

AGRIBUSINESS SERIES

E x p o r t H a n d b o o k s

HOW TO CALCULATE EXPORT COSTS FOR AGRICULTURAL PRODUCTS



Inter-American Program for the Promotion
of Trade, Agribusiness and Food Safety

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Inter-American Institute for Cooperation on Agriculture, IICA
Inter-American Program for the Promotion of Trade,
Agribusiness and Food Safety

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The Inter-American Institute for Cooperation on Agriculture (IICA), through its Agribusiness Competitiveness Directorate, seeks to help countries identify and take advantage of opportunities provided by the market, and to support public and private institutions that encourage competitive development of agribusinesses.

In January 2004, the IICA launched the *Inter-American Program for the Promotion of Trade, Agribusiness and Food Safety*, which has its main office in Miami, Florida. This initiative was undertaken with a mandate to offer greater technical cooperation for strengthening the entrepreneurial ability of small and medium-size agribusinesses in IICA member countries, help identify trade opportunities and provide information that promotes trade by facilitating decision-making.

Thus far, the activities conducted by the program have enabled us to identify certain needs that small and medium-size agribusinesses in the Americas seem to have in common. These needs have been grouped according to “priority issues” and we have published analyses of them in our *Agribusiness Series*, publications aimed at helping strengthen the competitiveness of small and medium-size businesses in the hemisphere. One of the sections, *Exporting Handbooks*, aims in particular to set forth concepts and notions that can facilitate decision-making for those who wish to successfully enter the international market.

This document, *How to Calculate Export Costs for Agricultural Products*, identifies the costs involved in the export process and shows how to calculate those costs, using practical examples. It also includes a list of international commercial terms —Incoterms— and a form for calculating export costs for agricultural products.

The document was prepared by Frank Lam, Agribusiness Specialist of the *Inter-American Program to Promote Trade, Agribusiness and Food Safety*.

The stages that have to be covered to transfer products from an agribusiness to the consumer constitute what is called the “marketing chain”. In each stage, whether you want to participate in the domestic or international market, it is necessary to carry out a series of actions that entail costs. These costs may be simple, such as the agribusiness opportunity cost¹, or as complex as the cost of transforming the product in order to lessen its perishability.

Why does an agricultural product sold in a Miami supermarket or a Chicago produce store generally have a price that is much higher than what was paid to the producer? The costs entailed by the export process are not always easy to identify; however, there are many costs, most of which are not well known, for consumers and producers. For instance, it is often thought that intermediaries make large profits from their participation in the marketing chain, but they too incur costs that are intangible or difficult to identify.

In the case of local markets, where the marketing chain tends to be less complex, the difference between the price paid at the farm or packaging plant and the price which the consumer pays is relatively small. It is not only because of physical proximity, but also because there are fewer marketing stages. In contrast, when international markets are involved, the marketing chain involves a greater number of actors and frequently entails higher costs, due to the greater number of steps involved in these operations, such as the payment of duties, licenses, permits, etc.

In the export process, we can identify ‘variable costs’ which, as the name indicates, vary according to volume. Examples of variable costs are packaging and transport costs, which generally tend to be variable in nature. Also there are ‘fixed’ or ‘semi-fixed’ costs, which are static or quasi-static in nature, regardless of quantity; these include the costs of licenses, permits, etc.

In this document, we will examine the main types of costs in the export process and provide examples that illustrate the concepts presented.

1. Opportunity cost: refers to the benefit or profit, which is not received because a resource, such as time, is allocated to a different activity.

B. PRODUCT HANDLING COSTS

Product handling constitutes 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.

For example, for the U.S. market, due to the security regulations currently in effect, imported products are subjected to very strict controls, which generate additional handling costs.

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.

How to calculate product handling costs?

Continuing the above example, we have 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; and at the port of arrival, a cost of unloading and handling the fruit, \$0.41 per box.

Thus, the handling cost per container in this chain will be as follows:

Handling cost (packaging plant)	\$0.23
Stowage cost (port of origin)	\$0.03
Fumigation cost (port of origin)	\$0.12
Cost of unloading and handling (port of arrival)	\$0.41
Total cost of handling/box	\$0.79
Total cost of handling per container (1,400 boxes)	\$1,106.00

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. Frequently the deterioration originates in the farm or agricultural operation itself, as improper harvesting techniques or defective handling of product will lead to irreversible damage to quality. To illustrate this concept, consider the case of the banana. Bananas harvested from plants infected with *Mycosphaerella fijiensis* (Black Sigatoka)³ ripen prematurely, i.e., before arriving in the ripening room. This causes a substantial loss of quality, and it is not uncommon that sometimes an entire container can be a lost.

The situation can worsen if the product is handled improperly during transport, preparation or packaging. For example, when a product is being transported to the packaging plant, sometimes it is exposed to temperature changes, solar radiation, heavy rain, subjected to long storage periods, or careless handling that can cause physical damage.

To counteract the decrease in weight due to loss of humidity, exporters generally increase the box's final weight by 1 to 5%. This is an additional cost for the exporter, but it is something that has to be dealt with. The problem of product loss due to deterioration of quality can be, partly resolved by more careful handling in the different stages of the chain.

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. Exporters 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 importer.

How to calculate costs due to product loss

Continuing the above example, suppose we send a container with 1,400 boxes of mango. In this case, a weight loss of 5% is expected. If this

3. A fungus which attacks banana plants

Number of boxes		2,500.00
Weight (box) in kilograms		13.00
Warehouse rental (per month)		\$1,500.00
Decrease in weight (per month)		3%
Calculations		
Total weight:	$2,500 \text{ cajas} * 13 \text{ kg} =$	32,500 kg.
Decrease in weight:	$32,500 \text{ kg} * 3\% = 975 \text{ kg} / 13 \text{ kg} =$	75 boxes
Rental cost:		\$1,500.00
Cost of decrease in weight:	$75 \text{ boxes} * \$7.80 / \text{box}$	\$585.00
Total monthly storage cost:		\$2,085.00

For the above example, the storage cost for one month is \$2,085.00, obtained by adding the warehouse rental cost and product loss during storage.

G. TRANSFORMATION COSTS

Transformation of product is often a significant factor in marketing 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". Transformation costs vary according to the technological ability and size of the company responsible for providing the service.

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. It is important to know the number and quantity of by-products which are created in the transformation process, and their value.

How to calculate transformation costs

Returning to the example of mangos for export, 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 for local consumption.

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.

L. COSTS OF FEES, LICENSES AND COMMISSIONS

The costs mentioned above are considered the most important ones in the export process. However, 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.

M. INTERMEDIATION OR MARK-UP

Once all costs entailed in the export process have been accounted for, we have to add what is known as the intermediation or marketing margin. The marketing 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 intermediation or marketing 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 importer. For example, an exporter can sell his product EXW (Ex Works), which means that the costs and liability will be for his account up to the packaging or processing plant.

If the exporter decides to sell his product FAS (Free Alongside Ship), he will cover transport costs up to the port of export, cargo insurance and handling