Ministry of Foreign Affairs

Marketing of compost in emerging markets

A guidance document for compost producers

Commissioned by the Netherlands Enterprise Agency

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Date
17 juni 2019

Reference number
Report BVOR-2018-12A

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1 Introduction

The recycling of organic residues into compost has a number of advantages. It avoids the wasting valuable organic material to landfills and reduces associated emissions to water, soil and air. It generates a product that contributes to long-term soil quality, as compost contains a high amount of stabilised organic matter. Finally, compost may also reduce the need for artificial fertilisers, as it can (at least partially) replace the nutrient contents of the fertilisers.

Despite the obvious advantages, the marketing of compost is in many cases challenging. Potential users may not be familiar with the properties of the compost product, or simply not trust its composition and effects. Also, competition with alternative soil improvers/fertilisers is a critical issue. Finally correct pricing may be a challenge, in particular in countries where purchasing power is limited.

Marketing can help to overcome these barriers and identify and develop markets for compost. Successful marketing of compost products requires a thorough market assessment and a well thought-out positioning of the product in targeted market segments. This document aims to provide guidance for successful marketing of compost. The primary target audience are organic residues' recyclers and compost marketeers in emerging compost markets.

This guidance document is primarily about compost produced from organic residues. It does not focus on digestate or on other – less common – categories of fertilizers from organic residues, such as biochar or ashes from wood burning. However, the marketing guidance provided here is to a large extent also applicable to these and other types of organic soil improvers/fertilizers.

The structure of this guidance document

Marketing is all about client satisfaction. It is about ensuring that clients choose the company's products instead of alternative choices they may have, and keep doing so over time. A company can only be successful if it knows who its (envisaged) clients are, what their needs are, and which product can satisfy their needs at which price.

Marketing literature distinguishes different steps a company shall take to ensure a thorough market assessment and a well thought-out positioning of the product in targeted market segments [7, 16]. The structure of this document follows these steps:

Chapter 2 starts with some **basic information on compost products**. This is information that any compost producer should be familiar with before he starts thinking about the marketing his product.

Chapters 3 and 4 focus on the **market research** that is required before a product can be positioned in that market. Chapter 3 is about **assessing the marketing environment** that a company operates in. Chapter 4 provides **guidance on the segmentation of compost markets**, and on in-depth assessments of these market segments. This also includes information on collecting various type of **market data**.

Chapter 5-8 are all about **positioning a compost product in the market**. For this, the internationally accepted 4P approach is presented and detailed for compost (Product, Place, Price and Promotion).

Chapter 9 concludes with references and **suggestions for further reading**. It includes all literature sources that were gratefully used for preparing this document, together with some other literature that the reader might find useful to study.

Acknowledgement

This document was written by BVOR, the Dutch Association of Biowaste Processors (**www.bvor.nl**). The BVOR represents the majority of professional compost producers in the Netherlands, together producing approximately 1.5 million tonnes of compost annually.

This guidance document was prepared with financial support from the Dutch programs *Sustainable Water Fund (FDW)* and the *Ghana WASH window (GWW)*. The objective of FDW is to contribute to sustainable economic growth, self-reliance and the reduction of poverty in developing countries. GWW shares these objectives, but this program has a special focus on Ghana's water and waste sectors. Improved recycling of organic residues as organic fertilisers contributes to the objectives of both programs.
The programs are commissioned by the Ministry of Foreign Affairs of the Netherlands, GWW is co-executed by the Embassy of the Kingdom of the Netherlands in Accra (Ghana). RvO.nl (the Netherlands Enterprise Agency) is responsible for the implementation of both programs.

2 Prior to marketing: some compost essentials

Successful marketing of a compost product requires first of all understanding of what compost is, what its benefits are, and what it distinguishes from other soil improvers and fertilizers. This chapter summarizes basic information that helps marketeers to understand the product. More detailed information can e.g. be found in [2, 3, 11 and 12].

2.1 Defining compost

Compost is the main product of a composting process. In a composting process biodegradable material is decomposed under controlled conditions and in the presence of oxygen (aerobic). Compost is the biologically stabilised, humus-like solid product from a controlled composting process. Sufficiently high temperatures during a composting process guarantee that compost is hygienic, i.e. free of pathogens and weed seeds [4].

A related product is ***digestate***. Digestate is the solid or slurry output of an anaerobic digestion (AD) process. As opposed to composting, anaerobic digestion take place in the absence of oxygen.
A controlled anaerobic digestion process generates biogas that can be used for energy generation.
Digestate is generally not biologically stable. That is because during an AD process only components that micro-organisms can degrade under anaerobic conditions are converted. As soon as the digestate gets from an anaerobic environment into the open air, degradation of other components will continue. In order to achieve a fully stabilised and hygienicses product, AD will need to be followed by post-composting of the digestate [4].

Compost and anaerobic digestion are both products of microbiological conversion processes. This as opposed to ***biochar***, which is the (solid) product obtained from the carbonisation of organic residues. Scientific evidence on the beneficial effects of biochar is still limited to very specific applications of the product. Its application is much less common than compost [10].

Compost is primarily an ***organic soil improver***, which means that its primary function is to supply stable, humus-like organic matter to the soil. Organic matter serves the long-term quality and productivity of the soil.
Depending on the nutrient contents compost may also serve as a fertiliser, meaning that it supplies nutrients for plant growth in the short term (i.e. within the next growing season). Compost with high nutrient contents is sometimes referred to as ***an organic fertiliser***.

N.B. The difference between 'organic soil improver' and 'organic fertilizer' is not exactly specified. Companies may choose to market their compost as either one of the two. When a compost is marketed as organic fertilizer, the emphasis is on both the organic matter content and the nutritional value of the product. This can provide added value over marketing the compost as an organic soil improver (which emphasizes the organic matter content only). However, care shall be taken that customers do not confuse the compost product with an artificial fertilizer. This may lead to wrong expectations of the product benefits.

2.2 The quality and benefits of compost

The ***quality of compost*** relates to the physical, chemical and biological properties of the product. The ***benefits of compost*** relate to what the product does when applied.

Quality and benefits go hand in hand: if the compost quality is not good, the benefits of compost application will not materialize (or on the contrary – they turn into drawbacks). On the other hand, a compost with a tailored, well-controlled quality is likely to be of great benefit to the user.

Quality criteria
The quality of compost is defined by a set of quality criteria.
Some quality criteria are **visible**, e.g. the colour, smell and particle size of the compost. Also the presence of visible impurities such as pieces of glass and plastics is a quality criterion.
Other quality criteria are **invisible**, and need to be determined by measurements and (laboratorial) assessments. Examples include the organic matter content, nutrient levels, level of hygienization and invisible impurities (e.g. heavy metals).

Depending on the compost customers, certain quality criteria may be more or less important. In any case, claims on quality will always need to be backed up with evidence from analyses and process control measurements.
Chapter 5 provides more information on quality of compost products.

Benefits from compost
Scientific literature [e.g. 2, 4, 11, 12, 21] contains abundant evidence on the beneficial effects of applying compost. Beneficial effects vary depending on the compost composition and the type of application. Key benefits have been summarized in Figure 2.1:

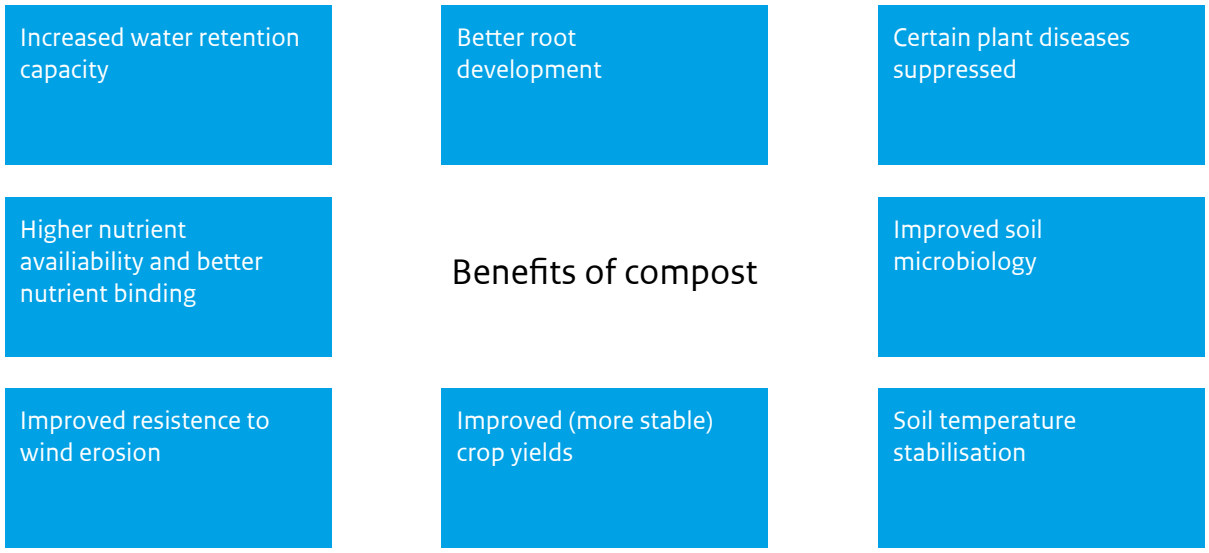

Figure 2.1 Summarized benefits of compost [3].

2.3 Availability and quality of feedstocks for compost production

Technically, a wide range of organic residues can be used for the production of compost [7, 17, 19].

In municipalities, accessible sources of clean organic residues are market waste, food waste from enterprises and other organizations and residues from agri-food processing.
Market waste includes spoiled produce and other organic residues from open food markets, and comprises a large deal of organic matter. Care should be taken that organic market waste is not contaminated e.g. with plastic used for packaging.
Food waste from hotels, restaurants and large canteens in office buildings forms another clean resource, provided that it is feasible to efficiently separate the materials at source (e.g. by separate bins). Also, clean residues from ***agrifood processing*** companies can be interesting resources (e.g. from processing of vegetables, bakeries, breweries).

Municipal solid waste is another source of organic residues in municipalities. However, obtaining the organics as a clean resource is challenging. This requires source separation, and the education of many individual households and other collection points (e.g. companies and office buildings). One form of source separation common in developing countries is a wet/dry separation, in which organic (wet) waste is collected separately from non-organic (dry) waste comprised of recyclables and non-recyclable other waste.

When waste water treatment facilities are in place for treatment of municipal sewage, the ***sewage sludge*** produced may also serve as a feedstock for organic fertilizers. However, the quality of the sludge shall be considered with care. In particular if the waste water plant also treats waste water from industries, the sludge may contain chemical contaminants.

If organic residues can be sourced from rural areas, ***agricultural waste*** from farms can be an interesting category of feedstock. This may include residues such as vegetable remains, corn and rice husks, grass, wood, animal manure and livestock bedding. In many cases, composting or AD of agricultural residues is done at farm level, whereby the input might be supplemented by other residues e.g. from markets. The farmer is the primary user of the organic fertilizer produced, while excess product might be sold to provide additional farmer's income.

Finally, ***residues arising at forestry and landscaping activities*** may form a potentially interesting source of clean organic residues.

Each category of organic residues described above has its own physical and chemical characteristics. What is important to realize is that the quality of the organic residues used for producing compost is a key determinant to the quality of the product. When organic residues are used, the challenge is to ensure that these are free of major contaminants that deteriorate the quality and the value of the compost. Critical contaminants include visual contaminants such as glass and plastics and (invisible) contaminants such as heavy metals. The most efficient and most cost-effective way to reduce contamination is by selection clean organic residues at source. Removing contaminants from a contaminated organic residue is costly (e.g. removing of small plastic particles) and not always possible (e.g. in the case of heavy metals).

The 2016 World Bank Report on 'Sustainable Financing and Policy Models for Municipal Composting' [14] concludes that '*While all steps from determining a market to distributing compost products are important, a common failure seen globally is with regards to the inputs utilized. A lesson learned repeatedly throughout the world is that pure organic materials will result in a higher quality organic fertilizer than contaminated organic materials. Agricultural waste and market waste tend to be cleanest, most accessible inputs. However, some cities have experimented with mixed municipal solid waste (MSW) derived compost which quickly harms the reputation and development of the sector when not managed properly. There are opportunities to utilize source-separated MSW if strict quality enforcement exist.*'
More detailed information on characterizing organic residues and its technical application options can e.g. be found in [9, 17, 19, 21].

Figure 2.2 Organic residues from markets in Accra, Ghana.

3 Understanding the marketing environment

The marketing activities of a company are affected by several internal and external factors. While internal factors can be controlled by a company, most external factors are not. Therefore, the company has to adapt itself to avoid being negatively affected. Internal and external factors together are generally referred to as **the marketing environment** in which the company operates. This chapter is about understanding the marketing environment.

3.1 General

The marketing environment of a company consists of an internal and an external environment.
The **internal environment** is about the company. It includes factors such as owners/shareholders, employees, machines, materials etc. The internal environment is under the control of the company and can be changed with the changing external environment.
The **external environment** constitutes factors and forces which are external to the company and on which the marketeer has little or no control. The external environment is further divided into two components: micro environment and macro environment.

Figure 3.1 gives a schematic representation of the elements comprising the micro- and macro-environment of a company.

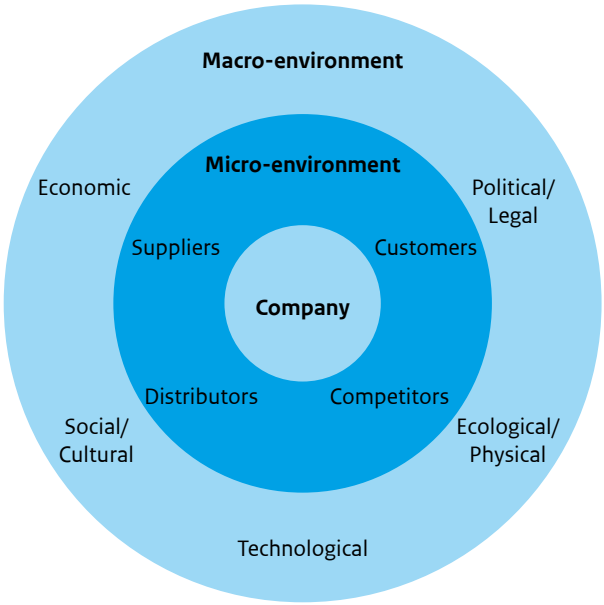

Figure 3.1 Schematic representation of the marketing environment of a company (graph taken from www.professionalacademy.com).

The **micro environment** of the external environment is also known as the task environment. It comprises of external forces and factors that are directly related to the company. These include e.g. suppliers, customers, partners, competitors and the public.

The **macro environment** includes larger societal forces which affect society as a whole. The macro environment is made up of six categories:

- The *demographic environment* is made up of the people who constitute the market. It is the factual composition of the population according to their size, density, location, age, gender, race, and occupation;
- The *legal/political environment* includes laws and government's policies prevailing in the country. It also includes other pressure groups and agencies which influence or limit the working of industry and/or the company in the society.
- The *economic environment* constitutes factors which influence customers' purchasing power and spending patterns. These factors include the GDP, GNP, interest rates, inflation, income distribution, government funding and subsidies, and other major economic variables.
- The *physical/ecological environment* includes the natural environment in which the company operates. This includes the climatic conditions, environmental changes, accessibility to water and raw materials, natural disasters, pollution etc.
- The *technological environment* constitutes innovation, research and development in technology, technological alternatives.
- The *social-cultural aspect* of the macro environment is made up of the lifestyle, values, culture, prejudice and beliefs of the people in a certain country or region.

3.2 Assessing the marketing environment

A thorough assessment of the marketing environment requires that all factors presented above are considered, and that it is concluded how they present an opportunity and/or a threat to the company.

This shall include both a historic assessment and a future assessment. The historic assessment shall conclude which factors were relevant, how they affected past decisions, and how they facilitated or frustrated success. The future assessment shall focus on new opportunities and threats that may become prevalent. It shall also consider how threats from the past could be transformed to future opportunities.

Figure 3.2 below provides a model to categorize and rank relevant factors in the marketing environment, i.e. all opportunities and threats identified.

Note: The assessment of external factors in the marketing environment is in many cases combined with an assessment of the strengths and weaknesses of the company i.e. its internal environment). Such complete assessment is referred to as a SWOT analysis (Strengths – Weaknesses – Opportunities – Threats). It is beyond the scope of this guidance document to detail the internal assessment further.

3.3 Examples of assessing elements in the marketing environment

Below, two examples of elements in the marketing environment are discussed. Example 1 is about competition (micro environment), example 2 is about potential threats and opportunities posed by legislation (macro environment) [7].

Example 1: Competition: threat or opportunity?
Competitors are other companies selling compost or other types of fertilizers and/or soil improvers. Other types of fertilizers and/or soil improvers may include:

- Chemical fertilizers;
- Animal manure;
- Untreated human faecal sludge e.g. from pit latrines and septic tanks;
- Sludge from wastewater treatment facilities;
- Organic waste from agri-food industries (starch, distillery waste, biscuit factory);
- Peat mined elsewhere and transported to the end user.

Competitors and their activities are a very useful source of information to anybody wishing to set up a new company or wishing to assess the marketing environs of an existing company. First of all, activities of competitors give an indication of what works in a particular market. It also provides information on the size of the market, the type of customers, the pricing etc.. All this information can be used to assess if there is room in the market for additional companies, and under what conditions.

Assessing the marketing environment shall include assessment of competitors. This shall provide answers to the following questions:

1. Is there opportunity to sell the envisaged product in the same market segments in which existing competitors operate? What will be the unique feature of the new product in that market segment (better quality, better price, better customer service, etc.)?
2. If there is insufficient opportunity for the envisaged product in that market segment, could an alternative product be offered for which there is more opportunity?
3. If the conclusion of (1) and (2) is that there is insufficient opportunity in market segments with existing competitors, are there any new yet undeveloped market segments which could be successfully developed?

In addition to assessing existing competitors, it is also worthwhile to assess failed past attempts to set up comparable companies. This assessment should focus on reasons why those companies failed, and if and how a new company could be more successful (what should be avoided and what should be done differently?).

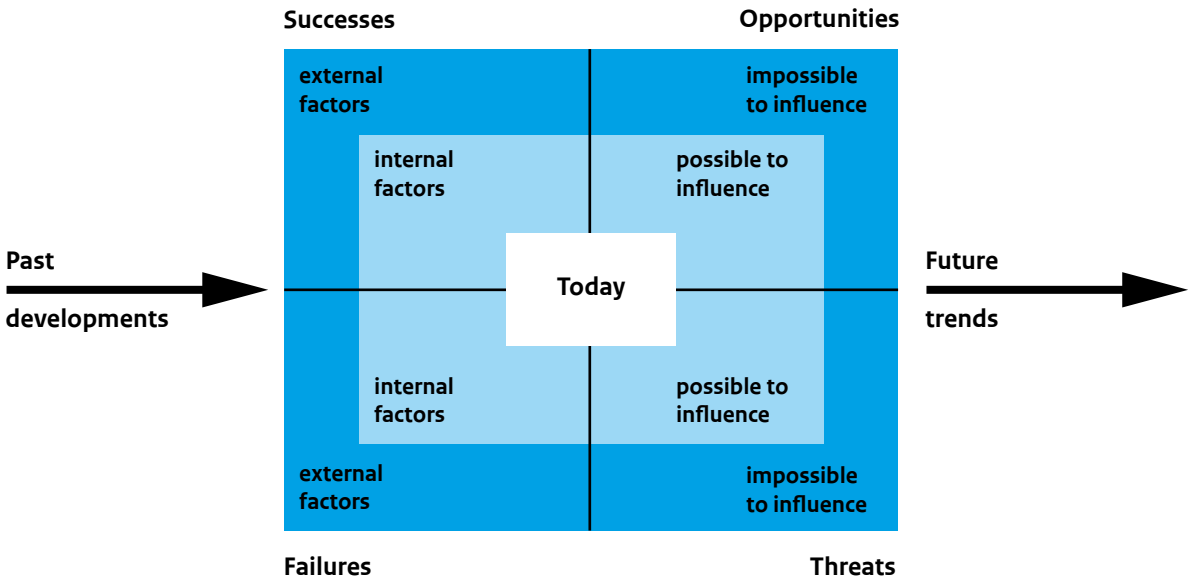

Figure 3.2 Matrix to categorize and rank past and future opportunities and threats for a composting company [7].

Example 2: Legislation: threat or opportunity?

Legislation affects decisions on where and how to build and operate a composting plant, the organic residues used for recycling, and the marketing of the end products. Examples of relevant laws and regulations include the following:

- Laws and regulations on land use, land use planning and environmental permitting may put restrictions on where a composting facility can be built and how it shall be operated. For example composting facilities may not be allowed in urban areas. Also, an environmental permit may prescribe measures to avoid nuisance to the environs of the facility (e.g. measures to avoid odor nuisance). These regulations can have a large impact on both the initial capital costs and on the operational costs to run the composting facility.
- Environmental legislation and more specifically waste legislation may support waste recycling and reuse of organic residues. This may facilitate the availability of feedstock for compost production.
- Agricultural legislation and more specifically legislation on fertilizers may impact on the type of compost products that can be used in certain markets. For example, the use of composts heavily contaminated with heavy metals or imposing hygiene risks may be prohibited. Specific regulations may apply in agricultural markets producing for export (e.g. organic farming producing fruit & vegetables for European markets is not allowed to use compost from mixed household waste).

Assessing the marketing environment shall include a thorough assessment of relevant laws and regulations. The assessment shall both include the potential impact on costs & benefits (requirements on location, set up and operations of composting facility, the impact on planning (e.g. time needed for completion of permit procedure) and opportunities & limitations on market development (agricultural legislation).

4 Assessing the compost market

This chapter is about assessing the compost market. A compost market assessment builds upon the information collected when assessing the marketing environment (refer to Chapter 3), but goes much further in scope and in level of detail.
The compost market assessment comprises two main steps:

- Step 1: Segmenting the compost market and characterizing compost market segments;
- Step 2: Detailed assessment of selected compost market segments.

4.1 Step 1: Segmenting the compost market and characterizing compost market segments

There is generally not one (potential) market for compost but instead a range of (potential) sub-markets, indicated as market segments. There are different ways to categorize market segments, e.g. [7]:

1. The application/user of the compost, e.g. agriculture, nurseries, estate developers, gardening;
2. Geography, e.g. local versus regional or national markets;
3. Purchasing power, e.g. large cash crop farms versus poor rural farmers;
4. Bulk/volume market segments versus cash/premium market segments (i.e. large quantities with low prices versus smaller quantities of specific products at higher prices). Box 4.1 provides examples of market segments that are typically bulk/volume, or cash/premium.

Box 4.1 Examples of typical bulk/volume markets and cash/premium markets for compost [23]

Bulk/volume markets	Cash/premium markets
Agriculture	Horticulture
Public green areas	Home gardening
Landfill rehabilitation	Premises of companies, hotels etc.
Middlemen/agents	Potting substrates

The first step in assessing the compost market is by **defining the various market segments.** This shall include both market segments in which the company's compost products are already used, and potential new market segments.

Table 4.1 provides an example of how market segments can be listed and characterized. Generally, such table provides first insights in what the market segments are and what are some of the main characteristics. As in the example, it also shows where information is lacking (indicated with '?') and further market research is required (refer to Step 2 below).

Table 4.1 Example of market segment characterisation.

Market segment	Agriculture	Landscaping company enterprises	Home gardening
Description	Small farmers with diversity of cash crops/vegetables	Companies landscaping gardens of private enterprises e.g. hotels	Households buying at supermarkets/garden centres
Demand (current/future potential)[1]	1,000 tonnes (potential > 20,000 tonnes?)w	Current demand 200 tonnes (Potential > 1,000)	Current demand = 0 (Potential demand?)
Demand pattern[2]	Before growing season	Year round	Peak in spring
Number of customers	600 in region < 50 km	Approx. 25	>100,000
Willingness to pay[3]	Low	Relatively high, provided quality is very good.	High
Other characteristics	Transport to farmers required	?	Bagging required

1. '*Demand*' reflects both current demand and potential future demand. It also indicates whether a market segment is expanding or contracting (i.e. the number of customers increasing or decreasing).
2. '*Demand pattern*' in this table relates to the frequency of compost purchases in that market segment. Demand may be seasonal (e.g. in agriculture), continuous/frequent (e.g. in consumer markets) or perennial.
3. '*Willingness to pay*' indicates what a compost user is willing to pay (also refer to box below)

Box 4.2 Ability to pay and willingness to pay [7, amended]

Ability to pay is related to a compost user's financial situation. It marks the amount of money which a compost user is able to spend on a (compost) product. It is related to income, financial reserves, access to credit, etc. It is a relatively fixed figure (although it may develop over time).

Willingness to pay indicates what a compost user is willing to pay for a (compost) product, depending on his priorities and perceptions. It reflects the need/appreciation for a product. Willingness to pay can be influenced by marketing and by external factors. Product information may increase a compost user's knowledge of the product's benefits, improve his perception and thus his willingness to pay. On the other hand, negative publicity or existing perceptions may reduce the willingness to pay (e.g. the waste stigma which certain types of compost may have).

Ability to pay and willingness to pay can be higher or lower than compost production costs. The consequences are as follows:

1. If the ability to pay and the willingness to pay are higher than the compost production costs the company will be able to make a profit if the compost is priced accordingly;
2. If the willingness to pay is lower than the compost production costs but the ability to pay is higher than the production costs, marketing can be used as in instrument to increase the willingness to pay (e.g. by improving the compost users' perception of the product);
3. If the ability to pay is lower than the compost production costs, the company will not be successful in this market segment unless production costs can be lowered. Alternatively, the company may target market segments with a higher ability to pay (and willingness to pay).

4.2 Step 2: Detailed assessment of selected compost market segments

After defining and characterizing the market segments (Step 1) a more detailed assessment of market segments is required. Such detailed assessment may include all market segments identified. However often at this stage a preselection is made of market segments which the company considers most promising. This saves effort and resources in data collection (see below).

For each selected market segment, the detailed assessment shall provide detailed insights in compost applications, compost quantity and quality requirements, attitudes and perceptions, and willingness to pay, e.g.:

Compost applications

- What is the envisaged application of the compost?
- Which benefits do users in the market segment expect from compost?
- What is the reason to use compost instead of other fertilizer options?

Quality

- Which quality requirements do compost users have? Which quality requirements are most important (priority) and why?
- Are certain input materials considered non acceptable (e.g. municipal solid waste, faecal sludge)?

Demand

- How many (potential) users are there in the market segment? How much compost do or could they each use (on average)?
- Is the market limited by the number of compost users, by costs or by the supply of compost (in other words: do people buy as much as is available, or just as much as they can afford)?

Logistics

- Where are the potential compost users located?

Attitudes and perceptions

- Are potential compost users familiar with compost? What is their attitude towards the product?
- What are the potential compost users' expectations and perceptions of the product?

The result of the detailed market segment assessment is a profile per market segment.

4.3 Step 3: Collecting market data

Various strategies can be applied to collect relevant market data. In general, it is important to ensure that only relevant data are collected, from the right sources, and that this is done in an efficient manner.

Good preparation is key: which questions need to be answered, and which data shall be collected for that purpose, and who shall do the research? Market research can be undertaken by specialist consultancies, making it a costly exercise. Alternatively, a company can do it in-house. In this case, internal staff should have thorough knowledge of the product and the company, and need understanding of market research and marketing.

Good market research includes both the collection of quantitative data and qualitative data [7].

Quantitative data reflect information that can be counted. Market research questions seek to quantify issues e.g.:

- How many farmers live in a circle of 20 km?
- How many nurseries exist in this city area?
- How much fertilizers is on average applied per hectare?

Qualitative data reflect opinions and perceptions. Market research questions seek to obtain information on customer preference and behavior e.g.:

- What are the most important quality criteria for a compost product?
- Why do you choose product A instead of product B?
- How to you use compost?

Primary data and secondary data

Generally, it is recommendable to start market research by collecting and assessing secondary data. Secondary data are generally available data from government, earlier market research etc. and therefore relatively easy to obtain. Examples of secondary data include:

- Maps;
- Data on farms, nurseries and other potential customers;
- Statistics on fertilizer use;
- Written or digital information from competitors;
- Agricultural data;
- Research publications (e.g. from universities).

Secondary data collected shall be applicable to the area and the (local/regional) market where the company operates or wishes to become operational

Secondary data provide a general overview of the market, but are typically not specific enough for a company's needs. Also, the information is not unique, meaning that also (current and future) competitors will have access to it.

In addition to secondary data, market research shall also involve some form of ***primary data collection*** [7]. Primary data can provide more detailed insights in the perception of the product, the ability and willingness to pay, the expected service, etc. et.. Several methods exist for primary data collection, including but not limited to the following:

Informal discussions: the easiest way to collect primary data is by informal discussions with customers and other stakeholders. These discussions do not necessarily involve a list with questions, but care should be taken that the right questions are posed and that answers are documented.

Questionnaires: questionnaires can be made available by post, e-mail, internet, by telephone or even in person. Questionnaires allow to collect a lot of information from many people in a systematic way. However, drafting a good questionnaire requires skill, as well as the assessment of the information provided in filled in questionnaires. Box 4.1 provides some guidance for drafting a questionnaire.

Focus group discussions: this involves a group of up to ten participants (customers and/or other stakeholders), moderated by a facilitator. The group discusses around focused subjects. A focus group discussion is particularly useful for in-depth investigations on attitudes and perceptions.

Box 4.3 How to design a questionnaire?

The design of the questionnaire will depend on the type of information/data that it is envisaged to collect. The following points shall be taken into consideration when designing a questionnaire:

1. The questions shall measure what they are supposed to measure, and shall not be multi-interpretable;
2. The questions shall be set in a logical order;
3. The wording shall be understandable for the questionnaire target group;
4. Questions shall not be offensive;
5. Choose the correct type of questions:

Open questions: questions to reveal general information (e.g. Can you explain the benefits of compost over artificial fertilizers?)

Closed questions: questions which can typically be answered with 'yes' or 'no'. (e.g. Do you think compost is better for soil health than artificial fertilizers?) Closed questions are often followed by short open questions (e.g. 'why?')

Alternative questions: questions which give options of answers (e.g. Do you prefer compost from faecal sludge only, or from faecal sludge mixed with other materials?)Participants in questionnaires (and in other research types) have the right to confidentiality. This shall be mentioned before asking the questionnaire (together with explaining the aim of the questionnaire and what the results will be used for).

[Partially based on reference 7]

4.4 Step 4: Beyond market research: Approaching selected market segments

After the detailed market segment assessment has been completed, conclusions can be drawn as to which market segments provide (best) opportunities for the company. Subsequently, informed decisions can be made about which segments to approach and how.

This is when the 'marketing mix' comes into play [16]. The marketing mix is a general phrase used to describe the different kinds of choices that organizations have to make in the whole process of bringing a product to the market. These choices are often structured around 4Ps, i.e. product, place, price and promotion:

Product-P: relates to the characteristics, quality and benefits, but e.g. also to service;
Place-P: relates to the accessibility of the product, e.g. the location of production, type of distribution, etc.;
Price-P: relates to the price of the product, also in relation to the price of competing market product, the compost users' willingness to pay etc.;
Promotion-P: relates to the communication in relation to the product.

The 4Ps together describe a product's strategic position in the market. When a compost product is properly positioned in the market, the 4Ps form a coherent set which logically fits together.

The next chapters will use the 4P approach to help companies define the positioning of a compost product in a particular market (segment).

5 The 4P marketing mix: Product

The Product P in the marketing mix relates to the quality, characteristics and benefits of the product.

Chapter 2 elaborated on the quality and benefits of compost. This chapter reiterates and elaborates some of the lessons from that chapter. It also indicates how quality assurance schemes can contribute to increased compost consumer confidence and a better marketing of compost products.

In summary, this chapter emphasizes that:
1. Compost quality and benefits go hand in hand;
2. Quality criteria relates to visible and invisible aspects – both shall be made explicit;
3. Market segments may have additional quality requirements;
4. Feedstocks used for composting have a fundamental impact on compost quality;
5. Claims on compost quality and benefits shall always be backed up by evidence;
6. Communicate about quality (expectations with customers)
7. Possibilities and constraints of compost Quality Assurance Systems and certification.

1. Compost quality and benefits go hand in hand

The ***quality of compost*** relates to the physical, chemical and biological properties of the product. The ***benefits of compost*** relate to what the product does when applied.

Quality and benefits go hand in hand: if the compost quality is not good, the benefits of compost application will not materialise (or on the contrary turn into drawbacks). On the other hand, a compost with a tailored, well-controlled quality is likely to be of great benefit to the user.

2. Quality criteria relates to visible and invisible aspects – both shall be made explicit

Compost quality includes both visible and non-visible quality aspects of a compost product.

Visible quality aspects can easily be assessed by compost producers and compost customers. Consequently, (potential) customers will base their first impression of the compost product on its visual appearance, e.g. the absence of visible contaminants, the color and the smell. If these quality criteria are not met it will be difficult to convince potential compost users on the basis of other (non-visible) quality aspects of the product.

Evidence on **non-visible quality aspects** can be obtained by process monitoring and by product quality monitoring in a laboratory. Robust process monitoring and frequent, independent product quality control generally increases compost user confidence in the product. A compost producer will need to take a balance in costs for quality control measures and the increased compost user confidence and revenues it generates.

Table 5.1. lists some of the key quality aspects of compost, why they are important, and how they can be assessed in practice.

Table 5.1 Compost quality criteria – importance and monitoring [3].

Quality criterion	Why it is important	How it can be monitored?
Presence of visual contaminants (glass, plastic, etc.)	Determines customer's first impression of product. Food safety (e.g. glass pieces).	Visual inspection complemented by laboratory analyses.
Smell	Determines customer's first impression. Indicates maturity of the product.	A rotten smell indicates that the product is not mature/stable. An 'earth' smell indicates a mature product.
Color and structure	Determines customer's first impression. Structure may impact applicability.	Visual inspection.
Organic matter content	Determines capacity to improve longer-term soil quality.	Laboratories.
Maturity of the product	Ensures proper functioning (no rotting after application).	Process monitoring (sufficient processing time), complemented with laboratory analyses.
Macro nutrient contents (NPK)	Determine basic fertilizing properties.	Laboratorial analyses.
Micro nutrient contents (e.g. Zn, Mg)	Determine specific fertilizing properties.	Laboratorial analyses.
Level of hygienization (pathogens, weed seeds)	Determines safety of the product (pathogens) and that it does not lead to additional weed pressure.	Process monitoring (sufficient processing time and high enough temperatures), complemented with Laboratorial analyses.
Invisible impurities (e.g. heavy metals)	May lead to accumulation of these impurities in the soil.	Laboratorial analyses.

3. Market segment may have additional quality requirements

On top of the compost quality criteria outlined in Table 5.1, certain market segments may have additional requirements. Such requirements may e.g. relate to the physical appearance of the product or its chemical composition. For example certain compost users may be critical of larger clogs/particles in the compost, meaning that compost may have to be sieved and/or grinded prior to sales. Another example is the application of compost in potting substrates: in these applications the salt contents is critical high salt contents will result in potted plants that die or grow insufficiently. Such quality requirement may limit the use of organic residues which are high in these particular salts.

4. Feedstocks used for composting have a fundamental impact on compost quality

Compost quality depends primarily on the organic residues used and on process management, and much less on the technology applied. Use of high-quality organic residues generally produces a high quality compost. The more inhomogeneous and polluted the raw material is the more effort is required for sorting, process management and monitoring to achieve an acceptable quality of the compost product.

In addition to considerations on availability and quality of organic residues one should also consider what is socially acceptable by the envisaged users of the organic fertilizers. For example, municipal waste compost has a stigma in many countries.

Refer to Chapter 2 for more information on organic residues suitable for compost production.

5. Claims on compost quality and benefits shall always be backed up by evidence

A compost producer shall never make quality claims which he cannot substantiate by evidence. A claim that the *'product is high in fertilising nutrients'* shall be backed up by representative laboratorial analyses which indeed prove the nutritional value. A claim that the *'product is hygienized'* shall be backed up by registered process temperature data and/or relevant laboratorial analyses.

For claims in relation to the benefits of using compost, international compost literature provides ample evidence. However, it is important to realise that literature may refer to other types of compost and or other conditions of applications. Ideal is when a compost producer can claim benefits of his product by a combination of scientific evidence and information provided by his satisfied customers. Using customers as 'ambassadors' is usually a strong concept when communicating on compost benefits (also refer to Chapter 8 on communicating on compost).

6. Communicate about quality (expectations) with customers

Quality of compost products shall be a subject of continued discussions with customers. Customers' experiences form crucial feedback information for a compost producer. Also customer complaints are useful: it allows a compost producer to learn and adapt the quality of the products as required.

It is recommendable to always take a pro-active stand towards customers, even if they are (temporarily) unhappy. This is where the famous phrase about customer satisfaction comes in: *'If you are happy, tell others. If you are unhappy, tell us'.*

7. Possibilities and constraints of compost Quality Assurance Systems and certification

Compost made from organic residues is particularly reputation-sensitive. Therefore it is critical to consistently deliver a quality product which customers trust. Reliable quality standards help to achieve customer trust in the product.

In countries with established composting & AD infrastructure, quality standards are typically achieved through a trusted central accreditation body, which may exist as part of a country's national regulatory framework or as an independent organization. This body publishes compost and digestate quality guidelines and standards that producers must adhere to in order to achieve certification.

In countries with emerging composting & AD sectors, quality standards on institutional basis may not yet exist. In an optimal case, governments may consider establishing a publicly trusted certification body and benchmark the standards that guide similar regions. In this situation, it is important to ensure standards are appropriate based on desired end use in the local market, as standards from some developed countries may be inappropriate or too rigorous. Components of an advanced Quality Assurance System (ECN-QAS) from Europe have been summarized in Box 5.1.

A less costly option is peer evaluation [7]: *'For example in Brazil, small scale organic farmers use peer evaluation through a so called Participatory Guarantee System. Farmers organize themselves in local groups that carry out inspections on member farms and ensure compliance with national standards. Representatives from each local segment form regional organizations that are accredited and audited by the national Ministry of Agriculture. Since these farmers use the compost for their own products, incentives are aligned to comply. This is an efficient yet cost effective process that results in the official Brazilian organic seal'*.

Box 5.1 Components of a Quality Assurance System in Europe [Partially based on reference 22]

European quality assurance schemes for compost and digestate are typically comprised of the following elements:

- Definition of feedstock type and quality
- Production control and process management guidelines, e.g. hygiene requirements (time-- temperature regime and testing of indicator pathogens)
- Product quality requirements for different application areas (limits for contaminants e.g. heavy metals and impurities, and quality criteria for nutrients and organic matter)
- In-house control at the site for all batches
- Third-party inspection and controlling of the product and the production (quality management)
- Quality label or product certificate
- Annual quality certificate for the site and its successful operations
- Education and qualification requirements for facility operators
- Partnerships with accredited laboratories for product testing
- Process, product quality and end-use related research
- Promotion of quality standards, compost image and use
- Marketing tools.

6 The 4P marketing mix: Place

The Place-P in the marketing mix relates to the location of a compost company, as well as the location of its marketing/ distribution channels. This chapter highlights some of the key considerations involved in locating and distributing compost.

Locating a compost production facility

The location of a composting site is in many cases a compromise between the sourcing area for organic residues, and the area where compost products are marketed. Ideally, a location is suited such that transport distances for collected organic residues and compost are acceptable for all parties involved: the composting company, waste collection companies, and compost customers in case they come and buy the product at the composting facility.

Other factors which shall be considered when choosing a location for a composting facility include:

1. The price of purchasing or renting the land, and the (additional) required investments to make the land suitable for the composting company (access, fencing, other provisions);
2. The uses for which the land has been designated in land planning policies. The likelihood to obtain all necessary permits for using the land for compost production (land planning permit, environmental permit, etc.);
3. The location of competitors (both for organic residues and for marketing products);
4. Local availability of labor.

With all these factors, it is important to consider the envisaged scale of the facility (tonnes throughput per annum) and what that means for the required area of land, for the required permits, and for other resources.

Creating a market map

A good way to obtain practical insight in how the (envisaged) composting facility is located towards sources of organic residues and users of compost products, is by drawing a so called market map. A market map pictures the (envisaged) location of the composting facility, the sources of organic residues and the location of (potential) customers. A market map can serve different objectives, i.e.:

1. To find an optimal location for a new composting facility;
2. To decide on the area from which to source organic residues;
3. To decide on which (potential) compost customers to target, given the geography of the area in which the composting facility is located;
4. To optimize transport routes for collection of organic residues and for the delivery of compost products.

It is advisable to use an existing map of the city/area (if available) instead of a sketch, as a map is scaled and therefore allows more accurate calculations of transport distances. On the map, location of (envisaged) composting sites, organic residues sources and compost customers shall be indicated. Different colors shall be used to indicate segments of other residues (e.g. markets, households) and compost users (e.g. nurseries, landscaping). The box below provides an example of a market map developed for Kathmandu city (Nepal) [7].

Box 6.1 Map of compost users in the Kathmandu Metropolitan City [7]

This map indicates the location of the compost customers in the Kathmandu Metropolitan City. The composting plant is marked by a red star and the customers are depicted by colored rings:
Blue: households
Green: nurseries and seed companies
Red: retailers
Light blue: hotels

Eawag (2008). *Marketing compost – a guide for compost producers in low and middle-income countries*. Dübendorf (Switzerland), 2008.

Distribution channels

A distribution channel refers to way in which compost products is distributed from the composting facility to the final users. It is about transportation and other logistical aspects. Generally, a distinction is made between 'direct distribution' and 'indirect distribution'.

A **direct distribution** system is when the compost product leaves the producer and goes directly to the customer with no middlemen involved. **Indirect distribution** occurs when there are middlemen or agents within the distribution channel.

In marketing compost products, direct distribution is quite common. A compost producer may direct sell its product direct to nurseries, farms etc. The advantage is that it avoids additional costs incurred by middlemen. Another advantage is that it provides the compost producer with direct feedback from his compost users.

Direct distribution also has its limitations. Intermediaries such as retailers can offer benefits because of their specialist knowledge of certain market segments.
A compost producer will have to outweigh the pros and cons of direct and indirect distribution, and relate these to the information obtained for the other Ps in the marketing mix: Product quality requirements in market segments, Pricing options and Promotion options.

7 The 4P marketing mix: Price

Pricing is a key issue for all companies selling products, including compost producers. Whereas the other three elements of the marketing mix are cost factors, price is ultimately the source of income and profits. Through pricing, the organization shall manage to support the cost of production, the cost of distribution, and the cost of promotion. Pricing is a complicated element, which needs to reflect supply and demand, the actual value of the object, and the perceived value of it in the mind of the consumer.

This chapter provides guidance on the pricing of compost products. In outlines steps that shall be taken before adequate pricing can be done. It also summarizes various pricing strategies that compost producers may apply for their products.

Steps in pricing compost products
Any pricing decisions for a compost product need to be made through proper research, analysis and be based on strategic objectives for the organization and the compost product. A decision made too quickly with superficial assessment can result in a loss of revenue. A price below the perceived value can lead to both a loss in potential additional revenue and a target audience that judges the quality of the brand through price points. If this price is raised later on, the existing customers may feel like they are being unfairly burdened. A price set too high can result in potential buyers staying away altogether.

There is no fixed methodology to develop pricing for compost products. However, the following steps can act as a general guideline [3, 7, 16]:
- Step 1: Market segment assessment forms the basis;
- Step 2: Calculate production costs;
- Step 3: Estimate the demand curve;
- Step 4: Specify the pricing objective;
- Step 5: Determine price.

***Step 1:* Market segment assessment forms the basis**
The market segment assessment outlined in Chapter 4 forms the basis for any pricing strategy. Once market segments have been selected, the 4P marketing mix shall be developed to position the product in those market segments.
Applying the 4P marketing mix means that pricing shall not be considered in isolation, but shall always be related to strategic decisions on the other P-elements in the marketing mix (Product, Place and Promotion). For example decisions on the distributing channels for compost (Place-P) will impact on the price: if a compost producer decides to distribute compost to customers with own vehicles this adds to his total costs. On the other hand, it may also allow the compost producer to charge a higher price, because customers will appreciate the service element of the compost producer (which relates to Product-P).

***Step 2:* Calculate production costs**
Before any pricing decisions can be made, the compost producer shall get an accurate assessment of the total fixed and variable costs associated with producing the compost.

Production costs include variable costs and fixed costs.

Variable costs vary according to how much compost is produced. Examples of variable costs include energy consumption, transport costs and costs of packaging compost products.
Fixed costs are independent of how much compost is produced. Examples of fixed costs include rent, labor, maintenance, depreciation of investments.

Total production costs relate to the total costs required to produce the annual output of compost, i.e. the total of summarized (annual) variable costs and (annual) fixed costs.

Once total production costs have been calculated, the costs for producing a certain amount of compost can be calculated by simply dividing the total products costs by the quantity of compost produced, i.e.:

Compost unit costs = total production costs / quantity of compost produced

The quantity of compost may be expressed in tonnes, m^3, bags or any other unit. Depending on which metric is used, the 'unit costs' vary. Unit costs are expressed as $/tonne, $/$m^3$, $/bag, etc.

***Step 3:* Estimate the demand curve**
In this step, the company shall gather information about how the price is likely to affect the quantity of the product demanded. This includes understanding of the competitors' strategies, their product and its value as well as an understanding of any industry or legal constraints.

As with any product, compost demand will vary with price. In order to set the right price, a company shall avail over information on how the market is likely to respond to higher or lower prices. Collecting this information shall be part of the detailed market segment assessment (refer to Chapter 4).
This includes an assessment of the ability to pay and the willingness to pay in the selected market segments, as well as an assessment of competitors' pricing strategies.

Step 4: ***Specify the pricing objective***

There are a number of pricing strategies a company can use to sell its compost product. The strategy used at any time will depend on the company's strategy, and how the pricing relates to the other Ps in the marketing mix (refer to Step 1). Some of these pricing strategies used in compost markets are the following:

Cost plus pricing: a company determines the exact cost of producing and distributing the compost product (Step 2), and adds a certain amount or percentage to the costs as a profit margin. This is the easiest way of pricing. This method is typically suitable for markets where demand for compost is exceeding supply, and the willingness to pay for compost is at the level of the cost-plus-price set.

Penetration pricing: A low price is set by the company to build up sales and market share. This may be done to establish position in a market where there are already other competing compost products on offer, and a position can only be acquired by displacing competitors (i.e. in compost saturated markets). Once a position is created, the company prices may be raised. Penetration pricing does tend to result in an initial loss of income for the company. Also, it may not be easy to raise prices significantly once customers have become used to the low initial prices.

Competition pricing: In this approach a company bases its pricing primarily on competitors' prices:

a. the company prices higher than its competitors to create a higher quality perception or to target a niche market. Additional service may be part of the perceived benefit;
b. the company prices the same as competitors but shows more benefits for the same price (e.g. compost transport service);
c. the company prices lower than its competitors to try to gain a wider customer base.

Premium pricing: A high price is set to establish an exclusive product of high quality. Typically ,the premium prices is higher than the price of competitors.
Because customers need to perceive products as being worth the higher price, a company must work hard to create a value perception. In practice, this might be difficult to achieve for compost products. Whereas the perceived value of e.g. an iPhone can be increased by design, life style appeal and advertising, this is typically not the case for compost products.

Product line pricing: in this approach, a company sets different prices within a range of compost products for different market segments/customer groups. This approach only works if it is clear to customers that there are indeed differences between the compost products the company offers, e.g. in relation to the quality, the service provided, the packaging.

Step 5: ***Determine price***

Based on all the information collected and analyzed in the previous steps, a company is now in a good position to set the best price for its products. A pricing method and structure can be formulated along with any possible sales promotions or discounts.

8 The 4P marketing mix: Promotion

The fourth P in the 4P marketing mix is Promotion.

The ultimate objective of promotion is to stimulate demand for the company's compost products. Promotion is about:

- Telling (potential) customers about the company and the products its sells;
- Telling customers about the quality and benefits of compost use, and how to use it;
- Encouraging customers to buy your compost product instead of competing products;
- Telling other stakeholders (other than customers) why recycling organic residues to compost products is a good idea.

Communication is at the heart of any promotion activity. This chapter summarizes various ways of communication that can be used when promoting compost products (the communication mix). It also highlights critical points in developing and implementing a promotion/communication strategy. Finally, it provides some practical guidance for developing communication tools.

The communication mix

Different ways of communication can be used to promote composting and compost products. Table 8.1 lists various ways of communication that may be used in compost markets. This whole range of communication options is sometimes referred to as 'the communications mix'.

A promotion strategy generally combines various elements from this table. Which elements a company should use depends on the targeted audience, the messages a company wishes to bring across, and the available budget.

Experience from around the world shows that for marketing compost, direct communication with customers groups is generally more effective that indirect communication campaigns. In other words: face to face discussions with potential customers, showing the product and showing its application in practice (e.g. by field trials).

Critical points in a promotion/communication strategy

A promotion/communication strategy shall always be aligned with the other Ps in the 4P-marketing mix. For example, information communicated on product quality shall reflect the product quality as it is. Also, decisions on pricing impact the way the product is promoted. Coherence between the 4Ps is critical. This section outlines some key points to consider when developing and implementing a promotion/communication strategy:

1. Address the right audience

Communication activities shall first of all address people who have the power to make or influence purchasing decisions in the targeted market segment. For example, farm and nursery managers may be a better group to target than farm or nursery workers.

Table 8.1 Communication options for compost producers [3, 7, 16].

Method	Explanation
Word of mouth	One customer tells another about the organic fertilizer
Selling techniques	Face-to-face selling to the customer
Advertising	Communication via print, television, radio, billboard, etc.
Sales promotion	Encouraging customers to buy more. E.g. 'more for less'
Direct marketing	Door-to-door sales, mailouts, telephone calls
Publicity	Good publicity is always important and includes any published material about the company, i.e. press releases
Sponsorship	Where cash from one company supports an activity (e.g. sport) usually in return for advertising and association with popular activities
Exhibitions	Displays promoting and demonstrating products
Identity	Developing a logo or catchphrase, for example, as well as an image which encourages people to feel confident and comfortable in dealing with the company
Packaging	An important way of attracting first-time customers as well as getting marketing information across to customers (e.g. product)

In addition to potential customers also other stakeholder groups may be addressed, e.g. policy makers, non-governmental organizations (NGOs) and farmer organizations. While these stakeholders are unlikely to buy the company's products, they have influence on the company environs. For example policy makers who are convinced about the potential of compost products may be more likely to develop strategies aimed at recycling organic residues. Also, NGOs may become an ambassador for compost products once they are convinced that compost is a more sustainable alternative to artificial fertilizers.

2. Develop different approaches for market segments
Different market segments may require different ways of promotion and communication. While for one market segment paper advertising might work, another market segment may be best served by product demonstrations (e.g. market segments with illiterate customers).

3. Product claims shall be real
Promotion of a product requires that the benefits of a product are fully exposed. However, care shall be taken not to overclaim. In other words, any claimed benefit of the product shall be real, and shall preferably be backed up by evidence.
For example, a claim that 'the compost product is rich in nitrogen and phosphorus' shall be backed up by representative laboratory analysis. A claim that 'the compost is hygienized' shall only be made if adequate process control is in place ensuring hygienization of all material.

4. Choose the wording right
Customers want a compost product to do something for them: e.g. to solve a problem (e.g. infertile soils), to increase profits (e.g. by increasing crop yields) or reduce workload (e.g. by making the land easier to plough or by reducing weed pressure). The wording of any communication message shall clarify what the product does for the customer and reassure the customer about the product's benefits.

N.B. A mistake often made in compost marketing is that the core message is about the waste recycling aspect of compost, and much less on the benefits of the compost product. This will enhance the customers' perception that compost is a 'cheap, waste derive product of little quality'.

5. Learn from competitors
It might be helpful to look at how competitors promote their products, and see which elements of their promotion strategy can be copied or improved for own use.

6. Education might be a necessary first step
Experience in many different countries globally shows that it is not easy to develop a compost market 'from scratch'. The introduction chapter already discussed some of the key barriers to compost use, a number of which are related to potential customers' lack of knowledge and perceptions. In areas where compost is not yet a known product, education is required on the benefits of the product and to take away any negative perceptions that may exist about the waste origin of the product. This education may including training sessions for envisaged users, but also trial plots to show the beneficial effects in practice. It may also involve educating companies and households about how to properly separate organic residues from other waste.

Education is a long-term investment, but in many cases necessary before any more targeted communication activities can successfully be undertaken.

Promotion in practice: Brochures/flyers versus website information
The internet contains numerous examples of brochures on compost and compost use. The big advantage of paper brochures/flyers is that they can be put directly at hand (as opposed to information via a website). The disadvantage is that the information in a brochure is static until it is redesigned and reprinted. In addition, professional, good quality printing is expensive.

The advantage of using a website as primary communication medium is that the information it can contain is much larger than any paper document, and that website information can be updated and enhanced at any moment. Furthermore, a website can easily be coupled with other digital and social media channels (e-mail newsletter, Twitter, Facebook, etc.).

Both the contents and the language of paper and/or website information varies depending on the envisaged audience. In general, it is recommendable to include at least the following information:
- Information on the composition/quality of the compost, preferably substantiated with (summarised) results from sampling and laboratory analysis. This may include information on organic matter content, nutrient levels, etc.;
- Information on how the compost shall be used (type of application, recommendable way to apply compost);
- Information on the beneficial effects of compost. This may include pictures of healthy plant growth and/or portraits and references by satisfied customers;
- Contact details of the compost producer and details of the location(s) where compost can be purchased.

Promotion in practice: the role of packaging
In general, packaging of products including compost products may serve various objectives [7]. First of all, it contains and protects a product during sale, transport and further handling by the customer. Packaging may be also be used as a medium that carries product information. Furthermore, packaging may help to establish a product brand (e.g. by the colour and the logo applied provided on the package).

Packaging of compost is only an option for markets which require relatively small quantities of compost (e.g. 20 liter bags) and are willing to pay the additional costs required for packaging (additional revenues of packaged product shall outweigh the additional costs for packaging).
A critical aspect in compost packaging is the weight of the package. Depending on the feedstock for compost production compost can have a relatively high weight (e.g. caused by inert particles such as sand). In other words, packages shall not exceed volumes which an average person can carry, and the packaging material shall be strong enough.

Apart from its basic functions, packaging provides the opportunity to position the compost product by:

- making the packaging eye-catching;
- including company logo and contact details on the packaging;
- containing information on the product composition and its benefits on the packaging.

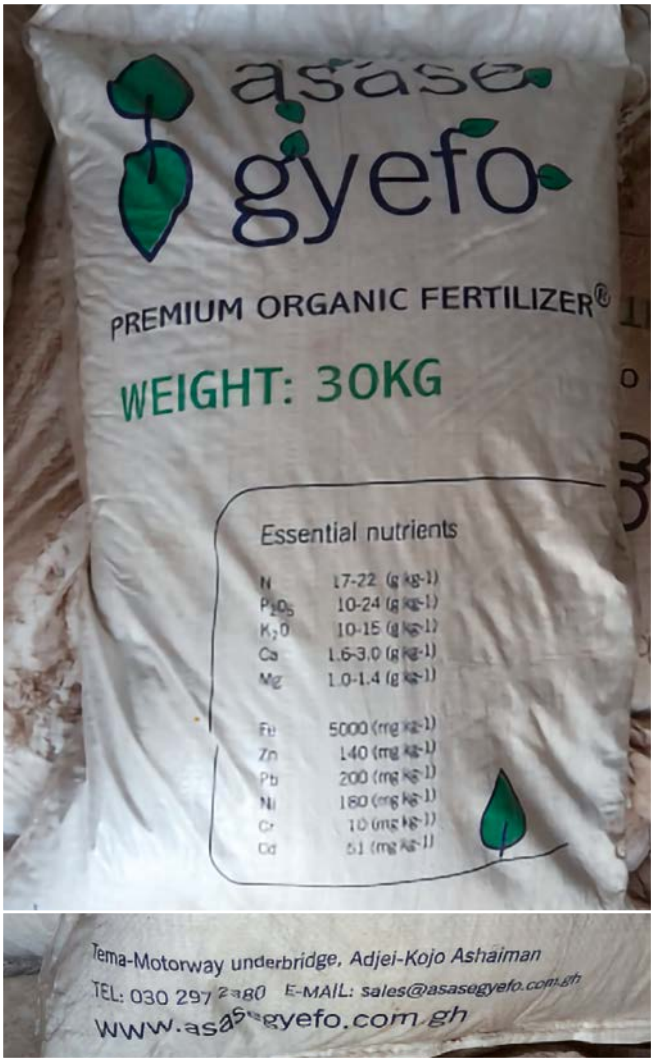

Figure 8.1 Compost bag from Safisana composting plant, Ghana.

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Useful websites for further reading

www.bvor.nl – BVOR – Dutch Association of Biowaste Processors

www.compostnetwork.info – ECN – European Compost Network

www.compost.org – Composting Council of Canada

www.compostingcouncil.org – US Composting Council

This is a publication of:

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NL Enterprise Agency is a department of the Dutch ministry of Economic Affairs and Climate Policy that implements government policy for agricultural, sustainability, innovation, and international business and cooperation. NL Enterprise Agency is the contact point for businesses, educational institutions and government bodies for information and advice, financing, networking and regulatory matters.

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