

**GUIDELINE FOR ESTIMATING  
COSTS OF SUSTAINABLE PRODUCTION**



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## Introduction

This document has been specifically designed for facilitators assisting Fairtrade producers in developing their production costs and putting into the Cost of Sustainable Production (COSP) sheet their data. Facilitators may be from Producer Networks and Companies, but also include Liaison Officers, Labelling Initiatives, consultants and all other Fairtrade International staff. Accompanying this Guideline, also available, is an Excel spreadsheet that can be requested to the Pricing Subunit within the Fairtrade International Standards Unit.

The Cost of Sustainable Production data, hereinafter called COSP, is one of the key sources of information for the development of Fairtrade Minimum Prices (FMP), which intends to cover, on average, the COSP of all producers within the system. Besides the FMP, members or workers of a certified small producers' organization (or registered producers under the Contract Production standard<sup>1</sup>) or company, respectively, also receive a Fairtrade Premium (FP). For products of which there is a FMP, the FP is paid in addition. Although the development of a FMP may involve the determination of a FP, this Guideline refers only to the calculation of COSP and not the FP.

The FMP aims at protecting producers from market instabilities, providing a safety net in case of low prices. Over time, the Standards Unit makes regular FMP setting and/or review in order to expand the geographical scope of producers benefiting of Fairtrade and to keep the database of FMP up to date.

In order to develop FMP, COSP data is crucial. This refers to production costs related to local or domestic marketing and costs exacted by international marketing. Knowledge about and the appropriate management of both type of costs are a key component for Fairtrade producers. This document examines the main types of production costs incurred in the various stages of production from the farm to the export process and provides examples that illustrate the concepts presented. It is only a guide and is not intended as an in depth study of the costs of production of a particular product. Information on stages of production described is based on those production practices typical for all products, but might not apply to all. However, some adjustments may be necessary in specific cases. In those cases, additional information for COSP data, complementary to this Guideline will be provided.

This Guideline is structured in four parts. The first part, explains how to obtain data from producers. In part two, a description of the main components of the COSP sheet is provided. The third part presents a detailed explanation of the calculation of COSP. The Guideline concludes in part four by providing final considerations.

Interpretation and utilization of this information is the responsibility of the user. If a facilitator requires further assistance in developing individual COSP, additional information and/or an explanation of the calculations, please contact: [standards-pricing@fairtrade.net](mailto:standards-pricing@fairtrade.net).

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<sup>1</sup> Please note that the Contract Production standard considers small producers that are unorganized or organized into non formal structures. The intention of the Contract Production standard is for producer organizations to be developed. An intermediary organization, called the Promoting Body, commits to and is responsible for supporting producers to organize into autonomous Producers' Organization.

## Part I: How to obtain data from producers

The COSP data should describe a representative situation among Fairtrade producers in a particular region. This is especially important for costs related to field operations, harvest/post harvest, transformation/processing, and product preparation/packaging activities. These costs can be obtained in panel of producers using a consensus building process. A panel is a purposefully selected group of producers, who, with assistance, provide detailed farm operating information of one-year agricultural period.

Please note that this does not apply for companies, where there is no need to have a representative situation as in the case of small producers' organizations or contract production projects. In those cases the facilitator should focus on the information provided directly by the central management.

In the case of small producers' organizations the panel should be comprised by its direct members considering the organization's structure (i.e., 1<sup>st</sup> grade, 2<sup>nd</sup> grade, 3<sup>rd</sup> grade, and mixed structure). For example, for 1<sup>st</sup> grade organizations, the panel should be constituted by its direct members while for 2<sup>nd</sup> grade organizations the panel should be formed by 1<sup>st</sup> grade members, and so on. Regarding contract production, the panel should be organized by the Promoting Body and formed by its registered members. Actual information can be obtained from a panel of 3 to 5 producers in a 3 to 4 hour session where the panel members provide information on:

- Size of the representative farm destined to the product in question (in hectares)
- Crop's life cycle if applicable (in years)
- Costs of production related to field operations and harvest/post harvest activities
- Transformation/processing and product preparation/packaging if applicable
- Yields (in metric ton)

It is noteworthy to mention that transformation/processing costs and product preparation/packaging costs are expenses that might not be always incurred by direct members of the small producers' organization or registered producers of the contract production projects. In case that these costs apply they should be reported by the central structure (umbrella organization) or Promoting Body. In the case of companies these costs (if incurred) should be reported by the central management. In this Guideline transformation/processing costs and product preparation/packaging costs have been placed in this section to follow the structure of the COSP sheet.

The producers who make up the panel can be identified by local facilitators (usually leaders of small producers' organization or contract production projects) and are representative of a farm in the area. Each producer panel is interviewed using a consensus building process. Producers are asked to develop a typical production system drawing on their personal farms and experience. During the interview process, the producer's information is entered into a preliminary COSP input file. Once the interview is complete, calculations should be done to show the producers the projected information for their representative farm. The producers are then asked to adjust their input values for costs, yields, etc.

Adjustments to production costs and current market prices are generally made by the panel until they are satisfied that COSP represents their farm data. This interactive validation process has proven to be helpful to the panel farm process because it gives the producer panel an immediate feedback that their efforts were worthwhile. The representative farms

might be updated according to the intervals suggested on the Standard Operating Procedure Development of FMP and FP<sup>2</sup>, or as often as the panels want to update their farm data.

## Part II: Getting to know the COSP template

The COSP sheet<sup>3</sup> is composed of four main components. These are: a) General information, b) Small producers' organization or contract production project or company information, c) Product information, and d) COSP data. Below is a description of each part.

### a) General Information

<i>Date:</i>	
<i>Agricultural period reported:</i>	
<i>Production cycle in years:</i>	

At the beginning of the COSP there are three grey boxes that must be filled in as follows:

- *Date of when the COSP was completed:* day/month/year.
- *Agricultural period reported (starting and ending):* month/year from starting to ending. This is especially important as costs of production need to be reported for one-year agricultural period.
- *Production cycle (in years):* this is relevant for perennial crops. Unlike annual crops, for which field operations and harvest/post harvest take place within one year, perennial crops have a longer production cycle. Consequently costs of production need to be reported considering the full production cycle.

### b) Fairtrade Certified Producers' Information

<i>Name of Fairtrade certified producer:</i>	
<i>FLOID:</i>	
<i>Last step as undertaken in the marketing chain:</i>	
<i>Country:</i>	
<i>Product,s:</i>	

This is found in the green box on the top of the COSP sheet and it is intended to define the level of responsibility of the product sold. Please note that to set a FMP at the appropriate level of the small producers' organization or contract production project or company, this information is particularly relevant. Fairtrade International sets prices at *Ex Works* (EXW) and *Free on Board* (FOB) levels<sup>4</sup>.

At EXW price level, the COSP include labor, inputs/services, and capital/investments costs of: establishment; field operations; harvest and post harvest; transformation and/or processing; product preparation and packaging; and central structure expenses. At FOB price level, include the same as above but in addition, export costs are considered. Exceptions on these definitions might occur, but they are consequently clearly indicated in the relevant product standards.

Considering the description above, in this part of the COSP sheet must be clearly indicated:

<sup>2</sup> See the SOP for the Development of Fairtrade Minimum Prices and Premiums (link available in the References section).

<sup>3</sup> See COSP sheet in Annex 1.

<sup>4</sup> According to the ICC (2000), EXW and FOB are defined as follows: EXW indicates that the exporter delivers the product to a specific place (warehouse, packaging plant, etc.) but does not incur export or handling costs. FOB indicates that the exporter places the product in the means of transport (air, sea, and rail). The exporter assumes the risks and responsibilities up to that stage.

- *The level of the supply chain* where the responsibility of the certified producer ends, and
- *The name and a short description of the product sold* as it is delivered to the buyer.

### c) Product Information

<b>For exportation or transformation/processing:</b>	
<b>Yield in metric ton per hectare:</b>	
<b>Conventional or Organic:</b>	
<b>Currency used in this tool:</b>	
<b>Exchange rate from \$ to currency used:</b>	
<b>Date of the indicated exchange rate:</b>	

This part is found in the blue box and refers to:

- *Market of the product:* an indication must be done if the product is for transformation/processing or for exportation.
- *Type of produce:* a remark must be done if the produce is organic or conventional.
- *Average yield (in metric ton):* an average yield of the product in questions needs to be reported. In Part III is discussed how to estimate average yields.
- *Exchange rate* in USD to used currency is required. The exchange source used should be also specified. A commonly reference could be OANDA<sup>5</sup>. The exchange rate employed for the calculations should be an average of the year reported. Please note that costs of production need to be reported for one-year agricultural period.

Please note that in case that a small producers' organization or contract production project or company produces several products, one COSP sheet must be filled in for each product.

### d) COSP Data (see [Annex 1. COSP Sheet](#))

COSP data is in general divided between costs incurred at EXW and FOB levels. EXW level includes labor, inputs/services and capital/investments costs of: establishment; field operations; harvest and post harvest; transformation and/or processing; product preparation and packaging; and central structure expenses. At FOB level, includes the same as above but in addition, export costs are considered. Please take into account that in the COSP sheet once all costs are filled in, total costs are summed up automatically at EXW and FOB levels.

COSP information is classified in function of various stages of production related to:

1. Establishment (initial investment)
2. Field operations
3. Harvest and post harvest
4. Transformation and/or processing
5. Product preparation and/or packaging
6. Central structure (umbrella organization) activities
7. Export costs

Stages one to five consider three main categories as follows: labor, inputs/services, and capital/investments, while in stages six and seven, additional factors are taken into account. Please note that the COSP data includes both operating (variable) and fixed costs in each

<sup>5</sup> See: <http://www.oanda.com/>

stage of production. Therefore, attention must be paid in the estimation of costs to ensure that all costs are considered. Guidance for calculations in all stages is provided in Part III. Following is a general explanation of costs incurred in each stage of production:

1. *Establishment*: refer to the initial investment done to establish the product in question. These costs are the sum of the costs for land preparation, planting trees, and production expenses plus costs of facilities and investments.
2. *Field operations*: are those expenses used in production such as: labor, irrigation water, fertilizers, herbicides, pesticides, seeds or plants, fuel and oil, machinery, and costs of land. They also include costs of facilities and investments (depreciations, insurance, repairs and maintenance), holding maintenance (tree substitution, structural repairs, etc.), taxes, and interest charges.
3. *Harvest/post harvest*: refer to harvest and post harvest operations performed by the producer with or without custom or hired labor. These operations might include hand harvest and field packing but also can be sorting, sizing, grading on specialized machines. If machinery is employed fuel, oil, and investments (depreciations, insurance, repairs and maintenance) need to be considered.
4. *Transformation and/or processing of product*: refer to the costs of transforming a product in order to be suitable for consumption and they vary according depending on the product and according to the technological ability and size of the responsible for providing the service. In this case, it is important to identify the conversion rate, i.e., how much raw material will be converted into final product. Please note that usually these costs are incurred by the central structure (umbrella organization) of the small producers' organization or contract production project or company. However, might be that FMP set are for a processed product form, thus costs at this stage of production should be reported in the COSP sheet.
5. *Product preparation and/or packaging*: these are costs related to preparing, selection, cleaning, sorting and treatment as usually these activities are not carried out in the field, but in packaging or processing plant. Packaging costs refer to the cost of putting the product into a package that enables its adequate transfer to the final consumer. Preparation costs usually relate to the volume or weight of the product; packaging costs relate to the number of units.
6. *Central structure (costs of umbrella organization)*: these are costs incurred by the small producers' (or contract production project or company) umbrella organization responsible of paying certification costs (i.e., Fairtrade label, organic, etc.). They might consist of: application fees, initial certification fees, and follow up audition fees, among others). Additional costs of the central structure are office expenses, management salaries, investment repairs, property taxes, and capital recovery costs. Please note that costs incurred by the small producers' (or contract production project or company) umbrella organization to be in compliance with Fairtrade Standards, hereinafter referred to as compliance costs (e.g., costs of conversion, infrastructure investment, soil management, manual weed control, foliar coverage, soil management, etc.), should be taken into account in the appropriate stages of production when reporting COSP data.
7. *Export costs*: costs related to this stage are: a) transport costs that depending on the nature and extent of the small producers' organization or contract production project or company, may mean transfer of product to another stage in the export process (e.g., to a refrigeration room or to an inventory center); b) insurance costs and refer to the risk that international transactions entail, whether commercial, type of currency, interest rate, political risk, environmental hazards; c) costs such as taxes, terminal fees, and commissions d) handling costs that due to security regulations can be incurred at various points; e) storage costs due to the seasonality of agricultural products that are harvested only at certain times of the year; f) costs due to loss of product that refer to quantitative

and qualitative losses that agricultural products undergo in the initial stages of the marketing chain, particularly during transport and handling; and g) financial management costs that might include: payments in advance, letter of credit, bank collection, credit or open account, currency exchange, commissions or fees, etc.

## Part III: How to calculate COSP

In this section a detailed calculation of COSP data is provided. It starts with some general considerations for the estimation of: yields in annual and perennial crops; labor; inputs/services; and capital/investments that are categories included in most of the stages of production in the COSP calculation. The remaining of this section continues with explanations on how to calculate case-by-case each stage of production in the COSP sheet.

### a) General considerations

#### i. Yield data

In the case of annual crops the calculation of an average yield, representative among Fairtrade producers, is straightforward. Producers from the panel should agree in a yield that represents the situation of the region. However, in most perennial crops (also known as multi-annual crops), harvesting does not necessarily occur regularly, which may not be annual or may start a few years after plantation, giving rise to irregular cash flows. Therefore, the estimation of the yield should take into account a typical or average year in order to give a meaningful yield estimate. To calculate this, the panel should reach a consensus on the number of years of the representative agricultural cycle of the product in question and also provide with yield data for each year. Once this information is obtained, the average is taken by simply summing up all the yields and dividing this value by the number of years agreed by the panel.

#### ii. Labor

For a more accurate estimation of labor costs, labor might be divided into three subcategories: a) family labor, b) regular hired labor, and c) temporary hired labor (i.e., seasonal and casual). Family labor is generally provided by the producer or farm family members. Regular hired labor is used primarily for the performance of general farm operations such as equipment operation, pruning, etc. Temporary hired labor is used primarily for planting, weeding, harvesting, and packing of products. The amount of family, regular hired, and temporary hired labor required for each product depends on the number and frequency of tasks, the overall size of the farm, and whether harvesting is accomplished by hand or machine.

Please note that family labor and temporary hired labor need to be reported in man-days<sup>6</sup>. To estimate total costs for family labor and temporary hired labor the total number of man-days needed is multiplied by the local wage rate. In the case of permanent hired labor this should be reported in number of workers, period paid and amount paid per worker. The calculation of permanent hired labor, involves the salary (e.g., weekly, monthly, etc.) of the workers during the agricultural period contracted plus the mandatory government benefits such as social security and workers compensation.

<sup>6</sup> A man-day is the amount of agricultural labor performed by an average worker in one day and commonly is not superior to 48 hours per week.

In the COSP sheet, data on labor is requested at the various stages of production. Besides this, a note on the number of man-days and wage/man-day for each subcategory must be provided. In the case of permanent hired labor, number of workers, salaries, periods paid, and mandatory benefits must be also reported in the labor category in each stage of production.

### iii. Inputs and services

Cost of inputs and services make up a major component of costs involved in the farm operation. Examples of these items include: irrigation water, chemical inputs such as fertilizer, herbicides, and pesticides; seeds or plants; small tools and/or small hand equipment used in the field; fuel and oil (of self propelled machinery), repair and maintenance costs of machinery, packing containers for fruits and vegetables, and costs of land, among others. Assigning costs is more straightforward for those inputs or raw materials purchased for a single production period. For input calculation, the quantity of the input is multiplied by its paid price. Some examples of services are: custom work such as lime application, grain drying, machinery operations, and transport.

### iv. Capital and investments

These consist of various expenses paid out during the year that are accrued independently of the size of production. Some examples are: property taxes; insurances; office expenses; investment repairs; annual depreciation; interest costs on operating capital; building, machinery and land investments; and field tools. A brief overview of these costs is provided below.

- *Property taxes:* For owned land, estimated property taxes need to be calculated at certain percentage of the value of the property. For rented land, no property tax assessment is made in the estimates because the rental rate implicitly includes property taxes.
- *Insurance:* Insurance for farm investments varies depending on the assets included and the amount of coverage. These can be property insurance that provides coverage for property loss and liability insurance that covers accidents on the farm.
- *Office expenses* These expenses include office supplies, telephones, bookkeeping, accounting, legal fees, road maintenance, etc.
- *Investment repairs:* Refers to the repairs of building and machinery investments.
- *Annual depreciation:* It is a non-cash cost that measures the loss of value of machinery or buildings over time. It is the portion of the cost of the machinery or building that is counted as an expense each year. Costs are spread over their expected useful life. Depreciation can be estimated using the straight-line method. The formula for obtaining the annual straight-line depreciation amount denoted by  $D$ , is  $D = (PV - SV)/L$ , where  $PV$  is the item's present value (i.e., its expected future replacement cost at the moment of analysis),  $SV$  is its expected salvage or residual value at the end of its useful life and  $L$  is its expected total years of life. Thus, annual depreciation on a cultivator with an expected replacement cost of \$1000 and which has an expected total useful life of ten years, and can then be sold for \$200 as scrap, would be:  $\$(1000 - 200)/10 = \$80$ ; or if it has no salvage value<sup>7</sup>,  $\$1000/10 = \$100$ .
- *Interest on operating capital:* It is a common practice among producers to incur short term loans to pay for supplies, labor, and purchased inputs. To account for this, interest on operating capital is usually included as a cost of production. Interest on operating

<sup>7</sup> The salvage value is an estimate of the value of the asset at the time it will be sold or disposed of; it may be zero or even negative.

capital might be charged on different stages of production; usually these are field operations and harvest/post harvest activities. To calculate the interest on operating capital, for field operations, the period (in months) is multiplied by the annual rate chosen. Interest on harvesting is calculated for a shorter period (e.g., one month only). For the purposes of COSP calculation, the most common interest rate<sup>8</sup> for short-term and intermediate loans might be selected.

- *Building, machinery and land investments:* Investment cost of buildings, machinery and land should be considered an expense item. The investment cost, often called opportunity cost, can be the amount of interest paid on a loan if one borrows the full amount of money to purchase the asset. For those assets which are partially or fully paid for (no debt cost), it is important to place a value on the money or a fair comparison of investment alternatives cannot be made. The value placed on the money is often referred to as the opportunity cost of money. For example, rather than purchase the asset, one could leave the money in the bank and gain interest. In the case of land investments, the annual cost of land is calculated as follows: land value e.g., \$(500/ha) \* interest rate (7.5%) = \$37.5. Additional information on rental rates per hectare will give an approximation of this value as well.
- *Field tools:* Includes equipment tools that in case of continued production are replaced.

## **b) Specific calculations in each stage of production**

### **1. Establishment costs (initial investment)**

Establishment cost is the sum of the land preparation and related cash costs. These costs need to be amortized depending on the years that the crop is expected to be in production. This is particularly relevant for perennial crops as they only produce after an "establishment" period. The costs associated with this non-productive time need to be recovered during the crop's productive life. Therefore it is important to include an estimate of the annual cost to recover establishment costs in the annual budget of the years in full production.

In other words, it is necessary to spread these costs over the expected productive life of the crop. This process, called amortization, involves carrying forward with interest, the total establishment costs for the expected economic life of the crop (in years). The amortized establishment costs can be calculated as follows:  $A = PV[i(1+i)^n]/[(1+i)^n - 1]$ . Where,  $A$  is the annual payment and  $PV$  is the sum to be amortized (in this case the establishment costs) over  $n$  years (depending on the crop productive life) at an interest rate of  $i$ . The amortization factor  $[i(1+i)^n]/[(1+i)^n - 1]$  is simply the reciprocal of the annuity discount factors of the Table of Annuity Discount Factors for obtaining the Present Value of an Annuity (See Annex 2). Using the amortized establishment costs, one can then estimate the annual costs. To illustrate this, a hypothetical example is presented below. In this example labor, input/services and capital/investments are first amortized and then those values are reported in the COSP sheet.

#### **Labor calculation:**

Activity	Quantity	\$/day	\$/ha
Clearing	3.00	1.50	4.50
Pruning	1.50	1.50	2.25

<sup>8</sup> Interest at a nominal interest rate is the current market cost of borrowed funds during the production year reported.

Cutting	0.80	2.00	1.60
Pest control	1.50	2.00	3.00
Disease control	3.00	2.00	6.00
Fertilizer application	2.20	1.50	3.30
<b>Total labor per hectare</b>	<b>\$20.65</b>		
<b>Amortized labor establishment costs per hectare (11 years at 8%)</b>	<b>\$2.89</b>		
<b>Amortized labor establishment costs per metric ton (Yield = 1.1 t / ha)</b>	<b>\$2.62</b>		

#### Inputs and services calculation:

Item	Quantity	\$/unit	\$/ha
Seed	2.00	12.00	24.00
Fertilizer	1.00	13.70	13.70
Herbicide	2.00	3.43	6.85
Machinery operations	22.17	2.00	44.34
<b>Total inputs/services per hectare</b>	<b>\$88.89</b>		
<b>Amortized input/services establishment costs per hectare (11 years at 8%)</b>	<b>\$12.44</b>		
<b>Amortized input/services establishment costs per metric ton (Yield = 1.1 t / ha)</b>	<b>\$11.31</b>		

#### Capital and investments calculation:

Item	\$/ha
Land investment (cash rent equivalent)	75.00
<b>Total capital/investments per hectare</b>	<b>\$75.00</b>
<b>Amortized input/services establishment costs per hectare (11 years at 8%)</b>	<b>\$10.50</b>
<b>Amortized input/services establishment costs per metric ton (Yield = 1.1 t / ha)</b>	<b>\$9.55</b>

In the Boxes above, costs are calculated per hectare and per metric ton. The establishment costs of the product in question are amortized at 8 percent over 11 years, a period corresponding to the expected economic life of the product. These costs consist of the standard categories of the COSP sheet, i.e., labor, inputs/services, and capital/investments. The calculation is done dividing one by the amortization factor obtained from the Table of Annuity Discount Factors for obtaining the Present Value of an Annuity<sup>9</sup>. The amortization factor is  $(1)/(7.139) = 0.140$ . Each annual payment for the establishment costs per hectare will

<sup>9</sup> To obtain the amortization factor, the corresponding interest rate ( $i=0.08$ ) is matched with the amortization period ( $n=11$ ).

be: a) labor:  $\$(20.65) \times (0.140) = \$2.89$ ; b) inputs and services:  $\$(88.89) \times (0.140) = \$12.44$ ; and c) capital and investments:  $\$(75.00) \times (0.140) = \$10.50$ . To obtain the cost per metric ton each of the above values is divided by 1.1 (assuming that this value is the yield per hectare for the product in question). Once the calculations are done, the values obtained are then reported in the COSP sheet in the respective category.

	Cost per hectare	Cost per metric ton	Additional information
<b>1. Establishment costs (initial investment)</b>			
1.1 Labor	2.89	2.62	<i>Indicate the number of man-days and the wage per man-day for each category of salary. In the case of permanent hired labor, report the salary, period paid and additional government benefits.</i>
1.2 Inputs and services	12.44	11.31	
1.3 Capital and investments	10.50	9.55	

## 2. Field operation costs

These costs are incurred only when production takes place and they are typically used up or transformed during the production cycle. Examples are: labor, seed, fertilizer, fuel, pesticides, machinery operations, and water, among others. With the exception of labor and machinery operations, it is relatively easy to assign these costs to a particular crop.

- *Labor*: An explanation on how to calculate labor costs was already provided above in General Considerations.
- *Inputs and Services*: For calculating other inputs/services, the quantity applied, the unit of measure, and the cost per unit of the input/service need to be estimated. Multiplying the quantity applied by the price per unit gives the cost that can further divided by the number of hectares to obtain costs per hectare. This is a fairly straightforward process for most operating inputs, especially purchased inputs. Machinery operating costs include fuel (gas and diesel), lube and machinery repairs. Most producers accumulate fuel and repair costs for the entire farm. The allocation of these whole farm expenses to specific crops can be made using a number of allocation schemes. Producers should use or develop a scheme that is both simple and reasonably accurate.
- *Capital and Investments*: In this category are costs for interest charges, depreciation, taxes, and insurance among others. Interest charge is the cost of the money that is tied up in the production of a crop. It reflects the amount of money one pays on borrowed money or that amount that could have been earned if one had invested own resources in alternative uses in the market. **Interest on operating capital** is calculated using the current interest rate. In the following cost example, an annual interest charge of 15 percent or 1.25 percent per month is assumed. The calculation of an interest charge on operating costs is: (Total cash operating expense for the month) \* (The number of months the capital is used) \* (Interest charge). The number of months the capital is used begins when the operating capital is invested and ends when it is recovered (usually the harvesting period or sale month for the crop). For example, if the fertilization (\$40) and weed control (\$40) operations are done in April, the interest charge for these expenses will cover 5 months, assuming August is the recovery or sale time. Thus, interest charge is calculated:  $\$(40 + 40) \times (5) \times (0.0125) = \$5$ . Note:  $0.0125 = 1.25\%$  or  $1.25/100$ . The same procedure is used to determine other operating expenses.

**Interest of investment** is charged at the current annual interest rate of the average investment and is calculated per hectare as follows:  $(\text{Investment cost} + \text{salvage value}) / (2 * \text{number of hectares}) (\text{Annual Interest Rate})$ . If an investment for machinery, equipment and

irrigation system amounts of \$102,700 and the farm size is 40 hectares, the investment interest charge per hectare will be:  $\$(102,700+0)/(2 * 40) * 0.15 = \$192$ . Note: 0.15 = 15% or 15/100. Another cost item in this category is **depreciation**; below is an example of a depreciation schedule for a farm of 40 hectares.

Capital items	Current price (\$)	Useful life (years)	Investment (\$/ha)	Depreciation (\$/ha)
Buildings	15,000.00	25.00	375.00	30.00
Tractor	10,000.00	10.00	250.00	25.00
Hand thresher	2,000.00	6.00	50.00	8.33
Cultivators	3,000.00	5.00	75.00	15.00
Livestock gear	600.00	3.00	15.00	5.00
Barn	5,000.00	20.00	125.00	6.25
Fences	6,000.00	30.00	150.00	5.00
Dam/pond	8,000.00	40.00	200.00	5.00
Water pump	4,000.00	8.00	100.00	12.50
<b>Total investment</b>	<b>53,600.00</b>	<b>-</b>	<b>1,340.00</b>	<b>120.08</b>

In calculating the above costs, the values given to capital items in the second column and hence their depreciation charge in the fifth column should not be based on their initial purchase or construction cost. Capital items should be valued at their current expected replacement cost. The tractor, e.g., might actually have cost \$8,000 five years ago, but today the cost of replacing this five-year-old machine with a new one might be \$10,000. The third column contains estimates of the years of useful service which can be expected of each item from the time of its initial purchase by the producer. These are inevitably somewhat arbitrary. In this example, the straight-line method of calculating depreciation is used and it is assumed that the capital items have no residual value at the end of their useful life (see formula and explanations above in General Considerations).

Costs of **taxes** need to be calculated as well. For property taxes, this is done at certain percentage of the value of the property. For rented land, no property tax assessment is made in the estimates because the rental rate implicitly includes property taxes. Finally, **insurance** costs should be also reported. These costs vary depending on the assets included and the amount of coverage and can be property insurance that provides coverage for property loss and liability insurance that covers accidents on the farm. In the case of property loss a certain percentage of the average value of the assets over their useful life is charged.

To summarize this section, field operation costs for a product with an expected economic life of 11 years will be:

Items	Year 1 (\$/ha)	Year 2 (\$/ha)	Year 3 (\$/ha)	Year 4 (\$/ha)	Year 5 (\$/ha)	Years 6 – 11 (\$/ha)
Labor	45.00	17.00	17.00	20.00	20.00	20.00
Inputs and services	34.00	43.00	50.00	59.00	65.00	74.00
Capital and investments	135.08	135.08	135.08	135.08	135.08	135.08

To report this data in the COSP sheet, average values need to be calculated. Capital and investments refers in this example to land rental and depreciation. These items are assumed to remain constant during the 11 years. This means that the value calculated in the Table of depreciation discussed above (\$120.08/ha) will be the one reported in the COSP sheet without further average calculations, the same will be done for land rental (assumed to be \$15/ha). There might be cases that loan interest should be computed in the capital/investments category, since it will vary each year depending on the amount of interest that is being paid each year, the value reported should be an average.

To calculate average costs per hectare, costs for each year are added up (labor: \$239.00/ha and inputs/services: \$695.00/ha) and divided by 11 (production cycle of the product in question). To obtain the cost per metric ton each of the above values is divided by 1.1 (assuming that this value is the yield per hectare). Once these calculations are computed, the next step is to insert those values in the COSP sheet as follows:

	Cost per hectare	Cost per metric ton	Additional information
<b>2. Field operation costs</b>			
2.1 Labor	21.73	19.75	<i>Indicate the number of man-days and the wage per man-day for each category of salary. In the case of permanent hired labor, report the salary, period paid and additional government benefits.</i>
2.2 Inputs and services	63.18	57.43	
2.3 Capital and investments	135.08	122.80	

### 3. Harvest and post harvest costs

This component refers to activities related to harvest and post harvest and might include hand harvest and field packing but also can be sorting, sizing, grading on specialized machines. If machinery is employed, then fuel, oil, and investments (e.g., depreciations, insurance, repairs and maintenance) need to be considered in the respective category of costs (i.e. inputs/services or capital/investments). Please note that labor hours for harvest and related activities will vary on a year to year basis depending on crop and field conditions. Some crops can be planted and harvested at varying times throughout the year, therefore is important to take this into account when reporting COSP data.

Following with the example of the production with an economic life of 11 years, here the calculation needs to be done also as an average but since harvest only starts in year 6, special attention needs to be paid to ensure that the average is only for those productive years where harvest and post harvest activities apply.

	Cost per hectare	Cost per metric ton	Additional information
<b>3. Harvest and post harvest costs</b>			
3.1 Labor	65.00	59.09	<i>Indicate the number of man-days and the wage per man-day for each category of salary. In the case of permanent hired labor, report the salary, period paid and additional government benefits.</i>
3.2 Inputs and services	40.00	10.90	
3.3 Capital and investments	10.00	9.09	

### 4. Transformation and/or processing costs

Transformation of product is often a significant factor in costs. Some products such as coffee have to be transformed in order to be suitable for consumption. The price of a kilo of “cherry beans” is not the same as that of a kilo of “green coffee”. To calculate transformation costs,

the first step is to identify the conversion rate, i.e., how much raw material will be converted into final product.

Please note that an indication must be done if the transformation and/or processing costs are incurred at the central structure (umbrella organization) level or at the individual producer level (which applies only to small producers' organizations or contract production projects). In the case of companies, the central structure should report these costs. Also take into account that if the price set is for a processed product form these costs are particularly relevant for the price calculation and therefore is compulsory to report them.

Using the example of mangos, one of the most common processes used for mango that does not comply with international standards is to transform it into pulp. Pulp is usually used to prepare juice or drinks. In the mango case, a conversion rate of 60 percent is estimated; that is, for every 100 kilograms of mango, 60 kilograms of pulp and 40 kilograms of peel and seed will be obtained. It is assumed that the peel and seed have not economic value. The cost of processing 100 kilograms of mango is \$16.00 and the cost of packaging it is \$28.00. The price of mango for processing is \$0.15 per kilogram. The preparation cost per kilogram of pulp will be:

Cost of the mango for processing	100 kg * \$0.15/kg = \$15
Cost of processing	\$16.00
Cost of packaging	\$28.00
Output	60%
Cost of pulp/kg of pulp	\$15 * 100 kg * 0.6 kg = \$0.25
Cost of processing/kg of pulp	\$16 * 100 kg * 0.6 kg = \$0.27
Cost of packaging/kg of pulp	\$28 * 100 kg * 0.6 kg = \$0.47
<b>Total cost/kg of pulp</b>	<b>\$0.99</b>

In this case, as shown in the above example, the cost of producing one kilo of mango pulp is \$0.99. This value includes the costs of mango for processing (\$0.25/kg), labor costs of processing (\$0.27/kg), and costs of packaging (\$0.47/kg) considered under the category of inputs/services. If applicable, capital and investment costs need to be imputed as well. Please note that the cost of the mango for processing (\$0.25/kg) should not be reported in this stage of production as it is accounted in the establishment costs, field operation costs and/or harvest/post harvest costs.

To obtain the cost per metric ton of mango pulp, the costs per kilogram are multiplied by 1000 (labor: \$0.27\*1000 and inputs/services: \$0.47\*1000). Assuming that the yield of the mango pulp is 8.80 t/ha, the costs per hectare are calculated by multiplying the cost per metric ton by 8.80. These calculations are then reported in the COSP sheet as follows:

	Cost per hectare	Cost per metric ton	Additional information
<b>4. Transformation and/or processing costs</b>			
4.1 Labor	2376.00	270.00	Indicate the number of man-days and the wage per man-day for each category of salary. In the case of permanent hired labor, report the salary, period paid and additional government benefits.
4.2 Inputs and services	4136.00	470.00	Note: Indicate if the transformation and/or processing costs are incurred at the central structure (umbrella organization) level or at the individual producer level (which applies only to small producers' organizations or contract production cases). In the case of companies, the central structure should report these costs.
4.3 Capital and investments	00.00	00.00	

## 5. Product preparation and/or packaging costs

One of the main tasks to be carried out after bringing the product from the field is to prepare it for subsequent packaging. Among the most frequent activities are: *a) Preparing*: consists of removing roots, leaves or stems that are attached to the product and that may affect its quality; *b) Selection*: separation of the products into marketable and nonmarketable based on marketing criterias such as shape, color, texture, etc.; *c) Cleaning*: elimination of soil and foreign objects; *d) Sorting*: separation of product according to quality and size in order to add value; in many cases, the product is labeled at this stage; labeling enables it to be differentiated from other similar products; and *e) Treatment*: application of a chemical or physical process to enhance the product's quality, durability, or appearance.

Packaging costs are relatively easy to identify, since they are directly related to the product. Once the capacity of the package is known — for example, in the case of mangos, the boxes have a capacity of 4.2 kilograms, and in the case of bananas, the boxes are 18 kilograms — it is possible to determine packaging cost per kilogram. To illustrate this concept, a hypothetical export example is employed. Suppose that a container of mangos is packed for the U.S. market. Before being packaged, the product must be cleaned, selected, sorted, and treated with hot water, for this market in particular. This process has a cost of \$0.18 per kilogram. Once the process has been carried out, the product is packaged in boxes of 4.2 kilograms capacity, which is equal to:

Weight range of each Mango (grams)	No. of units per box
300 – 400	12
400 – 500	10
500 – 550	8

As can be seen above, boxes with smaller mangos will have a larger number of units, while boxes with larger mangos will have fewer units; however, the weight of the box remains almost constant. If the cost of the cardboard box is \$0.30 per unit placed in the packaging plant, and straps, clamps, and pallets or platforms account for an additional \$0.20 per box, the cost of preparation and packaging per box would be calculated as follows:

Treatment cost (4.2 Kg. x \$0.18)	\$0.76
Packaging cost	\$0.30
Other costs	\$0.20
<b>Preparation and packaging cost/box</b>	<b>\$1.26</b>

To calculate the cost per metric ton, the costs of preparation and packaging per kilogram are multiplied by 238 boxes (each box has 4.2 kilograms capacity), this is \$0.76\*238 and \$0.50\*238, respectively. Assuming that the yield of mangos is 5.5 t/ha, the costs per hectare are calculated by multiplying the cost per metric ton by 5.5. If applicable, capital and investment costs need to be imputed as well. Once the above values are calculated, these are reported in the COSP sheet in the following manner:

	Cost per hectare	Cost per metric ton	Additional information
<b>5. Product preparation and/or packaging costs</b>			
5.1 Labor	994.04	180.88	<i>Indicate the number of man-days and the wage per man-day for each category of salary. In the case of permanent hired labor, report the salary, period paid and additional government benefits.</i>
5.2 Inputs and services	654.50	119.00	
5.3 Capital and investments	00.00	00.00	

## 6. Central structure costs

### 6.1 – 6.3 Labor, Inputs/Services, and Capital/Investments

These categories of costs have been extensively discussed in the precedent components of the COSP sheet. Examples of these costs are office expenses, management salaries, investment repairs, property taxes, and capital recovery costs. These should be considered in the capital/investments category. Please refer for calculations to the above sections.

### 6.4 Certification costs

These are costs incurred by the small producers' (or contract production project or company) umbrella organization responsible of paying certification costs (i.e. Fairtrade label and/or organic certification). They might consist of: application fees, initial certification fees and follow up audition fees, among others). Please note that certification costs reported in the COSP sheet should be only those related to Fairtrade and/or organic certification. Also, it is important to take into account that compliance costs (e.g., costs of conversion, infrastructure investment, soil management, manual weed control, foliar coverage, soil management, etc.) should be taken into account in the appropriate stages of production when reporting COSP data.

Additional costs associated to this category are related to the organizational structure and objectives pursued in the certification scheme since this determine the quality assurance measures to be applied and the recording systems to monitor product quality. Examples of these are: planning, management, training and extension, record-keeping, accounting systems, monitoring, social-networking, marketing, staff salaries, and operational costs in the setting-up and maintenance phases.

Please note that some of these costs are fixed and do not directly depend on the quantity produced. To obtain their value per metric ton, the cost is divided by the total amount of production of the whole small producers' (or contract production project or company) umbrella organization. To calculate the cost per hectare, the cost per metric ton is multiplied by the yield of the product.

### 6.5 Business margin

Once all costs entailed in the stages of production have been accounted for, the next step is to add what is known as the business margin. The business margin is represented by a percentage. In most cases, this percentage refers to repayment of the risk and costs that have been incurred; clearly, if those costs are not known, it will be difficult to know if they are being fully compensated and if the margin is reasonable or not.

The business margin is a percentage of the final weighted-average selling price which is determined at each stage in the export chain, such as that in which the different prices are set for the buyer. For example, a Fairtrade producer can sell his product EXW, which means that the costs and liability will be for his account up to the packaging or processing plant. In the event that the Fairtrade producer agreed to sell his product FOB, he will have to add the fees and commissions which must be paid for putting the cargo in the means of transport that will bring it to the port of destination. Just as in the previous stage, it is recommended that the producer, for assuming this risk includes a business margin. Margins are often utilized to analyze the effectiveness of marketing systems, but, though they may be well calculated, they are often difficult to understand. Nevertheless, it is necessary to consider the costs that were incurred, as well as the responsibilities and risks that were assumed.

To continue with the example of exporting mangos to the U.S., suppose that one container of mangos is exported weekly. Once the cost of the product has been determined (what it cost to produce it or buy it), the above indicated costs are incorporated into it and then the export costs (see below), which will depend on the type of transaction agreed on by the producer:

	<b>Cost / Box</b>
Cost of the product	\$1.47
+ Cost of preparation of the production	\$0.76
+ Handling cost	\$0.23
+ Cost of packaging	\$0.50
+ Cost of product loss	\$0.21
+ Cost of capital	\$0.07
+ Cost of financial management	\$0.03
+ Cost of exportation	n/a
Subtotal	\$3.27
+ Business margin	\$0.48
<b>Price EXW</b>	<b>\$3.75</b>

	<b>Cost / Box</b>
+ Cost of ground transport	\$0.19
+ Cost of insurance	\$0.08
Subtotal	\$3.54
+ Business margin	\$0.53
<b>Price FOB</b>	<b>\$4.07</b>

	<b>Cost / Box</b>
+ Cost of terminal fees and commissions	\$0.12
+ Handling cost	\$0.03

Subtotal	\$3.69
+ Business margin	\$0.55
<b>Price FOB</b>	<b>\$4.24</b>

To calculate the prices shown above, it is used a marketing margin of 15 percent above costs<sup>10</sup>; even though that rate remains fixed during the stages of the chain, the nominal amount increases as the risks and responsibilities in the process assumed by the producer increase. Before starting to negotiate with the buyer, the producer should determine in what stage of the chain he is going to sell his product and what his costs will be. With that information, he will be able to negotiate the selling price.

To summarize this section, an example is provided below showing how to report these costs in the COSP sheet. The following assumptions are done: a) internal quality control and administration staff have a cost of \$6,000.00/year; b) office material and utilities are \$1,000.00/year; c) infrastructure of the umbrella organization costs \$50,000.00 and has a useful life of 30 years; d) organic certification fees cost \$1,500.00/year; e) Fairtrade certification costs \$2,000.00/year; f) business margin (selling product EXW) of \$3.75/box; and g) total production of the umbrella organization amounts 5,000 metric ton.

	Cost per hectare	Cost per metric ton	Additional information
<b>6. Central structure costs (costs of umbrella organization)</b>			
6.1 Labor	6.60	1.20	<i>Indicate the number of man-days and the wage per man-day for each category of salary. In the case of permanent hired labor, report the salary, period paid and additional government benefits.</i>
6.2 Inputs and services	1.10	0.20	
6.3 Capital and investments	1.83	0.33	
6.4 Certification costs	3.85	0.70	
6.5 Business margin	0.98	0.17	

To calculate costs per metric ton from point a – e, all values are divided by the total production of the whole umbrella organization (assuming that this amount is of 5,000 metric ton) except infrastructure that needs to be depreciated first as follows:  $\$50,000.00/30=\$1,666.66$ . To obtain the value of the business margin per metric ton, the value per box is multiplied by 238 boxes (each box has 4.2 kilograms capacity) and then divided by the total production of the umbrella organization. Once the calculations per metric ton are done, to obtain the cost per hectare, these values are multiplied by the yield per hectare assumed to be 5.50 t/ha.

## 7. Export costs<sup>11</sup>

### 7.1 Transport costs

In general, transport cost is easy to identify, since the producer usually has to pay it by unit of weight or volume (per kilos, quintals, boxes, etc.) or per distance. The cost is often determined per container or per truck. Where the producer owns the means of transport, the calculation of transport costs is more complex. Transport of product to the final market is a significant cost for producers exporting. Thus, depending on what was agreed, there may be various means

<sup>10</sup> This can be based on the nominal interest rate during the production year reported.

<sup>11</sup> This section relies on the explanation of export costs described by Lam (2006).

of transport (ground, sea, rail or air). Most agricultural products travel by land or sea, depending on the location of the exporter country and importer country. But when products which are perishable, delicate or more value, such as flowers, are concerned, it is necessary to resort to air transport.

The most common method of representing transport cost is per unit. In the case of ground transport, it is normally quoted per containers of 20' (1 TEU<sup>12</sup>) or 40' (2 TEU), and the cost depends on distance traveled and type of container, which can be dry, refrigerated or frozen. When ground transport of an agricultural product is paid per container, the container cost is divided by the number of boxes or kilograms that it contains to determine the unit cost.

For sea transport, which is generally slower but cheaper, costs are normally quoted per container, based on weight, quantity or volume. Though there are other ways of sending product by sea, most agricultural products are sent in containers, to facilitate handling. Continuing the mango example, let's suppose that a container is to be transported from the packaging plant to the port of export and will then go by sea to its final destination. In this case, the cost of ground transport, from the packaging plant to the port of export is \$266.00 per container (\$0.19/box) and the cost of sea transport is \$1,288.00 per container (\$0.92/box). Transport cost is one of the most important factors in the export process. Calculating it before any shipment is essential to the success of the transaction.

Ground cost	\$0.19
Sea cost	\$0.92
<b>Transport cost per box</b>	<b>\$1.11</b>
<b>Transport cost per metric ton</b>	<b>\$1.11 * 238 boxes (4.2 kg/box) = \$264.18</b>
<b>Transport cost per hectare</b>	<b>\$264.18 * 5.5 (yield per hectare) = \$1,452.99</b>

## 7.2 Insurance costs

Every international transaction entails some risk, whether commercial (breach of contract, insolvency of the supplier or client, accidents in transport and delivery of product, etc.), type of currency (different quotation of currencies at the time of contracting and at the time of collection or payment for the transactions), interest rate, political risk, environmental hazards, etc. To minimize these risks, exporters generally purchase insurance policies, which represent additional costs. Determining the cost of insurance is directly related to the transaction's risk probability. The cost of insurance varies significantly, according to the circumstances in which the deal was made, type of product, market, etc. Continuing the same example of mangos, two types of insurance are considered in this case: an insurance policy of \$0.08 per box which covers the product during ground transport and maritime insurance of \$0.20 per box.

Cost of ground insurance	\$0.08
Cost of maritime insurance	\$0.20
<b>Cost insurance per box</b>	<b>\$0.28</b>

<sup>12</sup> TEU: Twenty-foot Equivalent Unit.

<b>Cost insurance per metric ton</b>	<b>\$0.28 * 238 boxes (4.2 kg/box) = \$66.64</b>
<b>Cost insurance per hectare</b>	<b>\$66.64 * 5.5 (yield per ha) = \$366.52</b>

### 7.3 Taxes, terminal and commission fees

Despite the fact that many customs barriers have disappeared with the liberalization of international trade, import taxes still exist in many countries. These taxes constitute an additional cost in the export process and can be calculated in various ways:

- *Ad valorem tax*: These are taxes which are applied to merchandise and which are set as a percentage of the customs value.
- *Specific merchandise taxes*: These are taxes applied to merchandise at a fixed amount of money for each unit of measurement established beforehand, which may be a kilogram, liter, dozen, meter, etc.
- *Customs surcharge*: These are customs taxes that apply to certain merchandise and whose essential purpose is to protect domestic industry when that industry has made claims of 'dumping' by other countries; they are also known as compensatory or 'anti-dumping' fees. Generally it is a percentage applied to the customs value for a specified period.
- *Export taxes*: These are taxes which an exporter must pay to the government whenever an export is carried out. Export taxes provide additional income for the government which is often used to finance development programs, research, etc., to strengthen the competitive position of the sector to which they are applied.

The costs mentioned above are considered the most important ones in the export process. However, producers (exporters) also have to deal with other costs, such as export fees and licenses. These costs generally vary from country to country, but in most cases they can be a significant to a export product's cost structure. Commissions, such as fees and licenses, constitute additional costs in the export process. Though they are difficult to predict, in many cases they cause substantial increases in export costs.

### 7.4 Other costs

Here any other cost that was not mentioned above can be reported. However, common examples of these are discussed below.

#### 7.4.1 Handling costs

These constitute a significant percentage of the marketing chain's cost structure. In particular, agricultural products undergo handling at various points during export, notably at ports, airports, and customs, in both the exporter country and the importer country. In many cases, when cargo consolidation is carried out, handling costs tend to increase. Depending on the product's manipulation, handling cost may constitute a significant category; however, identifying the handling cost in the export process can be somewhat difficult because it may require distinguishing it from another cost.

Continuing the above example, there are the following costs: in the packaging plant, a cost of \$0.23 per box, which represents the movement of the product within the plant; at the port of origin, a stowage cost of \$0.03 per box, and a fumigation and inspection cost of \$0.12 per box. Thus, the handling cost per metric ton in this chain will be as follows: 238 boxes (each box has 4.2 kilograms capacity).

Handling cost (packaging plant)	\$0.23
Stowage cost (port of origin)	\$0.03
Fumigation cost (port of origin)	\$0.12
<b>Total cost of handling/box</b>	<b>\$0.38</b>
<b>Cost of handling per metric ton</b>	<b>\$0.38 * 238 boxes (4.2 kg/box) = \$90.44</b>
<b>Costs of handling per hectare</b>	<b>\$90.44 * 5.5 (yield per ha) = \$497.42</b>

#### 7.4.2 Storage costs

These costs can be subcategorized as follows: *a) Administrative costs*: costs of maintaining the product during certain periods of time, they are related mainly to the cost of physical installation (depreciation, maintenance, rental, management, etc.); *b) Treatment costs*: related to those treatments which have to be made to prepare the product for storage to maintain its quality; and *c) Capital costs*: as in any business activity, the cost of money should be incorporated in total costs of the incurred by the small producers' organization or contract production project or company if applicable. To illustrate this concept, the ginger is used as an example because storage of mangos is rare. Monthly rental of the warehouse is \$1,500.00 and it has a 2,500 box capacity. However, despite the fact that its conditions are adequate, a monthly 3 percent decrease in product weight is expected. The expected selling price is \$7.80 per box. For the example below, the storage cost for one month is \$2,085 obtained by adding the warehouse rental cost.

Number of boxes	2,500
Weight (box) in kilograms	13.00
Warehouse rental (per month)	\$1,500
Decrease weight (per month)	3%
<b>Calculations</b>	
Total weight:	2,500 boxes * 13 kg = 32,500 kg
Decrease weight:	32,500 * 3% = 975 kg / 13 kg = 75 boxes
Rental cost:	\$1,500
Cost of decrease in weight:	75 boxes x \$7.80 / box = \$585
<b>Total monthly storage cost (for 32,500 kg):</b>	<b>Total monthly storage cost: \$2,085</b>
<b>Total monthly storage cost (per metric ton):</b>	<b>\$2,085 * 1000 / 32,500 = \$64.15</b>

<b>Total monthly storage cost (per hectare):</b>	<b>\$64.15 * 5.5 (yield per hectare) = \$352.82</b>
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### 7.4.3 Product loss

In the initial stages of the marketing chain, particularly during transport and handling, agricultural products undergo numerous quantitative and qualitative losses. Quantitative losses refer to loss of weight or volume. Therefore, in the packaging plant, producers should generally add more products per box to counteract the decrease in weight resulting from manipulation and transport (for example, with tropical fruits). In the case of perishable agricultural products, losses in quantity are often substantial and may depend on the type of packaging that was used. Qualitative losses, on the other hand, refer to the deterioration of the organoleptic<sup>13</sup> qualities that a product may have when it reaches the final consumer. A product's deterioration in quality is manifested in its appearance, texture, aroma and taste.

The costs generated by these types of losses are difficult to specify because a number of factors which are difficult to anticipate come into play. In any case, it is clear that in all stages of the marketing chain there will always be some product loss, mainly due to improper handling. Producers responsible of exporting will have to discard damaged products from those that are intact. Therefore, it is essential to estimate the costs that result from product loss. The best way to calculate these costs is by comparing the quantity packaged with the quantity received by the buyer. Continuing with the mango example, suppose that a container of mango is sent. In this case, a weight loss of 5 percent is expected. If this weight loss is not taken into account, the buyer will apply a penalty to compensate for receiving less product than contracted. Producers should usually anticipate a decrease and commonly increase the weight during packaging, so that the product arrives with the correct weight. The table below explains the calculation of costs due to product loss:

	<b>Product With no loss</b>	<b>Product with 5% loss (a)</b>	<b>Product with 5% loss (b)</b>
Cost of the product	4.0 kg * \$0.35 / kg =\$1.40	4.2 kg * \$0.35 / kg =\$1.47	4.0 kg * \$0.35 / kg =\$1.40
Cost of handling, packaging, transport, etc.	\$2.77	\$2.91	\$2.77
Total cost	\$4.17	\$4.38	\$4.17
Price of the product (4 kg box)	\$6.00	\$6.00	\$6.00 * 95% = \$5.70
Margin	\$1.83	\$1.62	\$1.53
<b>Cost due to product loss per box</b>		<b>\$0.21 per box</b>	<b>\$0.30 per box</b>
<b>Cost due to product loss per metric ton</b>		<b>\$0.21 * 238 boxes (4.2 kg/box)=\$50.00</b>	<b>\$0.30 * 238 boxes (4.2 kg/box)=\$71.40</b>
<b>Costs due to product loss per hectare</b>		<b>\$50.00 * 5.5 (yield per ha)=\$275.00</b>	<b>\$71.40 * 5.5 (yield per ha)=\$392.70</b>

(a) The producer anticipates the loss and increases the weight in the packaging plant,

(b) The producer fails to anticipate the loss and does not increase the weight in the packaging plant.

In the second column, hypothetically the product does not have any loss and generates a margin of \$1.83. In the third column, the exporter anticipates the decrease, incurring an additional cost of \$0.21 per box on account having increased the weight of the product. In the

<sup>13</sup> *Organoleptic* refers to any sensory properties of a product, involving taste, color, odor, and feel. *Organoleptic* testing involves inspection through visual examination, feeling and smelling of products.

fourth column, the producer fails to anticipate the loss and is penalized by the buyer. In this case, the price per box is \$5.70, and the marketing margin is reduced by \$0.30 per box, compared to the first and second columns. A five percent decrease in product weight from the packaging plant to the buyer's warehouse, has a cost of \$0.21 per box.

In contrast, in the case where the producer fails to consider the product loss from the packaging plant to the buyer's warehouses, the cost is \$0.30 per box. Product weight loss should be minimized and not ignored. The compensating for product weight loss has a cost but this cost is such less than the penalty cost imposed by the buyer. In both cases the losses are significant, and in these types of transactions, where marketing margins are very low, an increase in costs can have serious economic implications for a small producers' organization or contract production project or company. Situations like these occur in the export of agricultural products.

#### 7.4.4 Financial management costs

In general, the export process involves numerous steps of a financial nature that can generate additional and unexpected costs if they are not managed properly. These steps are related to the payment method negotiated by the producer and they generally include: a) Payment in advance: This is the safest method, but the one least utilized by producers (exporters). It has a great advantage for the producer, because no risk is incurred after the product has been sent; b) Letter of credit: This is a very secure method and it consists of a bank, acting at the buyer's request, committing to make payment to the producer; c) Bank collection: This payment type is riskier for the exporter than the letter of credit. Bank collection enables the producer to collect payment for the sale of his products through a bank; and d) Credit or open account: This type of transaction consists of the producer issuing a credit to the buyer according to terms previously agreed by both parties. With this procedure, it is recommend that the exporter to obtain insurance, because it is the riskiest method. In addition, small producers' organizations (or contract production project or companies) may bear additional costs related to currency exchange systems. Also, there may be commissions or fees for bringing the currency into the country of origin.

Continuing with the example, the financial management cost, i.e., the cost of collecting the sales invoice totals \$42.00. In this case, the financial management cost per box is \$0.03 which is obtained by dividing \$42 by 1,400 boxes. Costs per metric ton are \$0.03 multiplied by 238 boxes and this value is multiplied by 5.5 to obtain the cost per hectare. The calculations explained in this section are then reported in the COSP sheet as follows (in this example other costs consider only handling and storage costs):

	Cost per hectare	Cost per metric ton	Additional information
<b>7.Export costs</b>			
7.1 Transport	1,452.99	264.18	
7.2 Insurance	366.52	66.64	
7.3 Taxes, terminal fees and commissions	0.00	0.00	
7.4 Other costs	847.93	154.17	<i>Specify the type of costs incurred</i>



## Part IV: Final considerations

COSP information is a key input for the development of FMP and an essential ingredient for farm level decision making. Knowing costs of production is the first step in controlling them and is a prerequisite for determining how well a producers' business is doing: the difference between the value of yield per hectare and inputs value. It also enables to evaluate how efficiently resources are being used by producers, to predict how a producers' business will respond to specific changes, and how to make other useful decisions for attaining producers' goals. Good COSP information starts with good farm records.

Understanding the costs involved in the production and export process are indispensable tools for every Fairtrade producer. Properly managed costs can be reduced and the saving considered as income. The mere fact of being able to identify the most relevant costs of a process can enable a producer to seek better technological options or seek ways to decrease those costs.

The development of FMP rests on the timing collection of good quality data, which relies on the trust and co-operation of Fairtrade producers. Maintaining the confidentiality of all data collected is therefore of paramount importance to Fairtrade International Standards Unit. To maintain confidentiality, COSP data is aggregated and all information supplied by Fairtrade producers is treated confidentially for wholly FMP development purposes.



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## Annex 1. COSP Sheet

	Cost per hectare	Cost per metric ton	Additional information
<b>1. Establishment costs (initial investment)</b>			
1.1 Labor			<i>Note: Indicate the number of man-days and the wage per man-day for each category of salary. In the case of permanent hired labor, report the salary, period paid and additional government benefits.</i>
1.2 Inputs and services			
1.3 Capital and investments			
<b>2. Field operation costs</b>			
2.1 Labor			<i>Note: Indicate the number of man-days and the wage per man-day for each category of salary. In the case of permanent hired labor, report the salary, period paid and additional government benefits.</i>
2.2 Inputs and services			
2.3 Capital and investments			
<b>3. Harvest and post harvest costs</b>			
3.1 Labor			<i>Note: Indicate the number of man-days and the wage per man-day for each category of salary. In the case of permanent hired labor, report the salary, period paid and additional government benefits.</i>
3.2 Inputs and services			
3.3 Capital and investments			
<b>4. Transformation and/or processing costs (if applicable)</b>			
4.1 Labor			<i>Note 1: Indicate the number of man-days and the wage per man-day for each category of salary. In the case of permanent hired labor, report the salary, period paid and additional government benefits.</i>
4.2 Inputs and services			<i>Note 2: Indicate if the transformation and/or processing costs are incurred at the central structure (umbrella organization) level or at the individual producer level (which applies only to small producers' organizations or contract production cases). In the case of companies, the central structure should report these costs.</i>
4.3 Capital and investments			
<b>5. Product preparation and/or packaging costs (if applicable)</b>			
5.1 Labor			<i>Note: Indicate the number of man-days and the wage per man-day for each category of salary. In the case of permanent hired labor, report the salary, period paid and additional government benefits.</i>
5.2 Inputs and services			
5.3 Capital and investments			
<b>6. Central structure costs (costs of umbrella organization)</b>			
6.1 Labor			<i>Note: Indicate the number of man-days and the wage per man-day for each category of salary. In the case of permanent hired labor, report the salary, period paid and additional government benefits.</i>
6.2 Inputs and services			
6.3 Capital and investments			
6.4 Certification costs			
6.5 Business Margin			
<b>Total 1 + 2 + 3 + 4 + 5 + 6</b> <b>= Value at "EX WORKS"</b>	0.00	0.00	
<b>7. Export costs</b>			
7.1 Transport			
7.2 Insurance			
7.3 Taxes, terminal fees and commissions			
7.4. Other costs			
<b>TOTAL 1 + 2 + 3 + 4 + 5 + 6 + 7</b> <b>= Value at "FOB"</b>	0.00	0.00	

## Annex 2. Table on Annuity Discount Factors

Note: This table is for obtaining the Present Value of an Annuity

<b>n</b>	<b>i</b>								
	<b>0.03</b>	<b>0.05</b>	<b>0.06</b>	<b>0.07</b>	<b>0.08</b>	<b>0.09</b>	<b>0.10</b>	<b>0.15</b>	<b>0.20</b>
<b>1</b>	0.971	0.952	0.943	0.935	0.926	0.917	0.909	0.870	0.833
<b>2</b>	1.913	1.859	1.833	1.808	1.783	1.759	1.735	1.626	1.528
<b>3</b>	2.829	2.723	2.673	2.624	2.577	2.531	2.487	2.283	2.106
<b>4</b>	3.717	3.546	3.465	3.387	3.312	3.240	3.170	2.855	2.589
<b>5</b>	4.580	4.329	4.212	4.100	3.993	3.890	3.791	3.352	2.991
<b>6</b>	5.417	5.076	4.917	4.766	4.623	4.486	4.355	3.784	3.325
<b>7</b>	6.230	5.786	5.582	5.389	5.206	5.033	4.868	4.160	3.605
<b>8</b>	7.020	6.463	6.210	5.971	5.747	5.535	5.335	4.487	3.837
<b>9</b>	7.786	7.108	6.802	6.515	6.247	5.995	5.759	4.772	4.031
<b>10</b>	8.530	7.722	7.360	7.024	6.710	6.418	6.145	5.019	4.192
<b>11</b>	9.253	8.306	7.887	7.499	7.139	6.805	6.495	5.234	4.327
<b>12</b>	9.954	8.863	8.384	7.943	7.536	7.161	6.814	5.421	4.439
<b>13</b>	10.635	9.394	8.853	8.358	7.904	7.487	7.103	5.583	4.533
<b>14</b>	11.296	9.899	9.295	8.745	8.244	7.786	7.367	5.724	4.611
<b>15</b>	11.938	10.380	9.712	9.108	8.559	8.061	7.606	5.847	4.675
<b>16</b>	12.561	10.838	10.106	9.447	8.851	8.313	7.824	5.954	4.730
<b>17</b>	13.166	11.274	10.477	9.763	9.122	8.544	8.021	6.047	4.775
<b>18</b>	13.753	11.690	10.828	10.059	9.372	8.756	8.201	6.128	4.812
<b>19</b>	14.324	12.085	11.158	10.336	9.604	8.950	8.365	6.198	4.843
<b>20</b>	14.877	12.462	11.467	10.594	9.818	9.128	8.514	6.259	4.870
<b>21</b>	15.415	12.821	11.764	10.835	10.017	9.292	8.649	6.312	4.891
<b>22</b>	15.937	13.163	12.042	11.061	10.201	9.442	8.771	6.359	4.909
<b>23</b>	16.444	13.489	12.303	11.272	10.371	9.580	8.883	6.399	4.924
<b>24</b>	16.935	13.799	12.550	11.469	10.529	9.707	8.985	6.434	4.937
<b>25</b>	17.413	14.094	12.783	11.654	10.675	9.823	9.077	6.464	4.948
<b>30</b>	19.600	15.372	13.765	12.409	11.258	10.274	9.427	6.566	4.979
<b>35</b>	21.487	16.374	14.498	12.948	11.655	10.567	9.644	6.617	4.991
<b>40</b>	23.115	17.159	15.046	13.332	11.925	10.757	9.779	6.642	4.997
<b>45</b>	24.519	17.774	15.456	13.605	12.108	10.881	9.863	6.654	4.999