The Marketing of bee products

Martin Hilmi

From http://www.beekeeping.com

Readership

The articles are intended for a very diverse set of readers. The articles concern bee products marketing in tropical and sub tropical countries. In such countries beekeeping methods vary widely dependent on ecological conditions of each area and hence marketing methods of bee products will vary accordingly. Cleary such a vast and diverse set of readers will imply that there will be situations in which certain matters will not fully apply, this due to the diversity of production and mainly marketing environments found within. Hence it is left to the common sense of the user to select what appears most useful in improving current marketing organisation in his or her particular case and to apply improvements that are appropriate to specific local conditions. Target readers for these articles are extension officers in agricultural ministries, trainers of extension officers, officers in international governmental organisations and non governmental organisations, volunteers and students all involved in the development of apiculture and related markets.

Back ground to articles

Most of the training that occurs in tropical and subtropical countries looks at teaching beekeeping methods to beginners or improving beekeeping methods for more experienced beekeepers. The focus is on the production side of matters. These articles build on such training, but focus on marketing and its importance in beekeeping.

About the articles

The articles in this collection are devoted to a series written on bee products marketing. The articles are intended to be descriptive of marketing matters, but more importantly on " how to" carry out marketing. The articles are intended to help both beginner and experienced beekeepers in improving their marketing abilities of valued bee products. The marketing as proposed here is not intended in any manner to substitute existing marketing methods, but improve them. Importantly sustainable methods of marketing will be addressed as they are an integral part of organic production of bee products.

The method used within these articles are participatory in their nature and build on local experience and wisdom of beekeepers. Each article can be read for personal knowledge reasons or can be used for training purposes. Each article has a series of " thinking points" and "discussion points" for training sessions, these to encourage "critical thinking" about marketing organisation and hopefully encouraging improvements where required.

The articles in this series comprise :

1. What is Marketing?
2. What is Marketing Research?
3. Organic certification
4. Marketing Honey Comb and Honey
5. Marketing Pollination Services
6. Marketing Wax
7. Marketing Propolis
8. Marketing Pollen

9. Marketing Royal Jelly
10. Marketing Bee Venom
11. Marketing Adult and Larval bees
12. Costing and Financing the Marketing Activities

Authors Note : Articles do not include methods of production, but will refer to them as a necessity of the subject in consideration. It is understood that users of such articles will have a minimum understanding of production methods for the various bee products. Importantly though organic production guidelines will be covered where relevant to the subject matter in question.

For further information about the other articles e-mail: martinhilmi@hotmail.com

About the author

The articles have been conceived, researched and written between March 2005 and November 2005 by Martin Hilmi. Martin Hilmi is a lecturer in Marketing at John Cabot University, Rome, Italy and a Lecturer in Economics and Marketing at the University of Malta, Rome, Italy. Martin Hilmi is also an agro- food marketing consultant and has consulted and worked in the industry for many years. He has published books and articles in the field of agricultural economics and food marketing. He holds a BA , an MSc in Marketing from the University of Leicester, England, and is working on his PhD in Agricultural Economics and Food Marketing at the University of Newcastle Upon Tyne, England

Introduction

Apiculture in the wider context of agriculture is a valuable tool for enabling people to generate more food and more income from such an activity. Bees can operate in the most arid conditions. In areas with lack of water or seasonal lack of water, beekeeping may be the only form of agriculture available. Bees can forage the flowers of trees; trees have deep roots, hence have access to deep ground water. For example in a region of Tanzania during the dry season, when the land is too hard to cultivate, many of the farmers revert to beekeeping for two to three months and work with traditional hives made from hollowed-out logs. This enables them to earn much needed money even during the dry season. Further bees can operate in the most unfavourable conditions, such as social unrest and war. For example in Afghanistan, due to land mines, many farmers have been unable to tend to their fields, in fear of land mines exploding. Some of the farmers have reverted to beekeeping, since bees can forage fields without the fear of being blown to bits!
Beekeeping is a fairly easy activity to start. Importantly novice beekeepers are advised to seek training either from experience beekeepers and / or tanning services offered by national organisations or international organisations offering such services. Interestingly one very good method recounted by many experienced beekeepers is that in the early days of their activities much of what they learnt came from carefully observing bees and how they organise themselves. This is a very important point and will be time and time again referred to as the first step in sustainable beekeeping, especially when concerning organic bee products. The beekeeper needs to adapt to bees necessities and enable the best possible living conditions; adequate hives to suit bee necessities, good nectar forage areas, fresh drinking water etc. Wise and careful treatment of bees will enable for healthy bees, quality bee products and good yields.

Starting a beekeeping activity and business involves initially little money . Colonies can be easily found in nature and /or bought at village markets. In many countries traditional hives are used, but top bar hives are becoming common. In other countries more sophisticated beehives are built and/ or bought by the beekeeper. All in all beekeeping financial outlays for starting the business are minimal compared to other agricultural business activities. Other costs occur when honey has to be

harvested, processed, bottled and sold. Here such equipment as filter clothes, glass jars or plastic bottles, setting up market stalls etc are needed. These maybe expensive and many beekeepers have found their own personal methods for processing and selling bee products i.e. marketing.
As an agricultural activity , bees unlike other "animal " species, such as chickens, goats, sheep etc produce a good number of products; the most commonly produced products are honey , wax and of course bee colonies themselves. But with more specialised skills many beekeepers start to produce such bee products as pollen, propolis, royal jelly, bee venom and derived products such as candles, honey beer and wine, honey soap etc. (These "transformed" bee products will be treated in the articles under each specific heading , for example mead, honey beer, will be treated under the article on honey and honey comb marketing).
All in all apiculture can enable beekeepers and farmers in general to be less vulnerable to poverty. Beekeeping enables the generation of food and money that can maintain and support farm families in a fairly simple manner.

THE MARKETING OF BEE PRODUCTS SERIES

ARTILCE 1 : <u>What is Marketing ?</u>

Introduction

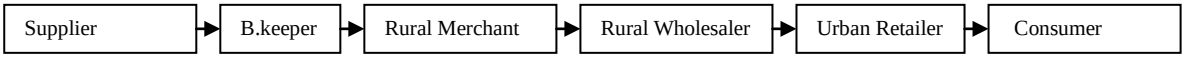
Beekeepers, both new and experienced, have a focus on production. They concentrate on the production of bee products and relative high output of such bee products. High output means that they can sell more bee products and earn more money. A production focus is good, but without selling bee products there would be little or no production. Selling bee products involves transactions, that is the beekeeper will exchange, for example honey for money, with someone who is in need of the honey. This calls for understating how, where and when transactions take place. Typically transactions take place in what are referred to as " markets". So before looking at what is marketing, it is good to understand what a market is.

> *Think Point :*
> According to you "what is a market?"
> Think about this and describe it to yourself
> Write down all the facts that come to you when you think about " what is a market?"
>
> *Discussion point:*
> Discuss with others "what is a market?"
> Write down all the opinions of the participants to the discussion
> Discuss all the written down opinions

What is a market ?

A market is where transactions take place, it is where bee products are exchanged for money. It can be a location, for example a village market, a retailers shop, a roadside stall. In these markets it is where bee products are sold and consumers are able to choose and buy the bee products. In other words it is where " suppliers" (beekeepers, retailers etc) meet " demanders" (consumers). Other markets are those , for example that occur when a beekeeper sells his or her bee products to processors or to a retailer. The supplier is the beekeeper and the demander is the processor or retailer. These demanders are normally referred to as a business consumer.
Note that markets are found at every stage of the supply system. The supply system is the system that takes bee products from production to consumption. A typical example of a supply system can be seen in the next figure

The Supply System for bee products



As can be seen the supplier sells to the beekeeper , the beekeeper then sells to the rural merchant, in turn the rural merchant sells to the rural wholesaler and in turn the rural wholesaler sells to the urban retailer, who in turn sells to the consumer. At every stage of the supply system there are exchanges taking place; there are markets. For example the beekeeper sells his or her honey comb to the rural merchant. The beekeeper is the "supplier" and the rural merchant is the "demander" . This market is called a business market. If the beekeeper was selling directly to consumers, for example, with a stall in the village market, the market would be called a final consumer market. Importantly beekeepers can decide if to sell to business markets or to final consumer markets, or to both.
In markets exchanges take place and bee products are exchanged for money. A beekeeper depends on money to able to survive. A beekeeper has to offer a certain quantity of products to be able to make enough money to survive. But importantly what the beekeeper has to earn is profit.
Profit is the difference between what the business had paid to make the bee product and make it available to the consumer, costs, and the price it receives for the bee products. Without making a profit, bee keepers will not generate enough money to be able to survive and continue in operation. Profit is the sum of money over and above the costs that the beekeeper has paid to produce and sell the bee product. So a beekeeper needs to obtain a price for a product that is higher than his or her costs.

Think Point :
Think about your own supply system
Draw your entire supply system
Think about the various markets within your supply system
Think about the characteristics of each market: for example who is involved ? , Where do they take place ?etc

Discussion Point:
Discuss with others the supply system
All participants should compare their own supply systems with those of others and the characteristics of each market within the supply system

As we have seen transactions take place in markets, between suppliers and demanders. To understand markets better and relevant transactions and all that they involve we have to the consider next suppliers and demanders in markets in a little bit more detail

Supply and Demand
Suppliers and demanders when they are in markets carry out transactions. Transactions are the bee keeper and the consumer exchanging things; the beekeeper exchanges a bee product for money which is given by the consumer for the bee product. The transaction occurs, only if both the beekeeper and the consumer reach an agreement and are both satisfied
The consumer will be satisfied with a fair price paid for the bee product and the beekeeper will be satisfied with a good price received for the bee product. So we can see that price of the bee product

is determined by the transaction of the beekeeper and the consumer, where there is a common agreement between the two and both are satisfied. Typically the price at which transactions occur is called the " agreement price". But it is important to remember that price is not only determined in this manner.

In markets there are usually many suppliers and many demanders. For example in a village market there will be many suppliers, selling fruit, vegetables, bee products and there will be many demanders, consumers buying. All their transactions and relative agreements on price will influence the overall price of produce being sold. For example if honey is sold by beekeeper Juan at a price higher than that of beekeeper Enrique, consumers will favour honey from beekeeper Enrique. So to be able to sell his honey beekeeper Juan will have to reduce his price to that of Enrique. Typically agreement prices in a market are very much the same for all produce.
Suppliers are the total number of suppliers (beekeepers) supplying a bee product to a market, who can and want to sell bee products. Demand (consumers) are the total number of demanders demanding a bee product in a market, their needs and wants for a bee product. If for example there is a lot of demand and little supply, the price of the bee product in demand will rise. For example if there is a big demand for honey, but there are few suppliers of honey, few beekeeper sellers, the price of honey will increase. Consumers will not be able to buy the quantities of honey they want and need, for the quantities of honey supplied are small. It is important that beekeepers understand that total supply and demand create prices in a market. In other words all the beekeepers present and all consumers present together will reflect the agreement price for a bee product that will enable satisfying transactions to take place.

Think Point :
Think about supply and demand
Write down what is demand and what is supply
Think about transactions and how they are carried out
Think about how you price your bee products

Discussion Point
Discuss with participants what is supply and demand
Discuss transactions and how they are carried out
Discuss how agreement prices are achieved on bee products

Now both demand and supply are influenced by factors that will affect price. We saw above in the example that little quantities of honey supplied to a market, where there is demand for honey, will make the price for honey rise. So quantise supplied will affect the price of honey as will the nature of demand for honey. The factors that affect demand and supply will change according to which market a beekeeper sells in, for example in final consumer markets demand and supply will have factors that influence price, while in business markets demand and supply will have certain other factors that influence demand and supply.

In final consumers markets demand is influenced by:

- *Tastes*: Consumers all have different tastes. One consumer for example may like honey comb, while another may like processed honey in jars. Tastes also change, for example one year consumers may want more honey and less sugar. These changes in taste will change demand and also price.

- *Season*: Consumers also change what they want to buy according to the season. For example in a festivity season, consumers may demand more processed honey to make cakes. In the very hot season, for example, consumers may demand less honey. This will increase or decrease quantities in demand for a product and affect its price.
- *Location* : Consumers who live in different places will have different demands for products. For example consumers living in urban cities may prefer processed honey to honey comb , while consumers in rural areas may prefer comb honey. One village market in one location may have different demands for different types of honey than another village market in another location. Consumers in far away markets, such as markets in other countries, also have different demands for products. This will affect quantities demanded and the price of bee products..
- *Income* : Consumers demand for bee products depends very much on what consumers earn, in other words what wealth they have. This will determine how much they are able and willing to spend to buy bee products. If , for example, consumers have a lot of wealth they will buy more products, but will also want to buy more expensive of luxury products. For example, they will buy local honey, but they may also buy expensive honey that comes from other countries. The amount of wealth consumers have will affect quantities demanded and price.
- *Population* : The increase or decrease in population will affect consumer demand. If areas are more populated than others than demand will be higher. For example if one region has many people they will be demanding more bee products and this will affect price.
- *Age*: Consumer demands for products will change due to their age. For example in areas where there are many young children, the demand for honey maybe be very high. In areas where there are many old people, for example, the demand for propolis may be high, for propolis is a good “medicine” , but at the same time is very digestible. Age will affect quantities demanded and price.
- *Price*: Price of a product will ultimately affect the demand for that product. For example if the price of processed honey is high, consumers will buy less processed honey. If prices of comb honey, for example are low, then consumers may possibly buy more comb honey. Prices will affect quantities demanded.
- *Future prices*: Consumer demand will change according to what prices are expected in the future. For example if high prices are expected in the future, consumers will buy more quantities of bee products now. For example at honey harvest times during the year prices may be low if the honey harvest is good. As time passes and honey is consumed prices will start to rise.
- *Quality*: Consumer demand will change in regard to the quality of bee products. For example if the consumers think that quality of honey is not god they will not buy it. This will affect the price of the honey and the quantities bought.
- *Similar use of products* : Consumer demand for products that are similar in usage will change when the price of one increases compared to another. For example processed honey and sugar. Suppose that the price of honey rises, consumers may prefer to purchase sugar as an alternative.

Think Point:
Think about the factors that influence consumer demand for bee products in your locality
Think about the factors that influence consumer demand as seen previously in the article
Write down all the factors that influence consumer demand
Think about how each factor influences price and quantities

Discussion Point:
Discuss with participants the factors that influence consumer demand from their experiences in their locality
Write down all the factors that are discussed
Discuss what are the main consumer demand factors that affect demand. How do these affect price and quantities ?

Now, turning to look at supply, when prices are high, suppliers will supply more and this in time will reduce the price of the product. Conversely if the price of a product is low, suppliers will supply less of the product. This leads us to looking at the factors that affect supply.
In final consumer markets supply is influenced by:

- *Price*: Beekeepers will normally supply more of a product if the price for that product is high. For example if the price for processed honey rises, the beekeeper and his family will probably consume less honey comb in order to make sure that more processed honey can be sent to market. This will mean that more quantities of processed honey will be sent to market. Other beekeepers will do the same and in a short time, the price of processed honey will fall
- *Season* : In some parts of the tropics and subtropics , according to climatic conditions found in the seasons of the year, supply of products will be increased or decreased. For example at honey harvest time quantities will be abundant and price will be low, in monsoon times, honey will be less in quantity and higher in price.
- *Weather* : Supplies will change according to what the weather has been like. If for example tropical rains have been particularly severe, the quantities of honey supplied will be less.
- *Costs of production* : To produce bee products beekeepers have to pay for labour, equipment, raw materials etc. If the price of labour for example increases, the bee keeper may reduce moving hives to floral rich areas to save on labour costs and hence reduce the quantities supplied.
- *Disease* : If bee colonies are infested by disease and / or mites, this will considerably reduce quantities supplied of bee products.
- *Change in production techniques* : A change in methods of production may increase the quantities supplied. For example many bee keepers use a new pollen gate on there hives that permits them to produce more pollen, this will increase the supply of pollen .
- *Prices of other products*: A change in the price of other products will influence quantities supplied. For example suppose a beekeper is thinking about producing sunflower honey, but he or she finds that lemon honey will get a better price, the farmer will enable the bees to forage in lemon groves.
- *Number of suppliers* : Supply of products will be affected by the number of suppliers. For example if processed honey has a high price, other beekeepers will see the high price and start producing processed honey. This will mean that supplies will increase and that over time prices will fall.

- *Imports* : Products coming from other countries will also affect supply. If prices for processed honey, for example are lower in another country, traders will buy the processed honey and import it into the local market. This will cause more quantities being supplied, hence the price reduction

Think Point :
Think about the factors that affect the supply of your bee products
Write them down
Think about the factors that have been described previously in the article
Write them down
Compare the supply factors and how they affect you

Discussion:
Discuss the factors that affect supply in the local area
Write down all the opinions of the various participants
Discuss in relation to the supply factors described previously in the article

In business markets demand is influenced by the factors described in the final consumer market demand factors. This is because demand from processors, retailers and wholesalers is all based on what final consumers ultimately buy. This means that the demand of wholesalers, retailers, processors are derived from final consumer markets. What is important to note though is that between the two markets, consumer and business, there are differences.

In business markets where possibly the beekeeper sells to processors, wholesalers and retailers demand and supply have certain particularities that make it different from final consumer markets.

- *Less " demanders"* : In business markets typically there are less " demanders" than in final consumer markets. Retailers, wholesalers and processors, for example are fewer in number than final consumers.
- *Larger quantities* : Typically they also want and need larger quantities all bought at the same time or in regular supply and all of the same quality. For example a honey processor, may require regular supplies of comb honey, of a defined quantity and quality.
- *Professional buyers* :Importantly demanders in business markets may be professional, they may be very good buyers, it is their job and so they will be very knowledgeable of prices, quality, other suppliers etc. In this case beekeeper will have to ensure that they can satisfy the particular and peculiar nature of business market demands.
- *Contract buying* : In some cases professional buyers may offer contracts to beekeepers. For example many honey processors, bring out " contracts" to beekeepers that ensure by contract that 300 kilos of honey is delivered every four months at $0.20 per kilo. This may be a challenge for small scale operators. It may ensure against price variations, but it may be difficult to produce and supply the right quantities in the right quality and the right time.

Think Point :
Think about the factors that affect supply and demand in your locality
Think about the factors of supply and demand as described previously
Write down the factors that affect supply and demand in your locality and compare them with those described previously in the article
Think about how these factors affect quantities and prices in local markets
Think about the similarity and differences in consumer and business markets in your locality and write them down
Think about the similarities and differences between consumer markets and business markets as described previously in the article and write them down
Compare your thoughts and think how they affect you

Discussion Point :
Discuss the factors that affect supply and demand in the locality
Write down the various opinions
Discuss how these affect prices and quantities in local markets
Write down the various opinions
Discuss how these factors affect prices and quantities
Discuss the similarities and differences between consumer markets and business markets in your local area and as described by the article

Price

As seen in the previous section the transactions of suppliers and demanders set price. The price is simply an agreed price between suppliers and demanders and both are willing to exchange. Thus the price is called the " agreement price".

It must be clear that beekeepers operating in most bee products markets have to take the market price for their bee products They accept the market price for what they produce. They are "price takers". The reason for this is beekeepers generally harvest honey that is very similar to honey that other farmers grow in the locality. The honey is similar to others. These types of products are commonly referred to as commodities. Commodities are products such as honey, maize, wheat, soybean, lamb meat etc. They all have similar characteristics and are undifferentiated. For example honey produced by farmer Li, will not be different from honey produced from farmer Yung. Hence many beekeepers supplying the same market will be all supplying similar commodities.

Supplying similar commodities, with no differentiating factor will mean that beekeepers will have to accept the price that the market sets, (price taker) based on the quantities supplied and the quantities demanded. If a beekeeper in the market were to charge too high a price then consumers would refuse to buy the honey, for they could probably buy the same honey from another beekeeper. By maintaining high prices and waiting for consumers, the bee farmer runs the risk of not being able to sell any honey and eventually being forced to go out of business. By lowering the price the beekeeper adjusts it to the market conditions.

Think Point:
Think about price in you local market for your bee products
Think about the fact of " who" sets price in your local market?
Think about what has been seen previously in the article

Discussion point:
Discuss with other participants " who" sets price in the local market and write down the various opinions
Discuss the fact of being price takers

But having said that beekeepers are price takers, there are some situations where beekeepers may be able to influence the market price. This type of production moves commodities that are undifferentiated to being commodities that are differentiated. For example a particular type of regional or local unifloral honey that is not easily available, organic honey, etc. This sometimes occurs where specialised bee products are being produced for a limited, "niche market". Niche market means a market composed of particular consumers where demand is focused on special or typical products. This type of market can be a highly specialised market or occur only at a specific time of the year when demand for that product is high and premium prices can be attained. It is also characterised by beekeeper attempting commodity differentiation by quality of produce, packaging, using a brand name, etc.
Brand name means that the beekeeper places a name or symbol on his or her produce, so that it is differentiated and recognisable by consumers from other farmers produce. For example farmer Juan's honey could be a brand and it could be applied to bottles and jars in which honey is sold, or a sign with the brand name could be put on the crate in which the honey is exposed to consumers. In this particular situation the beekeeper may not be a price taker but rather a price maker. For example, what Juan sells is different from what Enrique sells. This places such beekeepers at a great advantage particularly when it comes to negotiating with traders responsible for distributing their bee products.

Think Point:
Think about the differences you could apply to your bee products. For example better quality, organic etc
Write down the differences
Think about the advantages and disadvantages of being a price taker and a price maker or both and write them down
Think about niche markets in you locality : Do they exits? Are there opportunities ? etc

Discussion Point :
Discuss the advantages and disadvantages of being price makers and price takers
Discuss niche markets
Discuss the possibilities of differentiation on bee products in the locality

Price Changes

It must be understood that whether a beekeeper is a price taker or price maker, prices change. Prices can change very often. For example prices vary in consequence of changes in production and demand at different times of the year. The supply of bee products often varies from time to time because of weather, plant diseases, bee diseases and bee keepers' decisions. Importantly prices also vary depending on the availability of competing bee products. If a wider range of competing products come onto the market, consumers have a wider choice. Although the quantity of a product may stay the same, the price could go down if the consumer decides to switch to a competing product. The price reduction would occur to hopefully attract consumers to the bee products.
Prices that are found vary for the different levels of the supply system. Referring back to the figure of the supply system we can see that at every stage of the supply system there are markets. Each market will typically have a different price. For example there will be the beekeeper's price that sells honey comb directly from the farm. There will be the rural merchants buying price and selling price. Buying price means the price that the rural merchant will pay for bee products bought. Then there will be the selling price at which he or she sells to wholesalers or retailers or final consumers There will be the wholesalers buying price and selling price as there will be the retailers buying price and selling price.

Importantly and vitally it must be understood that for beekeepers price for a product is the only source of money i.e. income. Price is the only element that will generate income. Money generated from prices is very important for the micro and small bee farm. It will enable the bee farm to buy resources that are productive. This means that farmers will be able to buy such things as wood, tools etc, that will enable the beekeeper to keep on generating money. Hence understanding how price works and what influences it is a very important aspect for small scale businesses.

Think Point:
Think about what is market and all its characteristics, for example supply, demand, factors that affect them, prices, price changes , quantities, niche markets etc
Write down what the characteristics of your local market
Think about the importance of price and how it enables you to earn money
Think about how you use that money

Discussion Point
Discuss " What is the local market?" refer to demand, supply, quantities, prices etc
Write down the various characteristics given by the various participants
Discuss price and how it relates to money participants earn

Having understood markets and their relevant characteristics, it is now possible to look at what is marketing

What is Marketing ?

Markets are only one very important part of marketing. Marketing involves the operations and tasks that require bee products to reach markets. Importantly marketing starts not at the end of production, for example when a beekeeper harvests honey and then needs to cut comb, extract honey etc but starts when the beekeeper chooses the nectars and bees for the bee products . This is so because all production must be ultimately in line with what both final and business consumer markets need and want. If markets do not want a product they will not buy it and beekeepers will not be able to sell.

> *Think Point :*
> Think about how you carry out marketing of your bee products
> Write down all your activities, but start from the bees and their foraging and end when the bee products are sold
> Think about the fact the marketing starts with the type of bees you have, your hives, nectars that the bees forage and hive management
>
> *Discussion Point :*
> Discuss with other participants about how each one of them carries out the marketing of their bee products
> Discuss with them " Where does marketing start; at harvest time or with bee type, bee foraging etc?"

Marketing can be defined as carrying out of all operations and tasks that enable a beekeeper to sell bee products. It involves all those operations including: choosing the products, starting production, managing production, harvesting, handling, sorting, packaging, storing, transporting, processing, financing, associations, deciding how to sell, where to sell and when to sell, costing the marketing operations and sustainability.

1. *Choosing the product(s)* : This is where it all starts. This is the critical decision. The beekeeper must decide on what can be produced. The decision will be based on his or her experience with producing various bee products, what consumers want and importantly what may generate the most money.. For example will unifloral honey be accepted by consumers and will it earn more money than multifloral honey. Another example the beekeeper sees that propolis is accepted by consumers and that it receives a good price, but the beekeeper does not know how to produce it for commercial purposes. This will mean that the beekeeper will have to consider the time and labour of learning how to produce propolis with his hives, how to harvest, process and package

Think Point:
Think about he importance of choosing a bee product
Think about the fact that once you have made a decision it may be difficult to change once the bees have started to produce that bee product
Think about the time and labour required for the bee product and the money that you spend to produce that product
Think about how you choose a bee product.
Think about the money you make from the bee products.
Think about introducing other bee products
Think about if this would enable you to earn more money
Think about how this can be done. Do you need training? Do you know where to Sell?

2. *Marketing research* : marketing research can be very useful in marketing matters. It involves " finding out" numerous issues. For example " what do consumers like?" " what is the best way to sell?" etc. It usually involves asking questions and observing so as a beekeeper can learn and improve his or her marketing skills. For example simply talking to consumers may give a lot of information to the beekeeper on " what products to choose" to be produced that consumers will like to buy.
3. *Starting production* : Here the beekeeper must decide on foraging areas and equally important the bees he or her uses. It is not wise to import bees into a local area, for bees are "creatures" of habit and may not fit into the local natural setting. It is best to rear local bees that are accustomed to local nectar flows. This will in part avert against the risk of low productivity. It is also a first step, for those beekeepers who may be interested to produce organic bee products. The beekeeper has to also consider nectar flows in the local area and the type of nectars available and if hives need to be moved and transported, so as to enable bees to forage and / or produce a particular type of bee product, for example unifloral honey. The beekeeper will also to have to consider the presence of pollutants, such as chemical fertilisers, pesticides, fungicides etc. These can be very damaging to bees and bee products and also to consumers who eat the products. For example some bee colonies have been found to have high levels of intoxication and this has caused the demise of the colonies. It has been seen that bees loose their sense of "social community" and many colonies die off.
   Some beekeepers have reverted to a method of production that is referred to as organic. Organic production of bee products is based on nature and natural ways of producing. It provides for hard work and particular management of hives based on "guidelines" provide for by organic certification organisations. These organisations provide help for beekeepers, at a fee, but then enable the bee products to be labelled as organic. It may also enable the possibility of selling bee products in export markets and earning more money than selling it locally.

Think Point:
Think about the bees you use and how they fit into the local natural environment
Think about the rearing of bees
Think about the possible sources of contamination (pollutants) that can affect your bees and their products
Think about if you may or may not be interested in learning how to produce in an organic manner
Think about the fact that you will need training to produce organically and that this will require money to be spent and time
Discussion Point:
Discuss with other participants sources of contamination of bees and bee products
Make a list of possible contaminates
Verify with other participants if there maybe a beekeeper who is already producing in an organic way in the local area and can be approached

4. M*anaging production*: Importantly beekeepers here will have to carefully look after their bee colonies and insure that the best practices are used, so that the bee products produced are of the best quality. A good manner to go about this is that the beekeeper produces all bee products as if they were all destined for family consumption. This will enable the bee products produced to have a good quality. This good quality of bee products in markets will possibly enable higher prices to be earned.
   In the case of organic production, beekeeper are required to follow a set of guidelines in his or her management practices. An example of these guidelines are given at the end of this article.

Think Point :
Think about how you manage your hives
Think about the fact that selling bee products of high quality will enable higher prices
After having read the organic guidelines think about how this may change your current hive management practices.
Consider the advantages and disadvantages of managing hives in such a manner and production
Consider how these guidelines may affect your harvesting, processing of bee products
Consider the money that you may have to spend and the time devoted to this new practice
Discussion Point:
Discuss with other participants, after having read the organic guidelines, the advantages and disadvantages of such a production method. List the possible changes that will have to be made to current production practices

5. *Harvesting* : In harvesting bee products bee keepers will have to use appropriate methods so that bee products are not damaged or ruined by harvesting. Bad harvesting methods can seriously compromise bee products and can affect bee products price at market level

> *Think Point:*
> Think about how you harvest your bee products
> Think about how proper harvesting will affect the quality and marketing of your bee products
> *Discussion Point:*
> Discuss with other participants the various harvesting methods that are used with all the participants
> Write down the various harvesting methods discussed

6. *Handling* : Harvested be products must be handled carefully. Careful handling can mean that for example honey comb are not damaged by dropping them, allowing them to be left in direct sunlight, exposed to insects etc. Handling also has to be carried out carefully in all operations of loading and unloading bee products. Loading bee products into an animal driven cart or into storage has to be done carefully as well as unloading an animal driven cart or a storage facility.

> *Think Point:*
> Think about all handling operations that are involved in producing, processing and marketing bee products
> Write down all the handling operation that you conduct
> Think about how handling operations can be improved
> *Discussion Point :*
> Discuss with participants the importance of careful handling
> Discuss how handling can be improved in the production, processing and marketing of bee products

7. *Sorting* : Bee products need to be sorted according to what the market requires. For example unifloral honeys may be sorted into one box and multifloral honey sorted into another.
8. *Packaging* : In sorting, bee products need to be placed in packaging. Importantly packaging must be clean and free from odours. There are two types of packaging. Packaging for storage and transport reasons and packaging for final sales to consumers. Typically at harvest time bee products are put into one type of packaging, for example buckets, glass jars, boxes etc. The packages are then transported to processing and / or sorting areas where bee products are sorted according to type, size etc. The bee products once processed and / or sorted can then be put into smaller packages such as jars, bottles etc and then put into transport boxes for loading in carts or being put into storage. Importantly whatever the packaging it will have to protect the bee product , keep it clean, uphold the quality of the bee product and be able to withstand handling and transporting to final destination.
   Packaging destined to be used to sell bee products to consumers must also be attractive. It must " look" nice and encourage the consumer to buy.

Think Point:
Think about your current packaging practices
Think about how the various packaging, for transport, for sale, can be possibly improved, so as to uphold quality
Think about how packaging can be improved so as to attract more customers
Discussion Point:
Discuss with other participants how each one of them packages their bee products; for transport , for sale
Write down the various methods used

9. *Storing* : Usually bee products have to be stored before they are sold. Depending on the nature of the bee product, storage can alter the bee product. For example processed honey may crystallise and this may be unacceptable to consumers. With whatever bee product , what is important in storage is that storage upholds the original quality of the product and its market destination. Storage facilities must be appropriate for the type of bee product, for example for processed honey, cool storage conditions are required. Storage should protect from theft, be clean and avert damage to bee products such as humidity, water, heat, pests, moulds etc. Storage can also be a very good method of obtaining higher prices for bee products. At harvest time ample supplies of bee products maybe available and this means a low price. Bee products can be stored and sold at times when the price for the products is higher. However storage can bring quality problems to bee products and if bee products falls below accepted levels the loss in money terms may be high. Importantly the cost of storage must be considered and how this may increase costs and hence obtaining less profit at the moment of sale, even though the prices may be higher. Clearly before putting bee products into storage, future prices must be understood.
10. *Processing* : Some bee products need to be processed before they can be sold, for example propolis and fluid honey. For example after harvest honey destined to certain consumers may have to be processed, for consumers do not like honey comb. Great care must be taken in all processing operations, for the quality and hence the price of the bee products can be altered. For example bad honey processing can cause honey fermentation. In other instances processing may be a good and cheap way of storing products. For example processing honey from honey combs into jars. Further it may also be that consumers require and prefer processed honey. For example consumers may prefer processed honey more than honey comb. Processing does take time and money, but it can possibly ensure for higher prices. For example 1 kg of processed honey may be sold at $2.50; 1 kg of honey comb may be sold at $1.

Think Point :
Think about how you process bee products
Think about how organic bee products are processed
Compare the two methods
Think about how processing can be improved
Discussion points:
Discuss with other members how they process bee products
Write down the various methods
Discuss with other participants possible improvements that can be used in processing methods

11. *Transporting* : Bee products may have to be moved from the bee farm to storage facilities, to wholesalers or retailers to the local village market etc. Whatever transport used, be it by cart, truck, train or " on hoof" , it must be adequate in upholding the quality of the bee products. For example if processed honey is exposed to excessive heat, it may well ruin. Transport conditions must also be appropriate, for example transporting to many honey jars in one basket may cause for the basket to break or the jars to crack. Adequate provisions have to be made. Importantly the most appropriate method of transport must be found and also how long it will take for bee products to be delivered. For example if a beekeeper dispatches honey comb to the local village with an animal driven cart and the animal driven cart arrives late for the early morning market, the beekeeper will have lost important time for sales of his product. Importantly what has to be understood is what are the conditions of roads, water ways etc that are used by the transport vehicle. Transport costs have to be carefully considered.

> *Think Point:*
> Think about how you transport your bee products.
> Think of alternative transport methods and their various advantages and disadvantages
> Think about the advantages and disadvantages if transporting bee products with other producers bee products
> *Think point :*
> Discuss with participants the various transport methods that can be used
> Discuss with participants the advantages and disadvantages of each transport method
> Write them down
> Discuss the advantages and disadvantages of collective transport arrangements

12. *Financing* : Any business activity needs to have money. This is necessary to be able to pay for such things as bee farm tools, hives etc. However beekeepers have sometimes difficulty in finding the necessary money to be able to pay for all the expenses. This is typically because beekeepers have to pay for raw materials,(such as wood to build hives, cloth for staining honey etc) initially and then wait quite some time to able to sell the bee products. Money made from sales in the previous harvest can be of great help. Importantly part of the money earned should be saved, so as it can buy the required resources required for the next production cycle. Money can also be borrowed and there can be many sources.

Money as all other products has its costs. The cost of borrowing is called interest rate. This is the cost that the beekeeper has to pay for using money to finance production and marketing. Importantly beekeeper has to work out how much money has to be paid back and when. Also what has to be considered is how the payback period will affect money in pocket, the liquidity of the business.

Money can be obtained from family members, such as close and distant relatives. Money is easily accessible and interest rates can be low. Money can also be borrowed from money lenders. They are often the only source of money in an area and can charge quite high interest rates, but they are easily accessible. Banks are also available for loans, but typically banks are not interested in very small loans and demand beekeepers' property as a guarantee. But banks ask low interest rates and charge rates well below that of money lenders. A rural trader or a processor or wholesaler or retailer can be good sources of money. They may be willing to lend money for it will ensure them supplies and it will create a good working relationship with the

beekeeper. Importantly small scale businesses have to be sure about the interest rate and payback periods. It may also be possible to pay back the amount owed with part of the crop or livestock produced. But this must be agreed with previously with the lender.

A very good source of money for borrowing can come from non governmental organisations (NGOs) that help small businesses develop. These are called micro finance institutions (MFIs). Some of them organise small scale producers into formal or informal associations. The associations are given a small amount of money to start with. The association then lends money to its associates at very good interest rates. Terms of pay back and the low interest are all clearly stated by the associations rules. In many developing countries this has proved to be the best method of getting money to finance production and marketing

Think Point :
Think about how money is spent and earned in the beekeeping activities you carry out
Write down what money is spent and how money is earned
Think about the bee products that earn you most money
Write them down
Think about what happens to money between harvesting seasons
Think about possible sources of money that you may possibly need to borrow
Think about the advantages and disadvantages of saving money
Write them down
Discussion
Discuss with other participants the importance of money
Discuss with other participants the advantages and disadvantages of saving money
Discuss possible sources of borrowing money and the advantages and disadvantages of each

12 *Associations* : Sometimes in production and marketing beekeepers unite together, in formal associations , like cooperatives or in informal associations, such as marketing groups or production groups. Pulling resources together can be very advantageous for small scale businesses. The size of the association may for example enable banks to lend larger sums of money that they would other wise be unwilling to lend to single members of the association. Associations can also bring advantages when buying raw materials. More raw materials are bought at one time, for example bee farm tools, hence prices could be lower. Also associations can give better negotiation power with rural traders, processors, wholesalers and retailers. Having more bee products and more people involved helps in negotiation. It can also give the opportunity to sell to larger buyers, such as urban supermarkets. Importantly associations can generate good marketing research information. Having many people involved, each person can pass on information, for example on prices in various markets. Importantly such activities as processing and transport can be done also by the association. Costs will be less and advantages will be more. For example, a single beekeeper buys a simple processing hand operated honey extractor it would have a high cost for the single beekeeper. Further the quantities processed would be small, not justifying the initial purchase. On the other hand if a simple hand operated honey extractor is bought by the association, the large cost would be divided among the participants and it would allow for honey comb to be processed in greater quantities and at a lower price. In the case of transport, associations may still provide advantageous. The cost of hiring truck space, for example, to take bee products to market can be divided among the participants in the association.

Importantly though associations have to be kept in place. Members must avert disagreeing and arguing over decisions taken by other members. This requires that rights and responsibilities are clearly defined at the formation of the association. All members must be free to participate and importantly communicate among each other. It is important that the costs of the association are not to high and that the association is created to fulfil specific goals. For example an association can be formed to carry out borrowing, transporting and selling. Vitally the association should not have to many functions.

Think Point:
Think about the advantages and disadvantages of association
Discussion point :
Discuss with other participants the advantages and disadvantages of association
Write down all of the participants opinions and views

13. *How to sell* : Beekeepers must decide how to sell there bee products. They may sell bee products directly to final consumers at the local village market, or on the road side. It may also be possible to sell bee products to a rural trader, processor or wholesaler or retailer. Importantly what has to be considered here is which method will provide the most advantages for the small scale business. In other words, which method will guarantee the best possible prices for the bee products. For example bee products may in part be sold to a processor, in part to a wholesaler and in part sold directly to final consumers at the local village market. Combinations of selling methods can be many. Importantly though it has to be remembered that how to sell bee products can be changed over time. For example if bee products were being sold to a processor and at a road side stall, this over time may become unproductive, in other words prices obtained for bee products may be lower than in other methods of selling. This requires that small scale businesses are always on the look out for more profitable selling methods.

Think Point:
Think about how you sell your bee products
Think about the advantages and disadvantages of each

14. *Where to sell*: Beekeepers have to decide where to sell there bee products. For example if the beekeeper wants to sell to a processor, it may be important to find the processor in a good location. This could mean a processor that is near by, or it can mean a processor that is further away, but may offer better prices. Selling in the local village market may be good, but maybe selling in urban markets may command higher prices. Choice of where to sell must be based around prices achieved for bee products and the costs to reach such a location. For example selling at a village market may cost little in terms of transport and setting up a stall. In urban cities the cost of transport may be higher because it is further away from the business and fees may have to paid for setting up a stall. In urban markets prices may be higher , but also costs may be higher.

Think Point :
Think about where you sell your bee products
Think about the advantages and disadvantages of each

15. *When to sell* : Importantly beekeepers must decide when to sell their bee products. For example at harvest time prices usually are low. This may cause the business to sell part of the bee products at a low price and store for later selling at possible higher prices.
16. *Costing* : Buying raw materials, producing and marketing bee products all involves costs. This is making payments initially to buy such things as wood, tools, hiring storage space, transporting, processing etc. These payments are referred to as costs. Very importantly for a beekeeper to survive he or she have to earn a profit. Profit is the difference in money terms between what price the produce has been sold for and the costs, the money payments made, that it took to produce and market the bee products. It is useful to divided costs into two kinds; variable costs and fixed costs.

Variable costs are those that change when production or marketing increases. Variable costs occur only if something is produced or marketed. For example if more honey is meant to be processed and handled for selling this will required that more labour be hired for processing and handling . Labour is a variable cost it will increase with the increase in processing and handling. Typically variable costs are labour, packaging etc.

Fixed costs are those that do not change with an increase in production or marketing. Fixed costs remain the same regardless of production and marketing. For example fixed costs can be the costs of hives, a simple processing honey extractor, a shed for storing farm tools, etc. The cost had been made regardless of how much or how little it will be used.

It is vital that beekeepers keep track of all their costs and actually keep written records of their costs. This will help the small scale business understand once bee products have been sold if they are making a profit. What also should be noted is that all costs must be calculated. For example while in marketing some bee products may be lost, due to theft or deterioration while in transport; this loss of bee products must be calculated and considered as a cost. It may also be that unofficial payments have had to be made on the way to market and also these have to be considered as costs.

Think Point :
Think about all your costs (money you pay) to produce and market bee products
Write down all your costs
Think about how you can reduce your costs
Discussion points
Discuss with other participants costs fro producing and marketing bee products
Discuss with other participants ways in which costs can be educed

17. *Sustainability* : In all marketing activities, it is important to operate in a sustainable manner. Sustainability means that beekeepers think about their surrounding natural environments, their products and on reducing costs. Beekeepers need to think that foraging bees rely on nectars. Nectars are the basis of all " bee food" as is pollen. If these are contaminated with

pollutants, thus can only but result in damage to the be colony and also tot the bee product. Allowing bees to forage in areas that are free from chemical pesticides, fertilisers, fungicides, urban pollution, clean water sources etc is a way of ensuring and preserving the bee colony and the natural environment. Bees provide a good deal of " services", such as pollination to plants and trees and are vital for the natural environment.

Beekeepers need to avert contaminating products, for example organic methods require that bees cannot be smoked during harvest time with chemicals. The reason for this is that chemical smoke will be absorbed by the honey and render the honey of an inferior quality and will not be able to be qualified as organic. Even if production is not organic, bee products must be free of contaminations. For example processed honey absorbs odours and due to its stickiness have foreign particles in it. It is important that these contaminates are averted.

All activities such as harvesting, processing, storing, transporting etc and all the handling involved must ensure that materials are not wasted or used inappropriately. For example it is good to keep on using over and over again the same hives, the same buckets for harvesting etc. This will save money for the beekeeper and ensure that waste is averted. Importantly materials used over and over again will have to be carefully cleaned and looked after. Further , for example asking consumers to return honey packaging for " filling again" not only saves the beekeeper money, but also may ensure that consumers will come back over and over aging and buy from the same beekeeper.

Think Point:
Think about the natural environment that surrounds you
Think about the various contaminates that may be present and write them down
Think about the advantages and disadvantages of recycling
Think about how costs can be reduced
Think about organic production of bee products
Discussion Point :
Discuss with other participants how the natural environment has changed or not changed in the past years
Discuss possible sources of contamination of the natural environment and write them down
Discuss the advantages and disadvantages of organic production of bee products and relative processing etc

In marketing, beekeepers have to understand a wide range of issues such as which markets to sell in, what transport to use, whether or not to put bee products in storage, what are consumer tastes, what prices can be expected etc. Clearly all these issues will require decisions to be made by the beekeeper. These decisions may be risky and may bring about great uncertainty. Typically a wrong decision can ensure that a bee business may have problems, such as not being able to sell bee products, lack of money etc. A manner of reducing such risk for beekeepers is ensuring that they understand marketing has the same importance as bee keeping itself: production of quality bee products will have little value if bee products are not marketed properly; good marketing will have little value if the production of bee products is of low quality.

Think Point :
Think about how you market your bee products
Think about all the activities involved in marketing of bee products as described by this article
Compare the similarities and differences between how you market your bee products and what the article describes; write down all the activities that you carry out for marketing on one piece of paper and then write down the marketing activities as described by the article
Discussion Point :
Discuss with other participants their methods of marketing
Discuss with other participants marketing as described by this article
Discuss possible improvements that could be made to marketing as carried out by all participants
Discuss the advantages and disadvantages of changing marketing methods

An Example of organic standards for organic bee products: Naturland Standards (Germany)

1. **Location of the colonies**
Uncultivated or organically farmed land is to be chosen when installing the bees. The location must be such that a guarantee can be given that no significant deterioration of the bee products by contamination from agricultural or non-agricultural sources of pollution can be expected within a radius of 3 km of the hive.
If suspicion exists that the beekeeping produce may be contaminated to a degree greater than that which can be expected from the general pollution of the environment, tests may be required. If suspicions are confirmed, then the location has to be abandoned and the bee products may not be marketed under the Naturland® logo. This also applies if colonies are situated in areas which the authorities have designated as being unsuitable for organic agriculture. Honey foraged from plants under conventional cultivation beyond unavoidable quantities (e.g. single-source honey varieties from intensive conventional crops) may not be sold with reference to Naturland or under the Naturland® label.
From an organic point of view, it is preferable to keep the colonies in one location all year round. If it is necessary to move the location because forage is not available all year round and all in one area, care should be taken that the right moment is chosen, so that the colonies are not weakened by, for example, lack of food.
At each location only as many colonies should be installed as can be sustained by the supply of pollen and nectar available.
If the location is changed, the location of the colonies should be recorded on a migration plan (map), showing also the dates, the place (name of the field or plot), pasture and number of colonies.

2. **Hives**
With the exception of connecting sections, small elements, roof covering, mesh flooring, feeding equipment and roof insulation, the hives are to be constructed of natural materials such as wood, straw or clay.
2.1. Treatment of the hives
External treatment of the hives is permissible if natural, not synthetic, means are used. Pesticide-free paint on the basis of natural matter (e.g. linseed oil or wood oil) as well as glues as free as possible of harmful substances are permissible for external treatment. Internal treatment of the hives is prohibited, except with beeswax, propolis and vegetable oils.
Hives which already exist and which have been painted with harmless materials can be re-used after approval by Naturland.
2.2. Cleaning and disinfection
Cleaning and disinfection can be performed with heat (flaming out, hot water) or mechanically.

In the case of acute infection, NaOH-solutions are permissible to disinfect the hive and to clean it out, if they are then neutralised by organic acids. The use of other chemicals is not permitted.

3. **Wax and honeycombs**

In natural beekeeping, the continual renewal of the wax by the bees' own means, is to be aimed at. The colonies should be given the opportunity to construct natural honeycombs on several supers. Septums, starter strips and other wax products may only be made from wax originating from beekeeping which is certified by Naturland or complies with any certification accepted as equivalent by Naturland2. Plastic septums are prohibited.

2 In case of unavailability (the manager is obliged to supply disclosure and proof) wax which has been produced in accordance with the regulation (EEC) No 2092/91may be used.

By the end of the conversion period, the wax must have been produced by organic beekeeping methods or be of equivalent quality. This condition can be met by the honeycombs already produced by the colonies (i.e. if it can be proved that former treatment measures were harmless), by exchanging the combs completely for such made of harmless wax, or by wax renewal by own means. By termination of the conversion period the non-existence of residues in the wax has to be proved by an analysis (collective sample). Converted frames and hives are to be marked clearly as such.

If wax from organic beekeeping is not available, uncontaminated beeswax from cappings or of a higher quality (e.g. wax from natural honeycomb construction) may be purchased, if a test can prove that it is free of noxious substances. In particular there should be no residue present indicating the use of chemicals forbidden by Naturland's standards in combating varroa or wax moths. Records must be kept of any wax purchased.

The wax may only be obtained by heat. It may not come in contact with solvents, bleaches or other additives. When the wax is processed, only instruments and containers made of non-oxidising materials may be used.

Combs should be stored at low temperatures and well ventilated. It is permissible to use thermal methods, acetic acid or bacillus thuringiensis preparations to keep the combs hygienic.

4. **Feeding**

It is permissible to feed the bees, provided this is necessary for the healthy development of the colonies. As far as the farm's situation allows, the bees should be fed with honey from its own apiaries.

It is only permissible to feed sugar or sugar syrup to tide the colonies over the winter and to stimulate brood rearing. The feed must be of organic origin. In order to guarantee that the sugar is sufficiently inverted, at least 10% of the winter feed must be in the form of honey left in the combs or supplemented to this level.

To avoid adulteration of the honey by remains of the winter feed, it must be removed before the bees start foraging again.

If there is a time of need or interruption in the availability of forage, then it is permissible to feed only honey which is certified by Naturland or complies with any certification accepted as equivalent by Naturland3. It is forbidden to feed pollen substitutes.

5. **Beekeeping practice, breeding, increasing stocks**

It is a principle tenet of organic beekeeping that the bees be treated as gently as possible. The use of synthetic
chemical means to pacify or expel the bees is prohibited. The use of smoke should be reduced to a minimum. Natural materials (e.g. wood, dried vegetable parts) or products from natural materials (e.g. olive seed pellets) are to be preferred as smoking materials.

It is forbidden to mutilate the bees e.g. by clipping their wings.

It is permissible to remove part of the brood of drones in order to keep varroa under control.

The hives of each of the bee colonies have to be marked distinctively and the colonies to be listed in an inventory.

The aim of breeding is to produce bees which are adapted to the local organic situation, of a robust constitution
and tolerant of varroa. Preference should be given to European strains of apis mellifera and their locally occurring organic varieties. Genetic engineering and the use of genetically manipulated bees is prohibited.

Preference should be given to natural breeding and reproduction methods. The swarming instinct is to be taken into account.

Stocks should be increased by taking advantage of the bees' swarming habits. It is possible both to anticipate

swarming by creating an artificial swarm and dividing the remaining colony to increase stocks further, as well as to re-unite anticipated swarms.
Artificial insemination may only be performed in breeding operations and with Naturland's approval.
Care must be taken not to injure the bees when gathering pollen. The holes in the pollen comb should round for preference.
3 In case of unavailability (the manager is obliged to supply disclosure and proof) honey which has been produced in accordance with the regulation (EEC) No 2092/91may be used.

6. **Health of the bees**
A bee colony should be reared in such a way that it is capable of correcting any imbalances by itself. The measures employed in organic beekeeping are designed to retain and promote the natural curative powers and the vitality of the bee colonies. The use of synthetic chemical medication is prohibited.
In cases where they are allowed under EC Regulation No. 2092/91, the following methods and substances may be employed to combat the varroa mite:
_ lactic acid
_ formic acid
_ acetic acid
_ oxide acid
_ herbal teas
_ essential oils[4]
_ biological technical and physical methods (e.g. use of heat)
Any treatment of commercial colonies is only permitted during the period after the last honey harvest until up to 6 weeks before nectar flow begins.
Naturland must be informed of any treatment prescribed by the authorities with substances not listed above. Products from colonies thus treated may not be marketed under the Naturland® label. When the treatment has been concluded, the colonies are subject to the conversion procedure (ref. 9. Labelling).
All treatment measures have to be recorded in a treatment book.

7. **Brought-in bees**
It is only permissible to buy colonies or queens from sources which are certified by Naturland or comply with any certification accepted as equivalent by Naturland[5].
Purchased colonies may not be contaminated with substances the use of which is forbidden under Naturland's
standards.
It is permissible to capture foreign swarms provided they do not make up more than 10% per year of the existing stock. This regulation also applies to the purchase of queens from conventional origins. Where severe losses have been sustained, Naturland may make an exception to this rule.
If colonies from conventional sources are added to the farm, they are subject to the conversion procedure (ref. 9. Labelling).

8. **Extraction of honey, storage**
In organic beekeeping, attention must be paid to all aspects known to ensure the best quality, according to the principles of carefully applied and well-established practice (maturity of the honey, no brood in the combs, working with materials approved in foodstuffs) when extracting the honey.
The honey's valuable ingredients should be altered as little as possible during the processes of extraction, storage and conservation.
4 In order to avoid residues in wax and honey, essential oils (e.g. thymol preparations) may only be applied during the period after the last honey harvest until up to 12 weeks before nectar flow begins. The duration of the application must not be longer than 8 weeks.
5 In case of unavailability (the manager is obliged to supply disclosure and proof) colonies or queens which are kept in accordance with the regulation (EEC) No 2092/91may be used.

8.1 Removal of the honeycombs
The bees must be removed from the honey as gently as possible (e.g. using vibrators, escape boards, brushes or fans). The use of chemical repellents and killing the bees to facilitate honey harvesting is forbidden.
8.2 Extraction of honey
The equipment and vessels used in the extraction of honey by spinning or pressing have to be such that the honey only comes into contact with materials approved for use in the processing of foodstuffs (e.g. stainless steel, glass, non-contaminating plastics).

The measures employed and the relevant data on the honey harvest (when the combs were removed, date of spinning, amount harvested, pasture) have to be recorded.
During spinning, straining, filtering and conservation, or if the honey crystallises, it may not be heated to more than 38° C. The temperature has to be measured regularly.
Filtering under pressure is prohibited in all forms. Low pressures such as those which occur in normal operation (e.g. when pumping) are permissible.

8.3 Storage and conservation

Only vessels of non-contaminating materials (e.g. stainless steel, glass) may be used. The honey must be stored in a dark, cool and dry place.
Whenever possible, the honey should be filled into jars before it becomes solid. Recycling jars must be used. The admixture of raw materials not produced according to these standards must be excluded.

8.4 Measurable quality of the honey

In addition to the legal stipulations, the following criteria must be fulfilled:

- water content, measured by the AOAC method, max. 18% (heather honey 21.5%)
- HMF (= Hydroxymethylfurfural)-content, measured according to Winkler, max. 10 mg/kg[6]
- invertase index, min. 10 (Hadorn-/Gontarski unit). In the case of honey from acacia, lime trees and phacelia, min. 7 (analyses according to AOAC = Association of Official Agricultural Chemists).

As a general rule these criteria will be met if the honey has been produced according to these standards and the honey extracted only from sufficiently capped combs or parts of combs. It may be necessary to have the honey analysed. In borderline cases, the HMF and invertase have to be examined concurrently.
Honey which does not meet the quality criteria with regard to its content of HMF, enzymes and water, may only be sold under the Naturland® logo as honey suitable for industrial processing.
No traces of chemotherapeutic drugs should be found in the honey indicating forbidden methods of treatment.

6 Exceptions are possible for special climatic conditions which do not allow compliance with this regulation