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Impact Assessment of Horticulture Promotion Kosovo (HPK) in the Fruit and Vegetable Value Chains of Kosovo

Report: Results of 2010 and 2011

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Executive Summary

The following short report summarises the key data collected from the Impact Surveys conducted in 2010 and 2011. This overall impact Study is a three year project, and a final report with detailed analysis of the data will be concluded in late 2012.

Most of the same actors were surveyed in 2011 as in 2010, although in particular with producers, it was not always possible to include the same people. Additional surveys were conducted with post-harvest actors as well as nurseries in 2011 to gather more detailed data of the overall system.

Some interesting results have been found in this two year assessment though, and are summarised in the following section.

Horticultural Production

- As anticipated in 2010, there has been a **significant increase in the productivity of apple orchards** supported by the project. Data in 2010 showed indirect beneficiaries had higher production, but this was due to the younger age of the trees for direct beneficiaries. 2011 productivity was similar for both groups, for direct beneficiaries this represents a **60% increase.**
- Data on vegetable production shows mixed results between direct and indirect beneficiaries. This is partly due to the sometime unclear split of 'direct versus indirect' with some farmers receiving support via third parties, such as collection centres, actually being classed as 'indirect'. Further work on this division of beneficiaries is required.
- Income for all producers remained relatively similar between 2010 and 2011 despite difficult market conditions for most crops in 2011 (lower prices, adverse weather)

Post-Harvest & Trading Activities

Income and trading activities for post-harvest actors increased significantly from 2010 to 2011, reflecting both a maturing of several businesses, but also continued growth of more organised trading in the key value chains supported by HPK. This is achieving one of the central goals of HPK – namely increase market system integration.[1]

Nurseries[2]

Nurseries also significantly increased their income due to increasing demand by producers for quality inputs and planting material.

Employment

Employment data shows an **increase in labour** for both post-harvest actors and nurseries, including a **17.5% increase in permanent employment with post-harvest actors.**

Additional data was collected in 2011 on employment of minorities, youth and females within all sectors of the horticulture system. The data shows that in particular females and youth are well represented in the increasing employment being generated, ranging from 30% up to 50% of total employment.

Marketing and Trading

Analysis was completed on 2 crops (apples and peppers) to demonstrate the flow of products through the market system. Such graphic representations will be developed for all main crops supported by HPK and included in the final report of the Impact Study.

[1] Refer to the separate report on Product Aggregation prepared by HPK

[2] Refer to Intervention Reports prepared by HPK for vegetable and fruit nurseries

1 INTRODUCTION

1.1 Background

Whilst HPK has been active in the horticulture sector since 2001, during the first 4 phases of the project there had been no coordinated approach to data collection for the purpose of monitoring project impacts. With the anticipated closure of the project by the end of 2012, it was decided to conduct a study to understand the impacts of the 5th and final phase.

The Impact Study will comprise 3 separate surveys. This report summarizes the results of the first two surveys, carried out in October 2010 and October/November 2011. A final survey will be conducted in late 2012.

This report is a draft report for the first two years, with a full analysis and final report to be prepared at the conclusion of the third and final survey.

1.2 Objectives of the study

The purpose of 3 year study is to assess:

- the impacts of HPK on the economic situation of households and small and medium-scale enterprises in terms of ***employment and income;***
- to what extent HPK's activities contribute to ***greater integration*** between horticulture producers and other stakeholders; and
- to what extent HPK's change from a direct intervention approach to systemic interventions on key actors during 2010 – 2012 contributes to **functioning, competitiveness, and growth** of selected horticulture value chains.

The study will identify project outcomes/impacts and will provide an in-depth understanding of the various causal relationships and the mechanisms through which they operate.

2 RESEARCH DESIGN

2.1 Survey Design

Attribution of project impacts requires comparing observed outcomes to a control group. The control is an estimate of what might have happened if the project had not been undertaken.

Such a control group for HPK is not possible to identify due to: (i) the limited geographical size of Kosovo, (ii) high expected spill over effects from direct beneficiaries to their neighbouring horticulture producers (especially considering the project has been operating for 11 years) and (iii) influences by other project interventions in the field of agricultural production. Another difficulty facing this study is the missing baseline data for outcome and impact indicators.

Instead, a methodology was developed to identify two groups of beneficiaries and comparing outcomes from these.

i) The **direct beneficiaries** (= treatment group)

Direct beneficiaries receive project support, including training by project staff or advisors, financial support, subsidized inputs or support provided via collection centres, processors and traders.

ii) The **indirect beneficiaries** (= "spill-over" group).

Indirect beneficiaries benefit from spill over effects originating from direct project beneficiaries. Such spill-over effects happen through knowledge sharing between direct beneficiaries and their relatives, friends or neighbours living in the same or in surrounding villages who then start to replicate autonomously the improved techniques . While such a spill -over effect is desirable from the project's perspective, these effects are more difficult to handle in an impact sturdy as it might seem that the project has less impact than it actually exerts.

To create a ‘base line control group by compiling of complete lists of farmers not touched by project’s interventions (direct or indirect) of the selected villages is too time consuming; we used pair wise sampling by asking interviewed direct beneficiaries to identify 1 or 2 ‘indirect beneficiaries’ producing under comparable conditions.

There is some further clarification work required on beneficiaries that received support in only one year of the project, and whether they are considered direct beneficiaries throughout the 3 year study. This will be clarified in the final study report in 2012.

2.2 Sample categories

Following beneficiary categories will be included in the study.

Horticulture producers	This group constitutes the main beneficiary group. The producers are involved in several value chains in vegetable and fruit production
Producers associations	HPK is providing support and advice to some producer associations. The project is interested to assess outcomes in relation to the sector organization
Advisors	HPK has trained a group of production advisors who are now engaged via associations and other actors to support farmers
Nurseries	The project is strengthening the technical, business and marketing capacities of selected nurseries (fruit, vegetables, ornamental)
Post-harvest actors	These actors include collectors, processors, MAP operators, wholesale traders and retailers (collectively referred to as ‘Product Aggregators’)

2.3 Sample size

Table 1 Survey sample size per type of interviewed actors

	Direct beneficiaries		Indirect beneficiaries	
	2010	2011	2010	2011
Individual horticulture producers	99	87	92	98
Advisors	22	23	7	4
Producer associations	16	15	-	-
Nurseries	12	17	-	6
Post-harvest actors	28	27	-	8
TOTAL	**177**	**169**	**99**	**115**

2.4 Data collection and analysis

For each of the thematic areas, specific questionnaires were elaborated to capture outcomes in terms of employment and income, to qualify attribution and to get a better understanding of the causal relationships between project services and outcomes through project intervention.

It is likely that project participants might pass useful information and practices on to their friends, relatives, and neighbours. From the perspective of a market facilitation project such as HPK, such spontaneous replication is desired. However, such ‘spill-over’ or replication effects can mask some of the project’s impact by improving all members of the sector. The use of qualitative methods will help to understand spill–over impacts and to assess their effects on project outcomes.

A limitation of this study is the attitude of producers to sharing information,. We don’t know to what extent we can trust the information. Another difficulty is that it is sometimes difficult to get reliable data as the producers and other interviewed horticulture actors don’t really keep track on labour, inputs and marketing data. Such 'recall' data is open to greater variation than written record keeping. We need to accept the answers, but recognise these limitations.

3 FINDINGS

Full data from the 2010 and 2011 surveys are not included in this report, but are available on request. The final report in 2012 will include extensive annexed data from all 3 surveys and related data collection.

3.1 Horticultural Production

The following table summarises the producers interviewed in 2010 and 2011.

*Table 2 Survey sample size for the individual horticulture producers **2010***

Type of crop system	Direct beneficiaries (N = 99)		Indirect beneficiaries (N = 92)	
	Number	With production in 2010	Number	With production in 2010
Top fruit producers (apple, plum)	42	37	27	22
Soft fruit producers (strawberry)	14	14	6	6
Vegetable producers (13 different vegetables)	55	51	65	65
Total producers	**111**		**99**	

*Table 3 Survey sample size for the individual horticulture producers **2011***

Type of crop system	Direct beneficiaries (N = 87)		Indirect beneficiaries (N = 97)	
	n total	n with production in 2011	n total	n with production in 2011
Top fruit producers (apple, plum)	41	37	32	26
Soft fruit producers (strawberry)	20	19	8	7
Vegetable producers (13 different vegetables)	47	47	73	73
Total producers	**108**		**113**	

3.1.1 Total Production

In 2011, both direct and indirect beneficiaries cultivated similar amounts of land for fruits and vegetables – 1.3 and 1.4 hectares respectively. Indirect beneficiaries owned slightly more land though, with 4.5 hectares and only 3.6 for direct beneficiaries.

Rented land for cultivation was significantly higher for direct beneficiaries though, with land for cultivation of fruits and vegetables more than double for direct beneficiaries – 3.3 hectares compared to 1.6 for indirect beneficiaries. 45% of all producers rented land in 2011 .

The following table provides data from 2010 and 2011on each of the main fruit and vegetable crops supported by HPK. Data is provided on the total area, total production, average production per producer and average production per hectare, comparing direct and indirect beneficiaries.

It is interesting to note that 2011 was considered a difficult year for production due to adverse weather in spring, coupled with extremely dry conditions during summer. However, the data in the following table shows that for most crops (with some clear exceptions) the production levels were maintained or increased in 2011. This resilience of farmers in difficult circumstances is one of the main outcomes of improved production pracices being promoted by HPK.

*Table 4 Production data for **2010 & 2011** for all direct and indirect producer beneficiaries*

	Direct Beneficiaries				Indirect Beneficiaries			
	Total Area (ha)	**Total Prod. (t)**	**Av. / farmer (t)**	**Av. Yield (kg/ha)**	**Total Area (ha)**	**Total Prod (t)**	**Av. / farmer (t)**	**Av. Yield (kg/ha)**
Fruits								
Apples 2010	42.4	457.1	13.1	10,776	25.9	412	20.6	15,975
Apples 2011	40.7	653.3	21.1	16,071	31.5	507.1	21.1	16,078
Strawberry 2010	11.1	130	9.3	11,743	4.0	23.3	3.9	5,832
Strawberry 2011	13.5	76.4	4.0	5,667[3]	2.0	25.8	3.7	12,622
Vegetables								
Pepper 2010	35.6	1,155	38.5	32,460	63.8	1,634	30.8	25,615
Pepper 2011	30.8	865	28.8	30,693	40.1	1,093	22.7	33,827
Cucumber 2010	10.8	902	25.8	83,600	5.0	233	9.7	46,640
Cucumber 2011	5.5	332	20.7	95,993	4.7	312	14.9	103,317
Tomato 2010	10.2	927	27.3	90,882	3.5	285	13.6	81,600
Tomato 2011	6.9	701	35.0	105,419	9.8	828	23.0	87,054
Cabbage 2010	10.1	738	56.8	73,069	12.0	596	33.1	49,667
Cabbage 2011	13.7	547	45.6	38,048	21.3	1,055	30.2	51,072
Watermelon 2010	35.6	1,784	118.9	50,126	7.4	241	24.1	32,635
Watermelon 2011	31.9	2,855	259.5	57,257	12.5	414	41.3	35,192
Onion 2010	11.2	236	21.4	21,053	5.6	89.5	11.2	15,982
Onion 2011	16.85	450	37.5	28,763	4.0	78.0	9.75	19,773

3.1.2 Improved Production Techniques

Data is presented here on the changes in production techniques for the main crops surveyed in 2010 and 2011[4]. For apples produced by direct beneficiaries, there has been a significant increase in the area of Integrated Production (IP), rising from 50% of the total area to 75% in the last 2 years. A similar increase for improved practices has been seen with indirect beneficiaries, with a rise from 20% to 75% of the planted area using at least one improved technique. There was also a small rise in the area of IP for indirect beneficiaries from 0 to 10%.

[3] Strawberry production in 2011 was impacted by 2 farmers reporting high damage due to adverse weather.

[4] Full data on all crops is included in Annexes

For all vegetables, there was an overall increase from 16% to 36% of farmers implementing IP on at least some of their crops. This resulted in an increase in the area under IP for vegetables from 4.6 hectares in 2010 to 13.0 hectares in 2011, an increase of almost 3 times. Most pleasing in this result was that several producers classed as indirect beneficiaries implemented IP for the first time in 2010.

In addition to this amount, 5 watermelon growers indicated they also implemented IP on a total area of 27.3 hectares, but this is still to be verified.

3.2 Employment in the Horticulture Sector

Further work was carried out in 2011 to better define the level of employment in all categories of the sector, but with a focus on improving data from producers.

3.2.1 Employment by Post-Harvest Actors

Post-harvest actors include product aggregators, traders and processors. 28 actors were interviewed in 2010 and 35 in 2011. The additional 7 actors were new businesses supported by HPK during 2011. As they were businesses established with the help of HPK in 2011, the increase in employment can be strongly attributed to the project's interventions, and is therefore considered as an increase in overall employment in the sector.

Data in the following table shows that not all post-harvest actors employed additional staff, or did not provide information on this. The number of actors listed under each section indicates the number that provided information in relation to employment

	2010 Employment		**2011 Employment**		**Change**
	Number of Actors	Total	Number of Actors	Total	
Permanent (number)	26	332	30	390	+ 17.5%
Non-Permanent (days)	20	17,250[5]	18	4,700	See foot note

Of these totals for **2011**, days attributed to youth, females and minorities are:

	Minority		Female		Youth	
	Number of Actors	Total	Number of Actors	Total	Number of Actors	Total
Permanent (number)	8	17	17	173	15	79
Non-Permanent (days)	5	660	11	2,315	7	1,430

The data in the table above shows that for 2011 20% of the permanent workers are youth, 44% are female and 4% are minorities. Of the day labour, 30% are youth, 50% are females and 14% are minorities.

3.2.2 Employment through Horticultural Production

Employment data for production is less reliable, as informal employment and family labour are much more prevalent with producers, and record keeping is normally poor.

[5] Large numbers of non-permanent workers were included in 2010 who were not working in horticulture, and data will be reviewed prior to finalizing the report.

Extra efforts were made in 2011 to instruct producers to provide data including family and own labour. This means that comparisons between data from 2010 and 2011 are difficult, but will be further evaluated in the final Impact Survey in 2012. For this reason, data in this report is currently limited to 2011 only. Data includes information from top fruit, strawberry and vegetable producers.

	Direct Beneficiaries (87 surveys)		Indirect Beneficiaries (98 surveys)	
	Total	**Avg. per Producer**	**Total**	**Avg. per Producer**
Total Days (household and hired labour)[6]	107,350	1,263	92,170	960
Of these totals for **2011**, days attributed to youth, females and minorities are:				
	Number of Days	**Percentage**	**Number of Days**	**Percentage**
Youth	36,203	33.7%	23,555	25.6%
Females	34,888	32.5%	34,655	37.6%
Minorities	3,103	2.8%	1,689	1.8%

3.2.3 Employment in Fruit and Vegetable Nurseries

Employment by nurseries is high, as it is a labour intensive operation. The data below shows a significant increase in labour from 2010 and 2011 which still needs to be verified for the final report.

	2010 Employment		2011 Employment		Change
	Nurseries	Total	Nurseries	Total	
Permanent (number)	11	36	14	80	122%
Non-Permanent (days)	7	275	16	3,917	-

Of these totals for **2011**, days attributed to youth, females and minorities are:

	Minority		Female		Youth	
	Nurseries	Total	Nurseries	Total	Nurseries	Total
Permanent (number)	1	1	6	20	8	23
Non-Permanent (days)	7	817	4	662	9	2,292

3.3 Assets & Income in the Horticulture Sector

3.3.1 Income from Post-Harvest Activities

Post-harvest actors include product aggregators, traders (wholesale and retail) and processors. Some of these actors work in products outside of horticulture as well, but the data attempts to separate the horticulture income from that of the general businesses.

[6] Full time positions were calculated at 200 days per year for the purpose of total labour

28 actors were interviewed in 2010 and 35 in 2011. The additional 7 actors were new businesses supported by HPK during 2011, and will also be included in the final Impact Survey in 2012. As they were businesses established with the help of HPK in 2011, the increase in income can be strongly attributed to the project's interventions. Data includes fruit and vegetable products as well non-wood forest products. Not all partners of HPK are included in this survey, but the data represents at least 75% of the companies working directly with the project.

	2010 Income	2011 Income
Average Income for Fresh Products	€201,163	€415,400
Average Income for Processed Products	€93,362	€176,700

As can be seen in this data, 2011 was a significantly improved year for the trading of horticultural products, with income more than doubling, although it should be noted that some of this increase is the result of increased imports.

3.3.2 Producer Assets & Income

Income data for production is less reliable than that of post-harvest actors, as informal payments are much more prevalent with producers, and record keeping is normally poor.

Producers report that approximately 60% of their total income comes from horticulture activities, with other agriculture the second main income source, with remittances and some private and public sector employment contributing to the household income.

Data includes information from top fruit and vegetable producers only. Data for strawberry producers is still being verified and is removed.

	Direct Beneficiaries		Indirect Beneficiaries	
	2010	2011	2010	2011
Average Income per Producer	€15,242	€16,295	€11,418	€10,217

A large part of the increase in income for direct beneficiaries is a result or the top fruit producers, who in many cases have young orchards that are now entering a higher level of production.

3.3.3 Income for Nurseries

Income data for nurseries shows a significant increase between 2010 and 2011 as producers increasingly use quality seedlings for production. This is an especially pleasing result for the project, as it has promoted the use of improved planting material strongly for several years.

	Direct Beneficiaries		Indirect Beneficiaries	
	2010	2011	2010	2011
Average Income per Nursery	€13,254	€33,471	n.a.	€13,083

3.3.4 Credit taken by horticulture actors

Amongst horticultural producers, a similar number took credit in 2010 and 2011, with 25% of direct and indirect beneficiaries reporting loans. What did vary was the size of these loans, with direct beneficiaries averaging €7,354 (2010) and €9,600 (2011) compared with indirect beneficiaries having loans averaging €3,725 in 2010 and €3,829 in 2011.

5 nurseries took credits in 2010, averaging €6,700 but this reduced to only 2 in 2011 with loans of €10,000 and €47,000 respectively.

Post-harvest actors took the highest amount of loans, with 9 of the 28 surveyed in 2010 having average loans of €78,000, increasing to 19 of the 35 surveyed in 2011 with average loans of €99,000. This is to be expected with a higher level of investment required in post-harvest equipment and product purchasing, but is also a positive sign that confidence in the sector is high and increasing.

3.4 Marketing & Trading of Horticultural Production

The marketing of fresh fruits and vegetables is a complex system, with producers marketing their products directly to the public, to retailers, to traders and also via collection centres and processors. Traders also often act as importers and exporters, as well as aggregating products from local farmers to sell onto processors and retailers.

With all crops, the majority of both direct and indirect beneficiaries undertake their own, direct marketing to traders and the retail market. Traders not only buy from local farmers, but also import products both during the off season as well as in competition to local production.

The following schematic aims to visualise the main channels for trading of horticultural products in Kosovo, using apples and peppers as example crops. Further analysis will be made of several more crops for the final reporting in 2012.

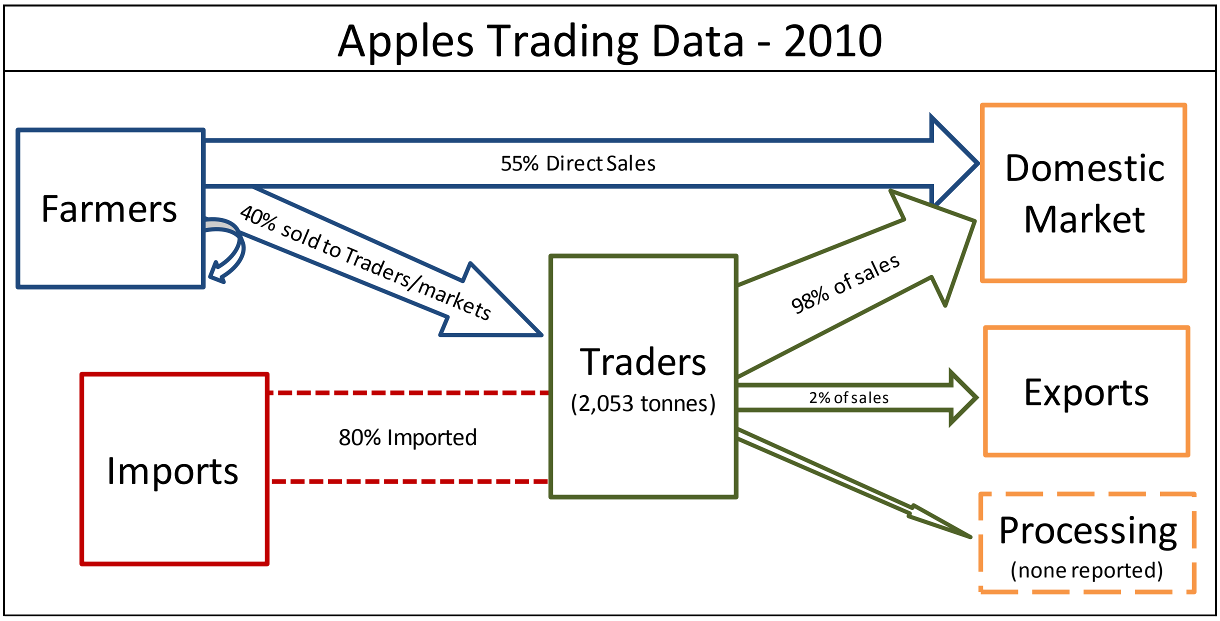
The information in these charts is not a complete for Kosovo, but is the data gathered from the survey responses only. Producers sell to many more traders than are included in the survey, and equally, the traders also buy from many other farmers. However, the market schematics give an indication of the relative importance of each of the trade channels existing in Kosovo[7].

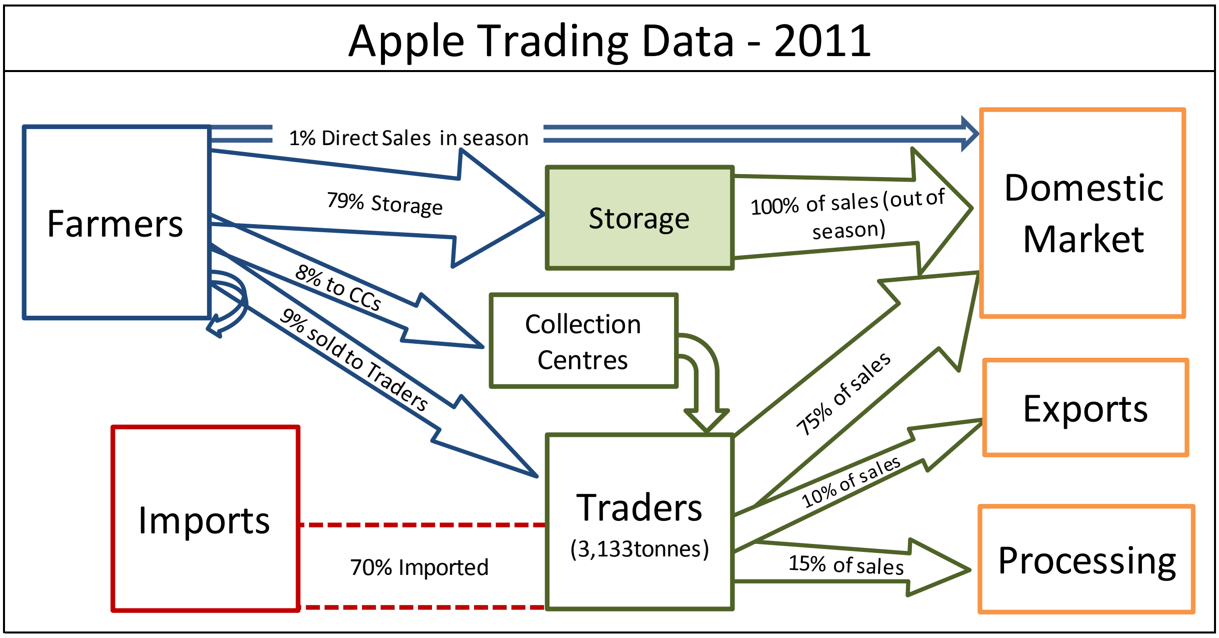
3.4.1 Apple Market System

For apples, most producers also store products after harvest with the aim of capturing higher priced markets after the season, although this varies from short term storage (measured in weeks) up to longer term storage for out of season sales. This data was not collected in 2010, but in 2011 79% of products were in storage during the period of the survey (November). The domestic market, both through fresh and processed products accounts for 90% or more of sales.

The information in the following schematics show that imports still dominate the local trade, although amongst the surveyed traders, their reliance on imports reduced from 80% in 2010 to 70% in 2011. A second interesting trend in this data is the increase in product going to processing. This is predominantly to 2 processing companies producing 100% fresh apple juice, both of whom have been supported by HPK.

[7] It is proposed in 2012 to select up to 3 value chains and do a more detailed assessment of marketing. A small consultancy may be undertaken in July to November to gather more specific data on this.



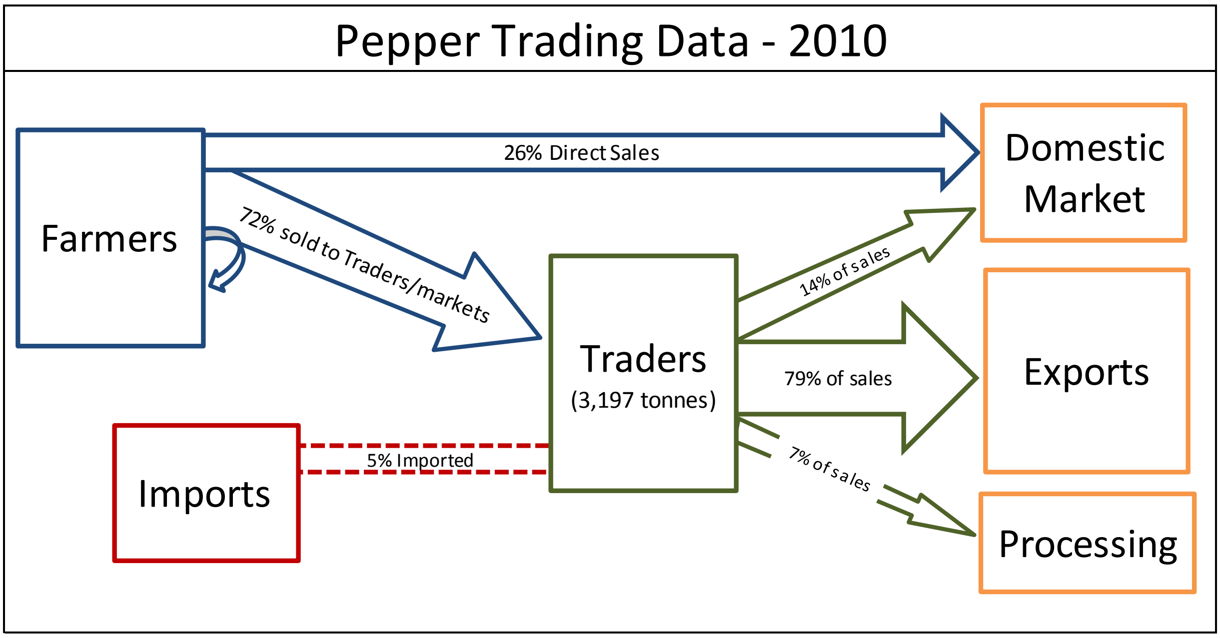


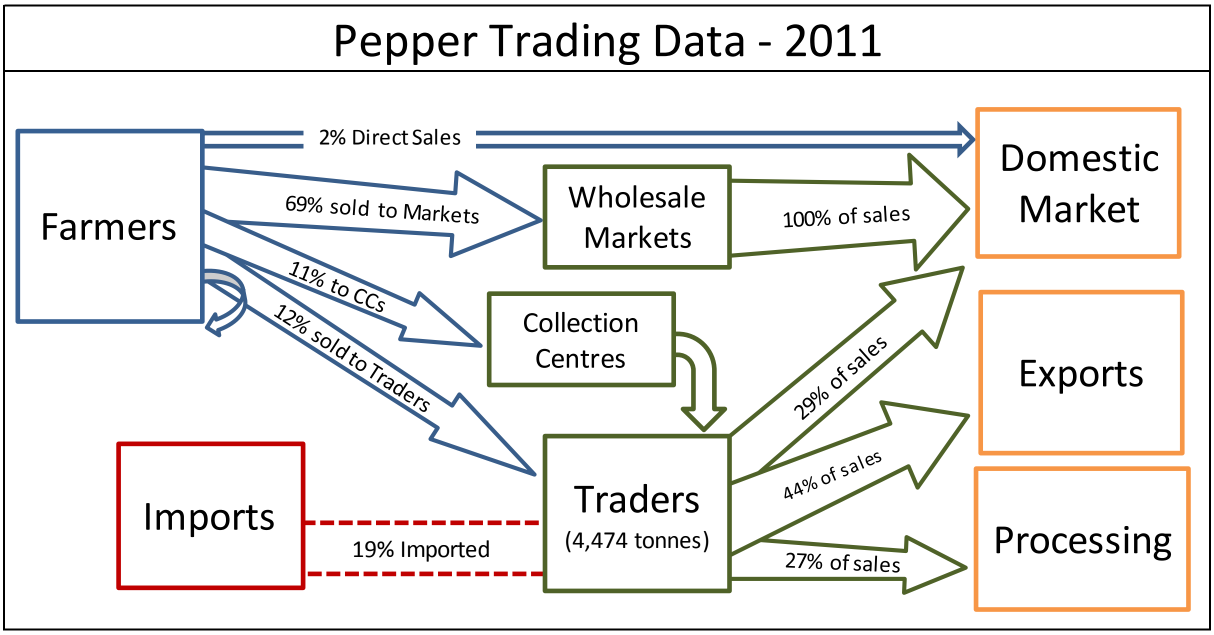
3.4.2 Pepper Market System

Unlike apples, a high percentage of peppers are exported, with 85% in 2010 and 60% in 2011 (including processed products exported) destined for the export.

An improvement in the data collection in 2011 to further categorise sales to traders showed the increasing impact of collection centres on the trade of peppers. With several new collection centres opened in late 2011, it is expected that more production will transfer via these centres.

There was a big increase in the import of peppers in 2011, from 5% to 19% of traded product. This was reported by at least 2 processors as being a result of lack of local supply. Some of this imported product was then exported as processed products to regional and EU markets.





3.4.3 Processed Products

In 2010, 16 processors were surveyed, with total sales of €1.86 million, of which 70% was exported. Main products were frozen berries and mushrooms, as well as processed vegetables.

In 2011, 20 processors were surveyed, with total sales of €4.05 million, with 67% of this exported. Again, berries and mushrooms were the most dominant products with approximately half of the total quantity. A wide range of fruit and vegetable products made up the remainder of the processed sector, with peppers both for 'ajvar' and pickled products the most common.

One significant change in the processed products offered to the market in 2011 was the increase in fresh juices. In 2010, none was reported, but this increase to 7% of total sales in 2011. An increase in other processed fruits, such as jams and preserves was also noted, but this was at quite low levels. HPK supported several fruit processors in 2010 and 2011, and it is a pleasing result to see the lower grade fruits now being used for local production of products traditionally imported.

3.5 Associations and Advisory Services

A higher number of direct beneficiaries are members of associations, with around 66% of direct and only 35% of indirect (results are similar for 2010 and 2011). This is to be expected, as HPK has promoted associations, both formal and informal, as part of the project activities for many years.

Most of these members pay annual fees, ranging from €5 to €150 per year. Services provided by the associations are most commonly accessing advisory services and some collective buying of inputs. Collective marketing reduced in 2011 from 8 to 4 associations, but this is unclear as to why this occurred and requires further investigation.

Most associations engaged advisors in both 2010 and 2011, with an overall increase in the number of days partly paid by associations in 2011. No advisor relied only on this income though, with input supply (including nursery plants) and other horticulture activities remain important sources of income. The value of advisory services, along with the daily rates reported by producers does not correspond with each other, or with the totals paid by HPK and other projects. Therefore, the data needs to be revised prior to finalising the report.