869	5%
AGRO PARACAS S.A.	3,699,387	6,792,995	4%
TAL S.A.	2,870,633	5,497,678	3%
AGROINPER S.A.	2,709,768	4,864,325	3%
AGRICOLA HUARMEY S.A.	2,542,398	4,419,461	3%
AGROINDUSTRIAS BACKUS S.A.	2,267,340	4,122,198	3%
AGROGUAYABITO S.A.	2,639,325	4,016,452	3%
OTHER	35,890,512	68,010,286	42%
TOTAL	**80,024,012**	**160,281,719**	**100%**

15. A cluster or network of firms related to the asparagus industry has also developed. The network consists of dissimilar and complementary firms and organizations which are specialized around specific stages in the value chain, as well as common or complementary product and service providers dealing directly or indirectly with the asparagus businesses (production, distribution, lodging facilities, core technologies, packaging, logistics, education, training, outsourcing, etc.). Bottlenecks within the value chain have been reported to arise in logistics (infrastructure and services) and raw material supply.

16. A number of critical issues were addressed over the past years and the industry has started to become more competitive by taking important steps in areas such as cold chain maintenance and development of grower and exporter associations. Small and medium enterprises (SMEs) addressed the problems related to their size and established two private service promoting associations: Frío Aéreo Asociación Civil ("Aerial Cold Civil Association"), to provide refrigeration, storage, and palletizing services for air transport as well as quality controls and real time control information through its website, and the Instituto Peruano del Espárrago y Hortalizas ("Peruvian Institute for Asparagus and Horticultural Crops") – IPEH, to provide R&D and information services to improve their competitive position. These efforts have been strongly promoted by the central government.

17. Major players in the asparagus industry are aware that their economic success depends on firm level performance with respect to safety and quality of the products. These firm level objectives provide the basis for support programs provided by government agencies such as, the export promotion agency (PROMPEX) of the ministry for trade which promotes exports through assisting in standards setting and their application. These elements complement the commitment of the sector's firms in constructing a relatively successful global system to ensure safety and quality along the chain.

18. The Peruvian asparagus industry is currently applying quality standards which guarantee their access to international markets. Asparagus processing facilities as well as field infrastructures ensure good agricultural practices and food safety and have become benchmarks in the Peruvian agricultural export sector. Private initiatives have resulted in implementation of HACCP by medium and even small producers, while larger firms have also adopted additional standards, such as environmental sustainability and social responsibility procedures.

B. Mango

19. The mango (*Mangifera indica L.*) native to southern Asia was brought to Peru in the 19th century and specific ecotypes were developed referred to as *criollo* or *regional* varieties or cultivars.[5] Low levels of private and public investments in R&D with respect to breeding and genetics as well as pest-control, agronomic practices and post-harvest treatment, have left the Peruvian mango sector somewhat behind market developments and needs. Moreover, there has been little improvement in agricultural techniques during the last 20 years, including fertilization programs and irrigation technologies (most of plantations are still surface irrigated). This contrasts with the innovation introduced into the asparagus sector.

20. Production is concentrated in northern Peru, in the region of Piura. This region has the highest concentration of mango plantations for the fresh market with approximately 12 000 ha under production, accounting for 60% of output. Mango farms are mainly found in the San Lorenzo valley district of Tambogrande, in Sullana and Alto Piura. Average productivity is around 10 TM/ha, but modern, export oriented farms can easily average 25 TM/ha. The region of Lambayeque has a smaller cultivated area but higher productivity, because most of the growers focus on local markets. These two regions account for almost 70% of total national production.

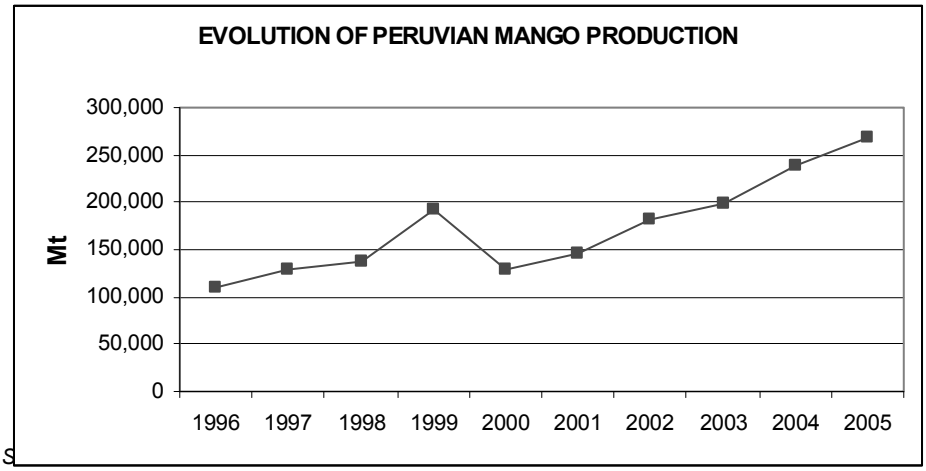
21. The mango sector contrasts with the asparagus sector in that much of its production is locally consumed and there are many small producers not in export markets. They are in fact, neither horizontally nor vertically integrated. In most cases, producers are only growers who sell their produce to traders, middlemen and directly to the packing houses - exporters. Most contracts are negotiated each season - which brings uncertainty for future agreements and strategic planning. Moreover, small growers are accustomed to sign supply contracts with different packing plants to secure product sales. This often leads to equivocal business arrangements in a fragile value chain.

22. Although there are producers' associations, growers are not well organized in marketing their crop. This leaves the power of negotiation on the exporters' side. As in other fresh fruit markets, payment between exporter and importer is negotiated on consignment. Thus the exporter is not able to know in advance the offered price. Prices to producers tend to be fixed, based on some expected final price, but this is not known in advance. Thus the producer price is often reduced at the end of the transaction. This is because the exporters do not bear price risk but pass it on to the producers. Some companies offer additional compensations depending on the seasonal profits (called "pluses"). Unfortunately these are calculated by the exporters, without disclosing the real operational costs and this lack of transparency often damages grower-exporter relationships.

23. Mango exports have been growing with fresh mango accounting for approximately 3.8 % of the country's total agricultural exports in 2005. Peru currently ranks 12th in production (1% of global

5 While India remains the largest producer, with an area of 1.6 million ha and an annual production of 10.8 MM tons, accounting for 57.2% of the world production, since India's consumption is quite high, the number one exporter is not India but Mexico.

production) and 5th in mango exports.[6] The main mango export market is the United States which accounts for more than 40% of total mango exports, followed by the Netherlands, the United Kingdom, France and Spain. Almost all mango exports are shipped by sea freight. [7]



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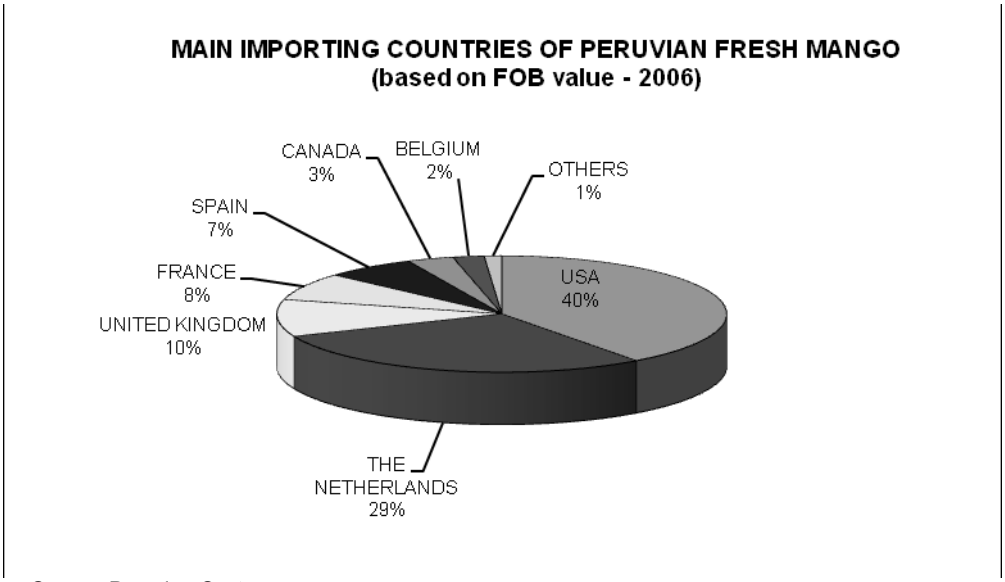

Source: Peruvian Customs

6 Data as of December 2005.

7 While India dominates global production with about 40% of the total output, due to local consumption, it however accounts for less than 16% of global exports. México is the world's largest exporter.

24. As shown below the four largest exporters account for over 50% of mango exports. Data for 2006 indicate that the four largest exporting companies now account for more than 60% of total fresh mango exports implying market concentration.

Top Six Fresh Mango Exporting Companies of Peru - 2005			
Company	**Net Weight**	**FOB Value**	**% FOB Value**
SUNSHINE EXPORT SAC	14,184,686	8,839,376	23%
NOR AGRO PERU SAC (Bounty Fresh)	6,371,705	4,088,299	11%
CONSORCIO DEL AGRO SAC	2,573,472	1,930,104	5%
FRESH FRUITS PERU SOCIEDAD COMERCIAL DE	3,262,811	1,863,125	5%
FRUTIPACK S.A.C.	1,376,409	1,674,029	4%
EMPACADORA DE FRUTOS TROPICALES SAC (EMPAFRUT)	3,252,407	1,671,660	4%
OTHER	26,596,986	18,331,255	48%
TOTAL	**57,618,476**	**38,397,848**	**100%**

Source: Peruvian Customs

25. Exporters generally own their own packing facilities and exporters organize producers under price-flexible but quality-strict contractual relationships. Some offer limited technical assistance to the producers to secure a given quality supply and at the same time lower transaction costs. It is very common to see harvesting activities assigned to third parties on behalf of the packing plant, who only collects the produce that meets their export requirements. The most efficient operations are managed by exporting companies that have integrated their activities with international buyers and thus distribute the product directly to the retail shops. These companies have aggressively started to make contract farming agreements with medium sized producers and are even operating rented plantations to secure high quality supply. For new comers in the export mango business, integration has become a sustainable commercial strategy.[8]

26. Over the last 10 years, a number of medium sized modern mango producers have appeared. These are the companies that are trying to organize their interests within an association promoted by PROMPEX, called PROMANGO. Nonetheless, the association's efforts are still limited to specific issues like information supply and group certification programs.

[8] However, unscrupulous sporadic exporters are benefiting from surplus volume to earn easy profits, distorting sustainable relations among growers and well-known established traders. These players are hurting the Peruvian mango industry, because low quality product and services are compromising the reputation of Peruvian mango in the international markets.

Table 1. Main Peruvian places for production of mangoes (in MT)

Place / Month	Total	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Total	179 283	41 756	54 104	7 394	4 350	4 486	279	75	113	215	3 575	16 051	46 885
Piura	125 400	34 188	27 261	-	-	-	-	-	-	150	3 555	15 750	44 496
Lambayeque	23 933	3 026	19 676	801	-	-	-	-	-	-	-	-	430
La Libertad	4 969	1 131	1 551	1 093	656	218	39	67	109	65	18	10	12
Cajamarca	5 253	1 349	1 842	622	63	35	-	8	4	-	2	237	1 091
Ancash	4 377	1 051	1 390	1 122	-	-	-	-	-	-	-	-	814
Lima	10 462	156	478	1 750	3 509	4,233	240	-	-	-	-	54	42
Ica	4 889	855	1 906	2 006	122	-	-	-	-	-	-	-	-

Source: Ministry of Agriculture.

27. Over 85% of production is harvested between November and February, though for export markets the harvest period extends through the end of March. This timing permits Peru to export mangoes during the off-season with respect to other suppliers thus reducing competition and exporting when prices are highest. Mangoes are mainly commercialized as a fresh fruit in local and international markets, as well as being used for juice and pulp.

C. Public and Private Institutions and export development

28. Two government agencies have been quite important for the development of asparagus and mango exports for Peru, PROMPEX, and SENSA. Though other agencies have been important these are the most important for the two sectors discussed.

29. SENSA, the National Agrarian Health Service, is a decentralized public agency under the Ministry of Agriculture. SENASA maintains a phytosanitary and zoosanitary surveillance system to limit the risk of pest and disease entering Peru and sets phytosanitary and agrochemical regulations related to registering pesticides, seeds, plant nurseries as well as registering approved importers, manufacturers, and other professional service providers. Fruit flies are one of the most significant pest problems for mangoes that can have important market consequences, thus SENASA controls the National Fruit Fly Program to reduce their incidence by implementing detection and integrated pest management systems as well as developing new techniques for pest control. It is also responsible for inspection and delivery of phytosanitary certificates, a mandatory requirement for most Peruvian export destinations.

PROMPEX

30. PROMPEX is the export promotion agency of the Ministry of External Trade and Tourism (MINCETUR). In the agricultural sector, it has been involved in projects to increase the competitiveness of asparagus and of the mango sector and to promote the access of these products to the international market. A number of organizations have arisen from this objective, for instance, Frío Aéreo, IPEH, ADEPROMANGO, and PROMANGO. PROMPEX jump started these organizations, which are now 100% privately funded and operated. Nevertheless, Prompex continues to offer assistance in the capacity building efforts of these associative institutions so as to assure sustainable growth in the sector.

31. The work of PROMPEX in these sectors has been limited to co-sponsoring industry presence in a few trade fairs and international agricultural shows every year, such as SIAL (France), ANUGA (Germany) and FOODEX (Japan). However, PROMPEX has been more active in sponsoring workshops

and advising regulators and producer/exporters in how to harmonize the Peruvian norms with international regulations. Thus guidelines and recommendations regarding food quality and safety procedures are widely distributed and promoted. Moreover, PROMPEX supports the implementations of private standards such as GAPs, GMPs, food safety and quality management systems (HACCP, ISO 9000), as well as social and environmental voluntary systems.

32. Among associations and organizations promoted by PROMPEX for the asparagus sector is the Peruvian Institute for Asparagus and Horticultural Crops – IPEH, and Frio Aereo, The IPEH is a private non-profit association created in 1998 by exporters and producers of asparagus and other vegetables. Its members include most small and medium sized firms and most exporters of asparagus. It is the main private association with which diverse government agencies cooperate such as the Agriculture Commission in Congress, PROMPEX, SENASA, and the Ministries of Agriculture, Commerce and Tourism and Economics.

33. The main services provided to members are market information, collective R&D projects, and government lobbying. By dealing with a large numbers of producers and exporters attempts are made to make use of economies of scale in procurement of certain services. At the moment it is attempting to fund research programs that would strengthen their position in the value chain through new technologies, breeding and genetics programs, marketing and contributing to the formulation of agricultural policies.

34. Frío Aéreo is a private non-profit organization created in 1998 with the support from Prompex. Its founders were fresh asparagus exporters, concerned about the cold chain supply logistics to maintain high quality, before air shipping. It built and now runs the largest and most modern organization for handling produce in Latin America, at the Jorge Chavez International Airport in Lima. Of a total of 92 000 MT exported in 2005 by air freight, 75% were fresh asparagus, and 78% of this went through Frío Aéreo's facilities.This facility also provides storage, palletizing and coordination of logistic services.

35. During the past three years, Frio Aéreo, based on the Standardization and Joint Purchasing Program, has begun to use its buying power and economies of scale to reduce certain input costs for its members. In its role to provide incentives to improve efficiency and export quality, Frio Aereo began issuing a ranking of firm performance according to a temperature criteria at reception. It also recognized the importance of differentiating among export markets according to quality requirements and thus decided to implement a "quality seal program". The quality seal should be a benefit for exporters. Clients will now be able to request a quality certificate for the product at the point of origin which should bring higher prices.

36. Another project planned by Frío Aéreo is one that is to map asparagus consumption patterns across the US and to develop a logistics distribution strategy that minimizes the cost of delivering Peru's asparagus to the US consumer market. Costs of transportation are the major factor in the cost of asparagus, often doubling the landed price. This is due to costs per kg/km of air freight are calculated on a return flight basis. The lower are the total volumes (export-import) the higher the cost. Volumes shipped out are much greater than volumes shipped into Peru, thus exports can be said to subsidize imports.

37. The diverse size and heterogeneous structure of its 29 members can generate conflicts of interests. Frío Aéreo will likely review its statutes in the future and may find it economically beneficial to become a private incorporated firm or become a type of "new generation service cooperative" of smaller producers/exporters.

38. The Peruvian Association of Mango Growers - PROMANGO – created in 2002 as a private non-profit association of medium and large mango producers was promoted by PROMPEX. It is modelled on the asparagus producer association experience and accounts for almost 30% of mango exports. At present

it has 26 members with about 1000 ha of mango trees. PROMANGO works with several public institutions, such as the Agriculture Commission in Congress, PROMPEX, SENASA, and different Ministries.

39. PROMANGO has brought members benefits by generating and distributing periodic market and technical information, lobbying for public support, and offering economies of scale in services to reduce transaction costs and implement R&D projects. However, PROMANGO is still struggling to raise funding for development of new technologies, breeding and genetics, marketing.

40. The Peruvian Association of Mango Producers and Exporters – APEM, is a non-profit association, created in 2000 by mango producers and exporters representing 60% of total Peruvian mango exports. Its aim is to develop the mango industry through the spreading of a 'quality culture' among its members and by promoting access to new markets. It also represents members in its negotiations with local phytosanitary authorities and other governmental agencies. APEM is working towards offering more services to its members, such as up to date market information and training activities. It is also promoting joint efforts in assuring quality standards and consolidating supplies to be able to offer large volumes for particular buyers as well as negotiating price reductions with group purchases (with shipping companies and input suppliers). It also presented a development project related to the development of capacity building and training for adopting Good Agricultural Practices (GAP) to the Multilateral Investment Fund of the Inter American Development Bank.

D. National Regulations: Asparagus quality standard

41. The government, through its various agencies, has been pursuing a policy of providing an enabling environment for developing Peruvian standards. It therefore facilitates and promotes joint efforts of associations by providing international, regional and national technical background information; assisting in the drafting of standards and helping in the dissemination of standards. One approach of the Asparagus Standards Technical Committee is to hold information sessions in the areas where the vegetable is grown to encourage the productive sector to participate in standard setting and thus their adoption.

42. Established as an informal public/private partnership, the Peruvian Technical Standards Committee developed the Peruvian Technical Standards for Asparagus, a quality standard for asparagus which is also harmonized with that of Codex Alimentarius. Because of Peru's large share of the asparagus market, it was able to participate directly in the drafting of an international Codex standard and get important quality related concerns incorporated. [9]

43. The Peruvian Technical Standard consists of three parts:

- *NTP 209.402:2003 ASPARAGUS. Good Agricultural Practices.* Defines good agricultural practices for asparagus production that will ensure a healthy product, free from pollutants and from sanitary problems (presence and/or damage caused by pests). Good Agricultural Practices - GAP- combines a series of technologies and techniques that emphasize integrated pest management, natural resource and environmental conservation while minimizing of hazards to human health.

[9] A request was made that the grade of green asparagus be measured 2.5 cm from the base of the stem rather than at the midpoint, basing same on the quality of Peruvian asparagus, which thanks to weather conditions, are usually thicker and conical in shape.

- *NTP 209.401:2001 ASPARAGUS. Fresh Asparagus. Requirements.* It establishes minimum requirements (size, tolerances, presentation, markings and labeling, pollutants and hygiene) that fresh asparagus must meet to be marketed.

- *NTP 209.401:2001 ASPARAGUS. Hygiene Practices for Processing Fresh Asparagus.* Establishes hygiene practices for handling (cultural practices and harvesting, washing, cutting, selection, packaging, refrigeration, storage, transportation, distribution and sale) of fresh asparagus for human consumption to guarantee a safe and healthy product. The standard deals with the processing of asparagus for marketing as fresh produce.

44. Development of an adequate HACCP system was the next major activity supported by PROMPEX. This activity was also funded by the European Union via PROMPEX Agreement on Exports Programme. The project involved a professional from each firm who to implement HACCP, while PROMPEX monitored and supervised the companies' progress in implementing it. These same companies are now satisfactorily conducting the quality audits required by their clients and some have opted to obtain HACCP certification through international certifiers.

45. This also paved the way for the implementation of the Export Quality Program of PROMPEX described above. This program has developed important management tools for monitoring and supervising the firm's progress in implementing quality systems. The instruments available include quality profiles of every firm so as to make it possible to evaluate and to determine their progress in a systematic and objective way. This profile can be also used to pinpoint elements that require urgent action to ensure product safety and quality, and to reorient the activities during the project. Thanks to the excellent organization and work of this program, the European Union – PROMPEX Agreement on Exports secured ISO 9000 certification.

46. When exporters decided to implement the HACCP system, they realized the importance of beginning at the farm level. This meant keeping records of pesticide applications, using integrated pest management schemes to minimize chemical use and controlling pathogens at the fertilization stage and elsewhere in the production chain. This meant requiring that producers apply Good Agricultural Practices in a systematic way. They recently opted for the EurepGap certification, which is being demanded by European markets. Some firms have several certificates including, SQF 2000, ISO 9000. Depending on client locations some firms also have the British Retail Consortium (BRC) certification, another variation of the HACCP system.

47. Another standard being implemented fairly quickly is the Business Anti-Smuggling Coalition (BASC) Certification, which is the security and protection standard for international trade. This certification helps companies meet US standards for combating bio-terrorism, by adding security control management in the logistical chain to their safety and quality systems.

E. National and International Mango Regulations, Requirements and Standards

Peruvian Technical Norm for Fresh Mangoes

48. The Mango Normalization Technical Sub-Committee created in December 2000, was to evaluate mango related international quality norms and to develop a Peruvian Technical Norm for fresh mangoes. This norm sets the national standard for fresh mangoes destined for consumers. Although the norm is not mandatory it is strongly encouraged and used as a guideline for the basic quality requirements and classification of mangoes in export production. It contains minimum quality requirements, rules for classification by quality, size and presentation requirements. It also defines maximum limits for

contaminants and Maximum Residues Levels – MRLs - for pesticides, and adopts the provisions on food hygiene recommended by the Codex Alimentarius.

National Program on the Control, Suppression and Eradication of the Fruit Fly

49. The National Program on the Control, Suppression and Eradication of the Fruit Fly is under the responsibility of SENASA. The program includes monitoring activities at the field level such as ethological, biological or chemical control in order to combat and to eradicate fruit flies in the production areas. Farmers can register to participate in the program after paying a minimal registration fee and adopting practices to control the fruit fly. Participating farmers receive a "certificate of competence" a pre-requisite for a phyto-sanitary certificate for export. Consequently, participation in the program can be considered obligatory for growers who intend to export.

Exports to the North and South America

50. In the US, the EPA (Environmental Protection Agency) has established maximum pesticide and agrochemical residual levels and exports are required to undergo a hot water treatment in APHIS-USDA certified processing plant to control for fruit flies. SENASA allocates permanent personnel during the fresh mango season in each packing house, for both, controlling the hydrothermal process and monitoring fruit fly threshold levels. SENASA issues the phytosanitary certificate at a cost of USD 150 per container, charged to the packer. In addition, one technician of APHIS-USDA is also present in each packing facility, to supervise the process, especially the calibration of the hot water tanks and the length of immersion. After this the APHIS official approves the issuing of a seal on each exported container (Immersed in Hot Water by APHIS-USDA). The cost of this supervision is charged to the packer at USD 50 000 per season.

51. Because of potential fruit fly infestation, Chile and Argentina require hydrothermal immersion treatment as well. Canada requires only a phytosanitary certificate. The Japanese require a special hot steam treatment and/or irradiated produce, but exports to Japan are very limited.

PART III. INTERVIEW SYNTHESIS AND ANALYSIS-Asparagus

Exporters

52. The asparagus sector is dominated by medium-large integrated operators who both produce and export. Small exporters are also present in the sector but these firms are often short-lived. They are known as "golondrinos" (swallows) because of their volatile existence, entering into the market when an opportunity presents itself, for instance to supply a distributor who sources for the Thanksgiving season in one particular year. They neither benefit from nor contribute to the evolution of the supply chain. Medium size export firms are sometimes set up by large companies that produce fresh asparagus for exports as a side business, using its marketing power and infrastructure.

53. The exporters and producer firms chosen for the present study represent key players in the asparagus value chain. All have been in existence for at least 8 years. See annex 1 for a listing of firms by size. Fresh asparagus accounts for the major part of firms' revenues (70% on average), although many maintain a diversified production of horticultural crops. Some of them play the role of integrators, associating small and medium producers, providing them access to export markets through diverse services. Therefore issues relating to small and medium sized producers are also addressed in the interviews with the major firms of the sector. See annex I for a description of the firms interviewed

Producers

54. The largest producers (> 500 ha), are basically integrated companies that export their own produce and also have stable contracts with medium sized farms (> 100 ha) for sourcing asparagus during the season. Smaller producers, with fields between 20-100 ha, often negotiate their produce season by season. Almost all asparagus is planted with hybrid seeds, drip irrigated, and is certified GAP, and/or EurepGap. Most medium or small sized asparagus producers do not necessarily earn their living from agriculture. They have other jobs and businesses in Peru, and have become involved in asparagus during the last 10 years, as a way of diversifying their investments. In essence, they have decided to enter the business because it has proven to generate high revenues. See annex I for a description of the firms interviewed

Export value chain

Inputs

55. The main inputs into asparagus production are seeds, seedlings, agro-chemicals and fertilisers. Most inputs as well as machinery and equipment are imported. All hybrid certified seed is imported directly from one of the four main providers in the US. Irrigation systems are imported from firms specialized in drip irrigation systems from Israel, the US and Spain. Water pumping systems are also imported from the US and Italy. Agri-chemicals, mainly US, are sold by large distributors although smaller producers can purchase small volumes from local shops in the valleys. Manure is however bought locally. Seedlings for establishing new plantations are either bred by the producer himself or bought from one of three nurseries.

56. Machinery and specialized equipment are owned by the producer or rented through service companies and public agricultural agencies, depending on the size of the operation. Trucks for transporting the harvested crop to the local processing plants are rented or privately owned depending on the size of the operation. Harvest seasons are set by the financial pressure of the producer but marketing programs are scheduled yearly.

57. In medium sized operations, the crop is harvested by the grower and then is sorted and selected in presence of the producer and the quality assurance personnel of the packing plant so as to ensure price-quality specifications. Payment conditions are on cash upon delivery. When asparagus is in short supply producers are able to negotiate a price increase beyond that stipulated in their contract. If they are not given the higher price, the producers often break the contract and simply sell to the highest bidder. The terms and conditions of contracts are often violated, given the weak enforcement system. Costs of enforcement are high in terms of time thus there is no effective sanction for a breach of contract, which often occurs during critical periods. Because of limited supply over the past three years, producers are entering into a type of joint venture agreement with the exporter's packing facilities to capture some of the exporters' rents.

58. Vertically integrated firms manage their fields as IOC´s (Independent Operating Companies) to maintain cost efficiency. At the processing plant is immediately washed and hydro-cooled after harvest, in order to keep its freshness, natural taste and texture. Produce is then cut and sorted by size and packed in 5 or 11 kg carton boxes – depending on the market specifications. Some specialized asparagus companies, generally the larger ones, provide for other commercial packaging such as the so called "tips", or "flast".

59. Once the produce is packaged, palletized, wrapped, it is stored in cold chambers, and then depending on logistics organization, sent to the airport in less than three days. Transportation in cold containers to the airport can take as long as 12 hours, if the origin is in northern Peru, or 5 hours if the produce comes from Ica in the south.

60. Air as well as sea cargo services are basically arranged between specialized logistics and the storage facilities firms. Thermo Kings or similar cold chain transportation technology is used and it can be owned by the exporter or rented in the private market. If the exporter is a member of Frio Aereo, he delivers his produce through this association, since costs are lower and additional services are provided. In addition to Frio Aereo, there are two other well-equipped and experienced logistics storage facilities, located close to the international airport. If instead sea freight is selected, the same logistic systems are used to reach the port of Callao, where the product is placed in temperature controlled containers.

61. Most firms providing services related to the export of fresh asparagus are competitive and invest to expand, innovate, and adjust to market changes. Competitiveness is a function of: the firm's own performance; public infrastructure and services; and the performance of other firms or institutions providing the export/packer firm with inputs and services. In the asparagus industry, competitiveness frequently depends on a network or chain of firms that together produce, collect, process, transport, and sell products. For example, to be competitive and to earn sufficient returns to their labour, land, and capital, an asparagus producer must be linked with input suppliers, technology providers, traders, processors, logistics providers, transporters, and oftentimes with the retail distribution sector. Performance of the chain depends on effective cooperation and coordination among all partners. In Peru's asparagus industry there is a high degree of vertical coordination which means that the cooperation and coordination between the different stages and links in the value chain is very tight.

62. A number of exporters interviewed expressed dissatisfaction with importer relationships because certain importers tend to mingle the shipments of different exporters and alter spot market prices reported. By doing this can manipulate the value of diverse shipment volumes to their own benefit. If payments are on a 3-8% commission basis, they can price the product at any level – even below the producers'/exporters' breakeven point. Or they look for "excuses" in the quality aspects to discount the unsold quantities in their invoice. Moreover, the exporter does not necessarily know where the product is sold – so, large amounts on the "inland transportation" items are frequently found on the buyers' bill. This has spurred some exporters to think about ways to monitor these internal travel costs.

Information and Communication

63. Independent producers generally are informed about market trends and needs through the packer-exporters, who are in direct contact with the final clients through their commercial departments. In the case of producers/exporters-integrators, the commercial managers obtain the clients specifications by communicating directly with their brokers, distributors, importers or even retail stores' category captains. Certification and audit firms provide them with the specific requirements of each standard. Any changes in requirements are rapidly communicated through one of these avenues.

64. At a more general level, interviewees expressed the need for more sharing of information and technology between firms. The government provides limited funds for courses, seminars and workshops for raising growers' awareness of quality/safety issues and the importance of meeting international standards. Public support, through independent intermediaries with adequate knowledge of market and agronomic tools and technologies, could be important in enhancing the efficiency of the supply chain. The government provides limited funds for courses, seminars and workshops for raising growers' awareness of quality/safety issues and the importance of meeting international standards. Producer and exporter associations have made significant contributions to this activity and are playing an important role in linking participants in the value chain.

Product and Process Requirements

65. Both exporters and producers interviewed were satisfied with their capacity to meet product requirements. Most of the exporters/producers were required to obtain several different certificates attesting to the same attributes. They feel these are time consuming and would prefer to have a reduced set of global standards for all markets.

66. All producers have met requirements for Good Agricultural Practices (GAP) certification, which is a Peruvian standard which includes USDA recommended protocols and many are now becoming EurepGap certified. GAP specifies procedures related to field hygiene, worker safety, record keeping, environmental quality, and traceability, but is not as strict or as detailed in its requirements as EurepGap. The "general" GAP certification has been promoted by the US importers for the past 7-8 years and EurepGap certification which have been recommended by the EU buyers in the last 4-5 years. The larger firms manage and fund their own certification for GAP. The smaller producers are assisted in the certification process by IPEH and Frío Aéreo and are financed in part by their own budgets and in part by government funds.[10] Regarding food quality and safety, the packers/exporters are the ones that are held accountable for these attributes, they must therefore meet requirements of the standards applied to manufacturing or processing plants, such as BRC, HACCP, SQF2000 or BASC often several simultaneously.

67. The most difficult requirement to meet in the certification process for small producers is that of data recording of chemical applications, inputs and activities in the field. The use of information technology due to costs and skills needed appears to be added constraint. Up until now the sector has been run on an informal basis without sophisticated integrated management systems. Nonetheless, the audit and certification procedures which producers undergo are recognized to be a useful tool for increasing efficiency, improving production practices and ensuring business sustainability.

68. The traditional productive infrastructure for small producers is considered inadequate to qualify for international standards with respect to heath and food safety (*i.e.* mud-based constructions, implementations of latrines along the fields, etc.). Overcoming the physical infrastructure constraints within low budgets has been a challenge for most of small farmers; however, they have creatively complied with most of the standards (*i.e*. one farmer designed a very low cost latrine, and another one built a post-harvest shade house that used the breeze's impact with wet charcoal walls, to keep the produce fresh).

69. The largest export market, the US fresh asparagus, requires fumigation prior to entry. This procedure reduces shelf life significantly and can be an obstacle for certain value-added presentations. For instance if asparagus are cut and wrapped in plastic, US -APHIS- (Animal and Plant Health Inspection service) may unwrap them in the inspection process. This procedure limits the exporters' capacity to supply value-added products to the USA. Peru's SENASA is negotiating with APHIS to have fumigation chambers at Peru's airport so that the fumigation requirements can be fulfilled before shipping.

70. The European market imports do not require this procedure and this explains partially why the United Kingdom, Germany, Spain, and the Netherlands, have become a preferred market for asparagus.

[10] In the future, due to the growth in Free Trade Agreements (FTAs), there will be a need to strengthen the regional exports and thus it is likely that governments in the regions concerned will be assisting different certification processes for a greater number of products and for less competitive growers.

However, certain European firms have very strict social accountability standards. Exporters have reported English brokers traveling to Peru just to audit the credibility of compliance. Tesco, for example, requires certification but also sends its own auditors to Peru, in order to inspect this issue on their own.

71. Packing plants follow HACCP principles, however in the field only those post harvest activities which add value are considered useful by farmers. Audits for specific certifications must give evidence of their cost effectiveness if they are to be adopted by farmers. Where such activities are important to the importer, the latter do offer third-party assistance or fly in their own supervisors to supervise quality related activities and infrastructure in fields and packing plants.

Monitoring Producers

72. Independent producers which are used as out-growers by integrated firms are generally supervised by the agronomic department of the packing plant. The exporter provides them with technical and managerial assistance as well as guidance in quality based activities. The type of partnership will depend on the agreements established between producer and packer/exporter. The most important issue for the exporter/packer is to secure a stable flow of the product of a specified quality. The larger the producer the less the packer-exporter needs to intervene in the field operations given the high skill and competence levels needed.

73. The two main requirements that are difficult to meet are basically related to infrastructure issues and record keeping at the farm level as noted earlier. Some government support is given to finance and promote capacity building for these activities. Due to lack of finance, requirements related to IT implementation procedures and infrastructures are considered too expensive for small scale farms and exporters.

Conformity Assessment

74. There are many accredited audit and certifiers as well as testing laboratories in Peru, thus price competition is keen among them. Certain exporters use only specific audit firms, such as Primuslabs, Davis Fresh and SGS, but others exist and are active in the market. These are often designated by the importer herself. The growers pay for certification at the farm level, which is for certifying good agricultural practices, through GAP/EurepGap, and the exporters/packers pay for those attesting to good manufacturing practices and HACCP systems, such as BRC, SQF2000. More sophisticated certifications are required only for highly diversified export companies (Kosher, etc.). Over the last 3 years EUREGAP has become an important certificate for the market and even smaller farms are willing to pay for these audits.

75. Along with the export logistic systems, product conformity works in a “no news, good news” fashion (if nothing is reported, then everything is well). Transport conditions are constantly being monitored by the systems installed in the cargo chambers, containers or bodegas. If a problem arises in most of the cases it will be almost impossible to repair the damage once the quality is affected in the fresh produce chain. With early warning signals, the damage can be mitigated to reduce the commercial impact of a performance failure. Most production is insured during the transportation period, and the receiver performs quality audits immediately upon arrival.

76. It has been suggested that Frío Aéreo develop a third-party independent auditor program in the major ports of destination. Some firms already use independent auditors to oversee transactions and some others, in particular the medium/large ones, have included international buyers as shareholders. A 3rd party audit service could be of great help for smaller and medium exporters, since they have no access to other control mechanisms.

Traceability: Tracking and Tracing

77. Traceability is itself an independent management system, and most, even small producers, processors, and exporters are aware of their benefits. However, record keeping is still one of the industry's bottlenecks which need to be resolved, particularly for small firms/farms. Informal activities and limited know-how about structuring systematic information are not necessarily helping this. Traceability requirements are already included in some certifications, such as EurepGap, and there has been a trend to contract audit companies to undertake this task recently. Thus far, only limited traceability has not been a problem for market access. However, most of the smaller firms interviewed are conscientiously working on extending traceability. Most of them can provide the overall field record to the exporters, but may not be able to link it to the exact lot, or day of harvest. On the other hand, larger firms like Agrokasa –because of their pharmaceutical background as well as dealing with only their own production - have a rigorous traceability system that allows produce tracking per bundle to the field spot and day of harvest.

Assessment of public infrastructure and private services

78. The producers and exporters/packers raised the following issues:

- Poor rural roads: many are too narrow and the produce from fields linked to these roads need several trips with smaller trucks to get the harvest to the packing house;
- Funding of R&D activities is very limited and more varieties attuned to consumer demands need to be developed;
- Laboratory testing facilities are not sufficient and their results are not always very consistent;
- Telecommunication systems are considered adequate in coastal areas but weak inland;
- Energy supplies were however adequate, stable and at competitive prices,
- Much concern was expressed at the lack of sufficient air freight frequency, capacity and costs, factors which limit the competitiveness of the industry.

Logistics

79. Logistics is a major concern for the profitability of the asparagus industry. Most asparagus is shipped by air and these costs are quite high, particularly during the holiday season, when asparagus prices are at their highest. In these months asparagus shipments compete with other high value products which are able to absorb larger transportation costs. Moreover, aircraft traffic in Peru is quite low compared to other Latin American countries.

80. While there is large potential for fresh produce exports from Peru, freight costs can be as high as USD 2/kg, if the plane returns half empty to Peru. Sea freight is a potential alternative, and this is being evaluated. However, in the years to come, especially considering high fuel prices, R&D in fresh produce transport technologies will define the protocols and standards for exporting cargo via sea freight shipping services.

Supply Behaviour and Structural Change

81. The asparagus industry is highly organized and efficient. Perishable, high-value products with stringent quality and safety requirements such as fresh asparagus typically require complex contracting

arrangements to control quality and coordinate production, trading, and processing activities. There is also a need to improve the operation of the legal framework and regulatory policies for the efficient functioning of markets (for example, contract enforcement rules, labelling regulations). These are critical in increasing foreign investment.

82. The future of the asparagus business in Peru nonetheless seems to be fairly bright. There is a tendency for large receivers-importers of the US and EU, to invest in the equity of Peruvian asparagus packing houses, and for packing houses to establish either long-term agreements with small and medium producers, or to implement their own large plantations. Consolidation in production and distribution will be the way the industry will move forward in the years to come. In addition more emphasis will be likely on changes in product characteristics and presentations, on post harvest technologies, on innovations in agronomic techniques, such as combining irrigation and fertilization techniques as well as in improved logistics systems and tracking and tracing. The pace of change seems to be increasing and the Peruvian asparagus value chain has welcomed larger and more competitive firms, more tightly aligned across the production and distribution chain. Moreover, the input supply and product processing sectors are becoming more consolidated, more concentrated, more integrated.

Importer's Profile

83. Importer profile varies depending on the country of destiny. Basically in the US, importers are brokers who sell the product under consignation. They charge a commission that ranges between 4-8% of the gross revenues. There are some exporters who, because of their vertical integration with the importers, such as Athos, Peak Quality, Agroindustrias Backus, among others, share the benefit from selling to the retail market. Only the largest companies, such as Agrokasa, can manage to sell to the retail stores (Wal-Mart, Albertsons', Kroger, etc.) directly. There have been some attempts by IPEH to pre-qualify importers, in order to reduce the opportunistic non-value added middlemen, called "swallows". Initiatives are also underway for Frío Aéreo to establish a type of marketing Coop, one on the east coast and one on the west coast. In the EU, Peruvian asparagus is not as popular as in the US, and sales occur generally through smaller brokers with exception of the UK. The highest prices in the market are being offered by Japan, followed by the UK.

Most Important EU Importers of Peruvian Fresh Asparagus - 2005

Name of Company	Net Weight (Kg)	Share
GARCIA MATEO & ASOCIADOS S.L.	2,930,426	17%
BOMFORDS	1,551,373	9%
JACOBS MALCOLM & BURT	1,330,429	8%
EXOTIC FARM PRODUCE LTD.	1,402,182	8%
NATURES PRIDE	1,013,349	6%
MIÑANA SAN GERMAN	732,943	4%
EXOFI FRESH MARKET	496,798	3%
BUD HOLLAND	468,400	3%
FRUTAS NIQUI MADRIMPORT S.L	467,257	3%
LA FLECHA IMPORT EXPORT BV	450,887	3%
OTHER	6,063,353	36%
TOTAL	**16,907,397**	**100%**

Source: ACM Peru

Most Important US Importers of Peruvian Fresh Asparagus - 2005		
Name of Company	Net Weight (Kg)	Share
GOURMET TRADING CO	7,795,085	21%
ALPINE FRESH	4,931,679	13%
SOUTHERN SPECIALTIES	4,072,617	11%
FRU-VEG SALES INC.	2,504,393	7%
ALPINE MARKETING	2,127,051	6%
AYCO FARMS INC	2,104,427	6%
BOUNTY FRESH	1,864,838	5%
OTHER	11,107,398	33%
TOTAL	**36,507,488**	**100%**

Source: ACM Peru

PART IV. INTERVIEW SYNTHESIS AND ANALYSIS-MANGO

Exporters

84. Although there are over 70 mango exporters in Peru, the sector is dominated by five or six exporting firms which together account for more than 50% of the total exports. These belong to the leading members of APEM, Asociación Peruana de Productores y Exportadores de Mango (Peruvian Association of Mango Producers and Exporters). For these firms, fresh mango exports account for about 90% of their revenues, although some do produce/export other fruits and a few have entered into the processing industry, producing mango chunks, dehydrated produce, as well as pulp and juice.

85. Export firms in the sector are quite varied in their activities and structures. Two of the firms interviewed are integrated operations both producing and exporting mangoes and are well integrated with the retail networks in the United States. The largest exporter sources its mangoes from a variety of producers in addition to producing on its own plantations of 150 and 300 ha. Another large exporter provides packing services to either growers and/or exporters but exports only own production and is linked to an Israeli marketing firm. Generally, producer/exporters produce and buy additional supplies.

86. Small and medium sized exporters consider mango as a complementary product in their portfolio and many are basically a one-man-business operation using outsourced services provided by packing houses and some harvesting firms. There are also some independent, small-medium farmers that occasionally try to export their own production, however with only limited success. As in the case of asparagus, there are the so called "swallows" – *golondrinos* – firms which are sporadic mango buyers and exporters, which enter the market only to take advantage of market opportunities in the short run without the intention of developing a sustainable relationship with growers, packers, or buyers/importers. See annex II for a brief description of firms interviewed.

Producers

87. Mango production covers an area of about 14 500 ha, producing about 275 000 MT (2005), of which 24% was destined for exports. There are few large producers with plantations over 60 ha. These are referred to as competitive growers and are all members of PROMANGO - Asociación Peruana de Productores de Mango (Peruvian Association of Mango Producers). Despite their fairly large holdings, they are highly leveraged financially and do not necessarily adopt the most recent technologies in production. There is a second cluster of enthusiastic middle-size producers who have at least 10 ha and again most of these are also members of PROMANGO and have been certified EurepGap. PROMANGO members' production accounts only for 15% of all mango exports (about 1 000 ha), therefore, small

farmers with average holdings of 2-5 ha account for almost 85% exports, but few are involved in the export value chain. See Annex II for a brief description of firms interviewed.

Value chain

88. Plantlets for small plantations are bred by producers themselves. Some of the highly reputed growers also provide nursery services and sell grafted plants – prices vary from USD 2-3.5 per plant. Although selection of rootstocks for dwarfness has been an important aspect of mango breeding programs worldwide, in Peru there has been very limited research concerning this trait. Smaller trees increase plant density and reduce the number of years required for new firms to reach their breakeven point. Most mango holdings grow a variety that originates from the northern region of Peru. However, investment in R&D for development of varieties which are economically sustainable as well as marketable is needed. For instance, the Haden and Kent varieties are tasty and fibreless and widely marketed, but their trees are very tall, making different certain agronomic practices as well as harvesting difficult.

89. Research and development in both technology and varieties are important both to the individual farmer and the sector as a whole, but at present there appears to be a lack of private and public investment in mango R&D.

90. The input supply profile is similar to that of asparagus with agrochemicals sold through large distributors, but also available locally for smaller farmers. Machinery and specialized equipment, most of which is imported, is either owned by the producer or rented from service companies and public agricultural agencies, depending on the size of the farm. Packing houses offer some inputs only to smaller holders and provide technical assistance to their growers depending on each contract and each producer profile.

91. Since most of the fresh water diverted for human use in Peru goes to irrigation, improving irrigation efficiency is the most direct way to address growing water shortages. The most efficient irrigation method, drip irrigation, represents less than 1% of irrigated acreage in spite of its relatively rapid adoption over the past 10 years. The key constraint to its wider adoption is that initial costs are too high for the 80% of Peruvian mango growers who cultivate less than five hectares. Therefore, traditional surface irrigation methods are still used for mango production. There is also a fear to change to efficient drip irrigation systems since older trees with wide spread root systems might come under stress with these techniques.

92. Most producers self-finance the improvements on their plantations but some commercial bank loans are available. Most growers are highly leveraged and their capacity of obtaining additional credit lines is very limited.

93. Contracts between packing plants and growers are determined each season. On medium-large sized holdings production is generally harvested by producers themselves and is sorted by quality/size/colour and sold in the fields under the packing plant's supervision. Some producers take them to the packing plants themselves. Packers also generally have their own harvesting crew for medium and large holdings. When obtaining production from small producers mangoes are collected by intermediaries and brought to the packing plant. Harvest seasons are determined by marketing programmes and by expected maturity of the crop.

94. At the packing facilities, the fruits are immediately washed, brushed, waxed, dried, brushed again, electronically classified by weight, packaged in 4 kg carton boxes – depending on the market specifications, palletized and pre-cooled. Almost 100% of the produce is shipped in containers by sea freight, under controlled conditions, through the port of Paita, with ship frequencies of around twice a

week. Paita is about 3 hours away from the 4 main packing facilities. Air as well as sea cargo services are basically arranged between specialized logistics companies and the storage facilities.

95. Almost 100% of the produce is shipped in containers by sea freight, under temperature controlled conditions. The port is about 3 hours away from the 4 main packing facilities. Small quantities are also shipped by air with supply logistics similar to those used for asparagus.

Information and Communication

96. As in the case of asparagus, information for producers on product specifications and private standards are obtained through packing houses or exporter/packers that have direct links with clients abroad. Growers claim that lack of information on logistics, costs and market price data impedes their calculation of these add-on components of price and is damaging their relationship with the packing houses-exporters. Business relations rely on trust between agents, however producers however often feel cheated when at the end of the season they are presented with "surprise" information from the exporters/packers, which should have been shared at the beginning of the season.

Product and Process Requirements

97. The firms interviewed were generally satisfied with their capacity to meet product requirements. Contrary to asparagus, there is no binding national technical standard for mangoes or even one promoted by Peruvian private producer/exporter associations. Only the fruit fly control program of SENSA is required. It turns out that the official standards required by the EU and its member states are only of minor importance in the sector. The regulations on maximum levels of residues or food contaminants, labelling and packaging requirements were not mentioned as constraints.

98. The private standard EurepGap is seen as the only way for ensuring good agricultural practices, environmental quality, worker safety and hygiene and traceability on the farm. A HACCP standard is not required at the farm level, but is at the packing/export level. A number of different standards, BRC, Dutch Haccp are used to comply with HACCP principles. These are used by all members of APEM. Those exporting to the USA noted that BASC certification for handling and shipping is being requested more frequently and has become important for US exports. Among the private standards, Tesco's Nature's Choice has become a coveted certification as it implies being able to achieve high quality, food safety and GAP levels and thus signals a high quality producer/exporter.

99. The most difficult requirements to meet for certification are the same as in the case of asparagus: record keeping and agro-chemical applications. Traceability was also difficult particularly for small and medium producers. Personnel hygiene habits of workers were also noted as being difficult to meet continually. Since most small mango producers lack basic literacy and educational skills these difficulties are not easily resolved.

100. Mangoes exported to the US are subject to APHIS inspections for hydrothermal treatment enforcement. Many producers report that the treatment increases the production costs and reduces shelf life and affects appearance and quality in general.

101. For exports to the EU, and particularly to the UK, buyers come to Peru to ensure quality standards during the packing season. Frutopia, for example, brings a specialized technician during the whole 3 months from Utopia fruit importers, to guarantee quality standards. EurepGap is required of EU food retailers.

102. Exports of mango must meet a number of quality requirements in addition to those of private standard schemes such EurepGap. Given mango is high value product, quality characteristics are essential.

These refer to color, size –at least 450 gm, maturity, flesh consistency and sweetness. When certified high quality products are in short supply exporters may in fact accept high quality fruits that have not yet achieved certification. This is in part due to traceability not being enforced but also to sheer lack of adequate supply volumes. However mangoes can also be rejected even if they satisfy GAP requirements because of lack of quality attributes or because of logistics problems, such a late shipment and thus short shelf live or harvest at insufficient maturity.

103. While MRLs regulations for pesticides are well known among processors and exporters, most producers are not aware of these. In general, compliance with MRLs causes no problems due to the climatic conditions in the production regions, such that pests and disease are rare events. Pesticides are applied shortly after flowering, if ever and as a result quarantine periods are easily met and pesticide residues virtually do not occur. Export/packing firms manage the application of agrochemicals on the farms, so that in general farmers do not have to undertake any additional efforts to comply with the standard.

104. Compliance with SENASA requirements for the phytosanitary certificate is often quite demanding. Producers must register with SENASA and adopt specific management practices to control the fruit fly (e.g. remove fallen fruit from the farm). Both the National Program for the Control, Suppression and Eradication of the Fruit Fly and the work of SENASA operate a relatively good system to satisfy international requirements for ensuring plant health.

105. Since 2002 EurepGap is the standard most frequently requested by importers and is becoming mandatory among the European importers. In the Piura mango growing region, the standard currently is followed by all PROMANGO growers and the main exporting companies.

Monitoring Producers

106. Generally, the exporter provides the grower with technical assistance and managerial guidance in quality based activities. Quite often the packer/exporter sends a technician to the growers' fields in order to advise on agronomic issues. The smaller the holding, the greater the input from exporter's technician. The type of cooperation between firms will depend on the association agreements brokered between producer and packer-exporter. PROMANGO has implemented a system, where the best technicians from each field/company visit other PROMANGO members during the season. Thus PROMANGO takes up part of the task of technical assistance in addition to that provided by exporters. Technicians are highly skilled in best agronomic practices and are full time employees of the medium and large plantations owned by PROMANGO members. The cost of the visits is almost totally absorbed by the larger plantations for the smaller ones. This is a helpful system that has brought about positive results among the members and has improved product quality for small and medium sized producers.

Conformity Assessment Producers

107. All PROMANGO members have been certified EurepGap since 2005. The large producers finance their own audits and certifications through 3rd party firms, while small holders take part in the Group Certification Program, which is promoted by EurepGap. The incentive for certification of mango producers is not expected price, but rather to consolidate his position in the chain, improved cooperation with the buyer in addition to increased efficiency in production.

108. The government does not play a role in the accreditation or certification process for international requirements, although PROMPEX and the Ministry of Agriculture – through their General Department of Agricultural Promotion (DGPA) – have allocated funds for courses, seminars and workshops to inform growers of main quality issues and the importance of meeting international standards. Large packing plants

as well as PROMANGO have qualified for what they called Programa de Certificación Grupal – Group Certification Program – which offers reduced fees for contracting EurepGap accredited certifiers for small and medium landholders if the transaction reaches critical size. With the discount certification costs are approximately USD 300/ha.

109. Most producers feel that they receive substantial benefits from becoming EurepGap certified, even though there are costs to it. Most of the medium-large growers find that EurepGap conformity has provided them with better management and control systems, so investments and recurrent costs tied to the certification have been profitable.

110. Infrastructure development is considered a fixed cost for entering a certified market. This can be a major constraint for small holders given their lack of funds and often access to credit. There is substantial variation in needed investments among actors, depending on initial structures. Record-keeping is also an important constraint for producers. One solution is to hire technicians to undertake record-keeping at the field level, but the salary of such personnel can be about USD 800-1000 per month. It is suggested that the minimum size for economic viability with certification is 15-20 ha with sales of about USD 120 000. This permits meeting recurring cost as well as investments needed for upgrading. For a 10 ha. farm, USD 10 000 per year in recurrent costs would be not be a feasible in the medium term. However a technician would also be involved in other administrative activities so that his costs would be spread over a set of activities, thus some allowance must be made in evaluating the cost-benefit.

111. The use of 3rd party auditors and certification companies in conformity assessment has transferred costs of quality and sanitary control from the importer to the producer. Therefore, mango growers must now invest in infrastructure, training programs and technical assistance in order to comply. According to producers, expenses in maintenance of installations, certification analyses and training can range between 4% and 15% of the price paid at the farm gate.

112. Certification costs for small farmers are assumed by large exporters. There are two options to reduce certification costs for the grower: group certification program (offered by producers associations like PROMANGO) or contract farming agreement with an exporter, where the exporter assumes certification compliance. In this last case, the exporter accepts to assume the costs at farm level, because he remains the owner of the certificate.

113. Independent mango growers negotiate the sale of their output each season to highest bidder, thus there is no strong link between the packer-exporter and producer. In the same way, there is almost no capitalization on the know-how and technical assistance offered by the exporters, since the agricultural practices adopted during one year, may not generate positive benefits until sometime in the future, such as promoting a sustainable fertilizer programme.

114. Most small producers are generally not yet certified, though many are in the process of being certified. This situation often creates tensions among certified producers. Oftentimes, even many large and highly reputed certification companies –feeling the pressure of smaller and cheaper certifiers in the market– have reduced their fees and tend to be more flexible each time. Some members of PROMANGO this feel they are not being fairly treated, as exporters are using the medium and large-farmers' certificates to promote their exports in the international market. But, in fact, they mix their certified production with uncertified production and sell it under the same brand. One grower said that if they divide the total exported volume between the total certified operations in Piura, they will come to incredible yields such as 40 TM /ha – which are impossible to reach.

Traceability: Tracking and Tracing

115. Traceability as an independent management system is important in the mango value chain. Small producers, processors, and exporters are aware of their benefits, informal activities and limited know-how about structuring systematic information as demanded by private standards can be difficult to achieve. Regulatory traceability down to the farm level is ensured automatically by the issuing of the phytosanitary certificate. The compliance with the UN/ECE standard also causes no problems to the exporter/packers even if it is unknown the producers. Thus far, no sale has been stopped because of limited traceability capacity, especially in counter seasons with low export flows.

116. There are three types of exporter:

i. Exporters focused on meeting volumes more than on quality: they purchase some produce from certified medium size PROMAMANGO members and buy a lot from small producers, which are group certified through the exporter(with rather lax audits) or uncertified.. The mangoes are mixed so that the average quality for export is satisfactory and often appears to be certified;

ii. Exporters focused on quality with very strict traceability requirements and purchase supplies from medium and large certified PROMANGO members;

iii. Exporters that rely on their own production and thus can easily enforce strict quality and traceability requirements. These firms also provide packing services for other firms. They take great care not to mix their in-house product with that of other growers.

117. Exporters are increasing their demands for EureapGap certification, however in this transition phase it is unclear to what extent their demands are actually enforced. One grower reported that his exporter was pushing him strongly for getting certified stating that he would not buy the produce if he is not certified. The exporter did buy his output though the certificate arrived three months later. In this transition phase evidence of having taken most steps for certification is often acceptable for the exporter.

118. Constraints in meeting quality standards were often attributed to lack of adequate R&D support to develop new varieties for market demands and to improve agronomic techniques and water management.In addition laboratory services do not offer consistent foliar and soil analysis results for adjusting micronutrient applications, thus constraining quality improvements, etc.

119. In the mango industry growers, packers and exporters are keenly aware of quality issues. Those linked to maturity issues include: (i) fruit shape and flesh firmness (fullness of the cheeks); (ii) flesh colour (iii) skin colour --from dark-green to light-green to yellow (in some cultivars) - red colour on the skin of some cultivars is not a dependable maturity index. The most difficult quality attribute to meet is the red colour skin that depends on a combination of climatic conditions, water management, appropriate fertilization and flowering timing. Differences in flavour (sweetness, sourness, aroma) and textural quality (fibre content) are rising in importance for discriminating among mangoes. One of the largest exporters reported that European consistent quality standards are hard to reach. The US market allows for some heterogeneity even though exports must undergo a hydro thermal bath procedure. This is straight forward and less difficult than meeting high quality attributes consistently.

120. The infrastructure and services available to the sector were seen as needing improvement and were considered globally weak, but they were satisfactory in areas such as roads. The following were reported:

- Rural roads and paved highways ensure adequate access from farms to packing houses.

- Available port logistics are poor and costs are higher than those of their competitors in Ecuador and Brazil. In addition, air freight is not an alternative as it is too expensive and complicated during the December, the high season for mangoes and at other times prices are not sufficient to absorb air freight costs.

- Water supplies are distributed with limited efficiency and some producers are forced to adjust their irrigation programs to coincide with the offerings of the valleys' water administrators.

- Telecommunications lines are weak even for cell phone reception forcing the communications to be done in the offices in the nearby city, e.g. Piura. This can lead to operational inefficiency.

- Energy supplies are adequate;.

- Laboratories are often inconsistent in their results and not very efficient in their services – smaller growers do not make use of laboratory analyses , medium-larger growers send their samples to the local university and - most of the time - to the Universidad Nacional Agraria La Molina, in Lima, although the results are only of relative consistency.

Logistics

121. For most of the exportable mango production, logistics between field and packing house are not a problem. Plantations are located very close to rural roads or to paved highways. There is almost no constraint for in transporting the fruit from the fields to the packing houses in less than 1 hour. Trucks are available and roads are in fairly good conditions. From the packing houses to the port of Paita it is 2 hours by truck, and containers under controlled atmosphere are used to ship the mangoes overseas. Ships come into Paita twice a week, a frequency that generally takes care of most exports. Nevertheless, relative costs and shipping times from Peru to markets in the US and in Europe are higher than from Ecuador and Brazil.

Supply Behaviour and Structural Change

122. Small producers rely on packing houses to get their plantations certified with EurepGap as well as with meeting traceability requirements. If exporters/packers need volumes they will be vying for the certifying the high quality producers.

123. Medium-sized growers are beginning to integrate their operations by buying into packing houses and export operations. PROMANGO is trying hard to establish their own packing house in order to process and market their produce without third party, non-value added exporters. However, without a close link to the retail distribution network they may end up only increasing the number of brokers and this will not improve their economic situation. Major exporter/packers houses such as Sunshine and Bounty Fresh are likely to open their ownership to other shareholders – probably PROMANGO members as the demand for quality mangoes grows.

Looking forward

124. Market is going to mature in about 5-7 years and this will mean fewer but larger players. A competitive and viable plantation will be need to 60-120 hectares and smaller plantations will need to establish a cooperative type structure in order to survive. The importance of retailer demands and being directly in touch with them will increase. This means that fruit quality, particularly for the European market will remain of major importance. Other factors social and environmental standards are rising in importance in addition to food safety, and traceability.

Part V. Market Access and Small Producers

125. Since most mango production is undertaken by small producers certain exporter/packers have intensified their technical assistance activities to improve quality and to prepare them for certifications of Gap and EurepGap. Because audits and certifications are too expensive for small producers, the packing houses have started to provide joint-certifications. The packers pay for field certification, but the certificate is issued jointly under their name and the grower's name, which might limit the grower's ability to sell to other packer-exporters. Thus the exporter assumed that they had some assurance of supplies in return for his investment. However, a grower can have more than one certificate, subscribed jointly with other export/packer firms, thus in the end small producers may have some flexibility in choosing who they deal with in the end. The certification process is often difficult to undertake as small holders have low education levels and their holdings need substantial upgrading. Yet high quality mangoes are not in abundant supply, therefore they are willing to make the effort and bear some risk with many small farmers. But it is uncertain that this is a feasible long term situation.

126. What can be done to remedy the small producer exclusion without weighing on exporters in this way? Some have suggested that the government could help in establishing New Generation Cooperatives – which resemble firms and which might eliminate non value adding intermediaries and improve their welfare. Political as well as financial support to face quality issues as well as managerial inefficiencies is needed. The Agricultural Agencies directed by the Ministry of Agriculture (they are a total of 184 throughout Peru) could first attempt to identify and to provide field management and technical assistance to small producers and to promote production cooperatives. Independent management teams might take over the administrative and commercial part of the business until its members are able to do so. Economies of scale and good fruit quality could make these large cooperatives attractive partners for packing houses– exporters. If they are also able to finance their packing facilities and integrate their activities through the export stage, the operation could become competitive and sustainable without need of public subsidies once a revenue generation has proven the set-up can work.

127. For this new type of cooperative to succeed governmental policies and political support will need to be strong, decisive and consistent for at least the first 3 -5 years. One limitation reported by exporters is that Peru is reaching its limit for mango export volumes, given the costs of logistics—transport costs are in particular higher compared to those of its competitors, Ecuador and Brazil.

Overview of Interviews for the Asparagus Section

Name	Size in Ha	Size in million USD sakes	Web site
1	280	1.5	
2-		24	
3-	800		
4-	600	5	
5-	900	10.5	
6-	420		
Andrés Vásquez	Frío Aéreo	CEO	www.frioaereo.com.pe
Beatriz Tubino	IPEH	CEO	www.ipeh.org
Luis Torres	MINCETUR	Director Nacional de Comercio Exterior	www.mincetur.gob
Juan Risi Carbone	Ministry of Agriculture	Director General-Dirección General de Promoción Agraria	www.minag.gob
Oscar Pineda	SENASA	Phytosanitary Division	www.senasa.gob

Certification in some selected companies interviewed

Firms	2	4	3	5	6	1
GAP	yes	yes	yes	yes	yes	Yes
EurepGap	yes	yes		yes	yes	
SQF1000/ SQF2000						
BRC (British Retail Consortium)	yes					
IFS (International Food Safety)						
EFSIS =BRC now		yes				
HACCP Holandés						
ISO 9000/9001 (Control de Calidad)						
ISO 14000 (Medio Ambiente)						
SA 8000 (Responsabilidad Social)						
ISO 22000		yes				
BASC	yes	yes		yes		
OTROS	Nature´s Choice				Nature´s Choice	
Total annual cost (certification and implementation)	USD 50 000	USD 100,000[1]	n.a.	n.a.	USD 25 000	n.a.

1 includes certification for own fields, co-financing of associated third party fields, and packing facilities.

Selected Asparagus Brief Companies' Profiles

Firm:1

128. Founded in 1999 and located in Chincha, it is a fresh green asparagus production company, 100% Peruvian owned. Annual sales are around USD 1.5 MM and produce is delivered, accordingly to an exclusivity supply contract. They manage 280 ha totally, and carry only GAP certifications which were sponsored by the IPEH. The firm explained that keeping records of most production activities was one of the most difficult challenges to address for GAP.

Firm 2

129. The firm was established first as a family business in the 1950s and was a leader in pharmaceutical and consumer products before entering the asparagus sector as a producer-exporter in 1996. The group's decision to invest in the agribusiness sector was a direct response to increased globalization trends and diversification strategies of the shareholders.

130. In 2005, the company registered sales of about 2 MM 5kg-boxes of fresh asparagus yearly, approximately USD 24 MM, ranking first in exported volume. The firm trades only asparagus produced in their own fields, selling production to 70 different clients in 23 countries. The most important markets for the firm are China and Europe, and in particular England because of high prices paid. Trading strategies are often quite particular depending on the country, for instance in China, most transactions and agreements are negotiated orally, and in the UK, the retail stores can only be accessed through recognized traditional trading companies (i.e. Vomford). Fresh asparagus are sold under the company's trademark to the US market in 17 retail chains, – i.e. Wallmart, Sams, Kroger, HEB – or by conventional receivers – i.e. Albertsons.

131. For more than 50 years the group has been successful in an industry where quality and reliability are of the utmost importance. The firm thoroughly applies the same high quality standards for its operations in the field and its four packing facilities. Third-party auditors have provided the certifications for GAP, EurepGap, BRC, BASC, ethical trade, social responsibility standards and Nature's Choice for Tesco. Since the company exclusively exports the produce from its own fields, it is in position to maintain a rigorous traceability system.

132. In general, the company expressed no difficulties in becoming certified and successfully apply private requirements. They view new standards and certifications required by international markets, as an opportunity to position themselves as premium suppliers. Nonetheless the CEO made a special remark on the SA 8000 and the ISO certifications. In the first case, he explained, SA 8000 includes requirements that surpass the limits of his own business by extending its accountability to external input and service providers. In the case of ISO certifications, these are considered to reflect standards in a particular point in time, disregarding its applicability as a quality control measure throughout the whole process.

133. In 2005, the firm issued a USD 25 MM bond, with excellent results. By the end of that year, an additional investment of over USD 20 MM permitted the recent expansion of its operations to the north-central region of Peru. Partially owned by the IFC, and the World Bank maintains applicable funding through their Technical Assistance & Advisory Services Program that offers additional non-refundable resources for particular activities that increase the projects sustainability.

134. Firm 3

135. After succeeding in the poultry business the firm started asparagus operations in 1989. It is a vertically integrated company with a total plantation of 1600 ha installed in northern Peru: 800 of green

asparagus, 600 of avocado and 200 of artichokes. The processing and packing facilities are located in an 8 ha – large lot. Personnel fluctuate between 800 and 1000 employees, depending on the harvesting and packing season. It is certified HACCP, BASC and EUREGAP.

Firm 4

136. Since 1983, it produces fresh, canned and IQF frozen vegetables and fruits, as well as recognized quality tropical fruit juices. With 20 years of experience the company owns 600 ha of cultivated land which in ideal conditions supplies raw material to their two industrial processing facilities strategically located in the northern and southern coastal plains. Both operate under the "Risk Analysis System and Critical Point Control", HACCP. It adheres to the most demanding requirements of the world market, selling their products in North America, Europe, Asia and Oceania, with the US being its main destination market with 78% of sales.

137. It started to export fresh green asparagus only in the last 5 years, and is producing around 600 000 boxes, about USD 5MM, 18% of the companies' total sales. The company is vertically integrated but its limited field production places them in a disadvantageous position especially to accomplish its commitment to fulfill negotiated supply programs. It has commercial partnerships with international brands such as Del Monte, Bounty Fresh, Gourmet Foods, Green Giant (Old del Paso), and exports asparagus, red pepper, artichokes, and tropical fruits, being able to process canned products, frozen, fresh, dehydrated, juices, and oils. Regarding "accredited procedures" it carries certificates for Standard Operation Procedures (SOP), Standard Sanitary Operation Procedures (SSOP), Good Manufacturing Practices (GMP), and Good Agricultural Practices (GAP). They are HACCP certified by Lloyd's Register Quality Assurance Limited, as well as Organic, Kosher, and IFS.

Firm: 5

The firm is a producer and exporter of fresh vegetables and fruits. The main products exported are fresh green asparagus (spears, tips) pre-packed vegetables (baby corn, sweet potatoes, snow peas) black figs, pomegranates, melon, mangoes, avocados and cherimoyas. It offers different management services (administration, logistics, commercialization, certification, and environmental protection education) to its own and to associated third-party fields. The firm owns two packing facilities and is ranked among the medium-large exporters in Peru with annual revenue of USD 15 MM (fresh asparagus exports account for 70% of their FOB sales).

138. It was established by Peruvian and foreign investors. The company directors and staff claims 15 years experience in the business. It manages 480 hectares of its own and about 900 hectares through associated farms. Regarding market structure: 70% of its product is shipped to the European market (mainly England through Vomford) and 30% to the US market, where the product is distributed by a marketing cooperative named Norbay Products. The company is present in the retail stores under its own trademark.

139. The firm's packing facilities are under controlled environment (unique condition in the country), geared towards processing value added convenient products. The firm is certified by both BRC, and EurepGap, (certified by CMI from England) and is currently working towards Organic and Ethical Trading Certification.

Firm 6

140. The company was established in 1989 and is owned by a group of growers from the Cañete Valley, 150 km south of Lima, where their production fields and packing facility are located. In 2002, it acquired a second packing plant at the Huacho Valley, 150 km north from Lima. Their main exportable

goods are: asparagus, avocados, citrus, figs, and snow peas. Even though they are constantly struggling for raw material due to limited supply periods, the processing facilities can always count on a steady supply from their 420 ha fields (including own and associated third-party fields).

141. This firm exports under its own trademark, and has concentrated its activities in a range of 600 km along the north and south-central coastline. Due to both of their strategically located packing facilities, it offers technical assistance and advisory services to several smaller farms in the vicinity area.

142. The company is accredited by BRC, and was the first company to be certified in 7 fields for EurepGap and was the first in South America to be certified under the SQF 2000CM System. It is currently implementing the BASC certificate and the Nature's Choice program. After several meticulous audits, one of their main importers, Sysco, agreed to sign on the firm to be their exclusive supplier from Peru. Auditing programmes requested by Lee Brands Inc. and performed by Primus Labs, have already been approved.

Firm 1

Overview of Interviewed for the Mango Section

Name	Company	Position	Web Page
-1		President	n.a.
-2		President	n.a.
-3		President	n.a.
-4		President	n.a.
-5		President	n.a.
-6		President	n.a.
-7		President	n.a.
-8		President	
-9		Vice-President	
-10		Vice-President	
-11		President	
-12		President	
Andrés Vásquez	Frío Aéreo	CEO	www.frioaereo.com.pe
Reynaldo Hilbck	APEM	President	www.apem.org.pe
Franz Vega	PROMANGO	President	
Luis Torres	MINCETUR	Director Nacional de Comercio Exterior	www.mincetur.gob
Juan Risi Carbone	Ministry of Agriculture	Director General-Dirección General de Promoción Agraria	www.minag.gob
Oscar Pineda	SENASA	Phytosanitary Division	www.senasa.gob
Juan Carlos Mathews	PROMPEX	Executive Director	www.prompex.gob

Selected Mango Companies' Profiles

Firm 1

143. As a producer of fresh mangoes in Piura, the company manages a total of 35 hectares. Their fields are located close to the town of Chica Alta, with easy access to both of their main buyers (processors and exporters; (10 km and 32 km away). Most of their infrastructure in the field has been implemented due to requirements imposed by EurepGap standards, such as field latrines and warehouses. The company is practically a one-man-business, managed and privately owned. He has 2 additional people in the administrative team and 16 workers in the field with a maximum of 40 to 60 workers in the field during pruning and harvesting. His fields are irrigated by traditional surface methods with an approximate cost of 0.02 soles/m^3 (14 000 m^3 per season). Annual production averages 350 TM of fresh mango of export quality. The firm has been providing mangoes to the best exporters.

Firm 4

144. It is a medium producer of fresh mangoes in Piura, in the valley of Tambogrande, 5 km away from the closest village, and 3.5 km away from the closest packing house. The company manages a total of 50 hectares. The original trees are 6 years old. The company is a one man business, managed by its owner. He counts on about 30 fixed field workers and 10 people in his administrative staff. Fifty percent of his fields are drip irrigated, with water costs close to USD 60/ha/year. Annual sales are about USD 1 MM. He is very happy selling his product to a large exporter with is very strict on quality issues, but the exporter can only take 1/3 of his production. The remaining output is sold to the other large exporters, but laments because payments are slow. Large calibers and red cheeks are the most difficult quality issues. Cultural aspects among traditional workers are hard to change and make difficult maintaining certificates. EurepGap certification cost him about USD 4 000 for infrastructure upgrades.

Firms 11+5

145. The firm cultivates 120 ha in the Medio Piura and 130 ha in the Alto Piura region. Seventy per cent of their fields are drip irrigated. They have good inner roads, and access from the highway is just 2 km away. The distance to their own packing facilities is about 15 km. The firm is trying out new products, as an alternative to growing mango, and has not increased mango plantations in the last 6 years. However, the company has expanded its packing plant by almost 100% in the last 3 years. Facilities encompass today about 6 000m^2, and will reach 7 500m^2 in 2 years During the packing season there are about 4 700 workers in its facilities. In the field it hires about 400 workers, and has a fixed staff of 60 fixed employees, for both, the plant and the field business. Energy supplies have been easily available since last year, and helped reduce irrigation costs, and post-harvest storage. It has a laboratory in its the plant to periodically overlook some industrial quality standard.

146. Eighty percent of the entire production for the past 8 years is sold to a foreign i trading company, but they are not very happy about the revenues because the trading company is not trying hard enough to link directly to the category managers of the retail stores. He believes the small margins of mango exports are lost from across a series of brokers. The firm also provides packing services to other small and medium exporters (which account to 50% of the total processed and packed mangoes in his plant), but exports under its own brand only those products coming out of his own plantation as well as the mangoes produced by 2 associated firms each harvesting about 150 hectares. All exports are by sea freight.

147. The president of the firm is also president of APEM and believes that all Peruvian mango exports affect the country's reputation regarding quality. He states heterogeneity of mango producers make it difficult to comply with international standards – "mangoes are not like Coke bottles" – he says. About the

market quality requirements, he said that "if the market is good, they will even buy the leaves, if not, they are very picky about almost everything!" My firm has EUREGAP in the field, and HACCP and BASC certifications in the plant. BASC is difficult to accredit, because most of the employees work only for 3 months, and personnel has a high rate of rotation. Traceability is used only to allocate each mango lot to the different producers –so it doesn't get mixed up- but is not used as it should be. He believes mango plantations are going to become larger in the future and plants more vertically integrated. He also suggests that APEM should establish a list of qualified buyers like the IPEH did for asparagus.

Firm 6

148. This medium-sized producer of fresh mangoes in Piura manages a total of 65 hectares, having increased in plant density during the last years. Their fields are located about 7.5 km away from the village of Las Lomas, and 15 km and 25 km away from the 2 large packer-exporters. They are planning to have access to electric energy and phone services by the end of this oncoming season. Most of the farm is surface irrigated, and they do not have water supply problems. The company is practically a one-man-business, managed and privately owned and employs 15 people permanently with up to 600 daily workers during the harvest season. They produce about 1 500 TM of mango each season which yield gross income of USD 350 000.

149. It is the largest producers of the variety named Edward, about 320 TM, which is sold locally to the retail markets of Lima, other varieties, basically Kent, Keitt and Tommy Atkins, are sold to the exporters. The firm received the prize Mango of the Year for 2005. At present, its entire production to a major packer / exporter at a fixed price. The farm is certified EurepGap and is now working on Nature's Choice.

Firm 7

150. This family firm includes 17 fields for a total of 600 ha, all surface irrigated in the San Lorenzo valley. The fields are located 12 and 13 km away from the packing houses. The firm increases tree density each year or expands its area. The fixed staff includes about 20 employees and the fields have an average of 200 daily workers. The firm combines mango and key-lime production. Though in the field there is no electricity or cell phone signal, the firm has an office in PIura.

151. It sells 3.5 MM kilos of mango, but hopes to reach about 6 MM in a couple of years, 94% of which is exported through 2 export firms at fixed prices. One buys the entire harvest regardless of quality but it slow in paying. Therefore, the firm feels it is financing the export season for the packers. In another year the other firm tried to break the contract, but given his large volume of EurepGap certified products the exporter needed the volume.

152. The owner thinks APEM and PROMANGO cannot work together because some APEM members are also mango producers, and feels they have not been fair, since each year the exporters say they want certified products but accept non-certified fruits as well. The producer also tried exporting, but did not succeed. The mango sector exports only because there is a limited marketing window, otherwise is would not be competitive. The public sector is not helping in promoting Peruvian mangoes in the export market, everything is done by private sector initiatives – APEM and PROMANGO are sponsoring market expansion in Japan, China, Mexico, etc – "all the effort are sponsored 100% by private muscle".

Firm 8

153. This firm is a private export company, previously family owned, but has opened up to an investment partner though selling equity shares. The company also manages about 115 ha, used basically to gather expertise in mango production. Their sales reach USD 14 MM/year. Each season they can count

on production from about 800 ha, about 700 ha of production of which is certified by Tesco and the rest are in process to be certified. It has the largest and most modern mango packing facilities of the country, and has recently included a color-selecting-machine. The company markets usually its own brand – 57% to the US, 15% to the UK, 15% to the rest of the EU and 7% to Canada. They are contracting with buyers for Tesco because Tesco's prices are higher and payment more rapid but standards are higher and much more difficult to meet, especially size and red skin color – called "cheeks". They export 2nd quality produce to the US market, which is less strict for quality issues. The company produces organic mango in addition to non-organic and output is certified Eurepgap, BRC + HACCP, Tesco Nature's Choice, Fair Trade, and BASC (for the US).

154. It employs about 40 fixed field staff members and about 130 during the 3-months of the season. In the packing house it employs 200 workers, and this number can rise up to 2,500 during peak season, which contributes to day employment for about 5 000 families in the area of Tambogrande. Quality issues regarding *antrachnosis* and immature fruits (green harvest) are the most difficult to cope with, especially in the US. Almost 80% of the final payment is made before the final selling price is known,

155. PROMPEX should be more active in their promotion programs according to the firm's president who is also a past president of APEM and warned that private producer associations such as PROMNANGO should not try to export directly because they lack of expertise and they will lose money, but instead should promote R&D activities because the public sector is not assuming that responsibility for this.

Firm 9

156. The company is owned by foreign firm and is operated in Piura by a Colombian company. It entered the market recently by renting a packing house, which they have been significantly expanding each year. They sell almost USD 4 MM of fresh produce through their headquarters in the UK, but have associated companies all over the world that can also provide technical information to their growers in Peru from Costa Rica, South Africa, and Israel. It was established in Peru because of the need to meet their delivery programs with a system where they could control the fruit quality. No other plant in Peru could guarantee this; therefore they had to vertically integrate backwards and began in Piura four years ago. Their competitive driver is tight linkages to the EU retailers. This provides the firm with the advantage of being able to establish a program up front, and promising and maintaining fixed prices all the way through the season. None of the other exporters can do this, because they are usually selling to brokers, and they don't control the retail prices. This is the reason the growers have developed a reasonable loyalty to this firm. Payments are assured, with fewer delays and fewer "surprises" compared to other exporters. However, they are very strict on quality standards, especially on mango weight/size; no mangoes below 450g are accepted. They do not own mango plantations and usually work with PROMANGO growers, and negotiate prices and volumes each season.

ANNEX I.

MANGO VARIETIES IN PERU FOR THE EXPORT MARKET
Kent Origin Coconut Grove, 1944. Seedling of Brooks. Tree upright. Fruit large (20-26 oz.), regular ovate, greenish yellow with red shoulder, flesh rich, fibreless. Late midseason. For interior.
Haden Origin Coconut Grove, Capt. Haden, 1910. Seedling of Mulgoba. Indian type. Tree spreading. Fruit large (to 24 oz.), regular ovate, yellow almost covered with red, flavor mild, little fiber. Early. Susceptible to anthracnose and alternate bearing, traits imparted to its progeny. For interior and greenhouse.
Tommy Atkins Originated from a seed planted in the 1920s at Fort Lauderdale, Florida. Commercially grown for export in Florida. Tree full, dense. Fruit medium to large, 16 oz. with thick skin, regular ovate, orange-yellow covered with red and heavy purple bloom. Firm, juicy, medium fiber, fair to good quality. Flavor poor when over fertilized and irrigated. Resists anthracnose. Early, ripens well if picked immature. For interior.
Edward Origin Miami, Edward Simmons, 1948. Hybrid of Haden X Carabao. Intermediate between Indian and Philippine forms. Tree dense, compact. Fruit medium to large, elongated ovate, apex often oblique, yellow green with red blush. Seed very small, easily removed. Flavor excellent. Early. For interior.

Source: ACM Peru SAC