HARVESTING IRELAND'S HERBAL ASSETS: THE ROLE OF CO-OPERATIVES

ucc

Coláiste na hOllscoile Corcaigh, Éire
University College Cork, Ireland

NIKKI DARRELL Bsc (Hons), MNIMH, MIFA

October 2008

Submitted in partial fulfillment of the requirements for
the degree of MBS in Co-operative and Social Enterprise

Centre for Co-operative Studies and Department of Food Business and Development
National University of Ireland,
Cork

HEAD OF DEPARTMENT: PROFESSOR MICHAEL WARD

Supervisors: Professor Michael Ward and Noreen Byrne

For my parents John and Yolande,
and my children Lucy and Joseph

Acknowledgements

I would like to thank all the tutors and my fellow students on the course for making the experience of studying both enjoyable and challenging. I would especially like to thank my supervisors, Noreen Byrne and Michael Ward for their valuable input and support in the writing this thesis. I would like to thank my friend and proof reader par excellence John Maguire for his support in writing this thesis. Finally I would like to acknowledge the plants without whom life on this planet would not exist.

TABLE OF CONTENTS

ABBREVIATIONS

API	Active pharmaceutical ingredient
EUROPAM	European Herb Growers Association
GAP	Good agricultural practice
GACP	Good agricultural and collection practice
GMP	Good manufacturing practice
GMO	Genetically modified organism
GO	Governmental organization
HCDA	Humla conservation and Development Association
HOPL	Humla Oil Pvt. Ltd.
IBEC	Irish Business and Employers Confederation
ICOS	Irish Co-operative Organisation Society
IOF	Investor-owned firm
MAP	Medicinal and Aromatic Plant
NGC	New Generation Co-op
NGO	Non-governmental organization
OTC	Over-the-counter
REPS	Rural Environmental Protection Scheme
TAROMED	Tafilalet Aromes Mediterranee
TMHPD	Traditional Medicinal Herbal Products Directive
UNTCTAD	United Nations Conference on Trade and Development
WHO	World Health Organisation
WTO	World Trade Organisation
WWF	World Wildlife Fund

CHAPTER ONE INTRODUCTION

1.1 Introduction

Over the last five to ten years the growth in sales of products containing natural plant ingredients has been exponential in the food, natural medicines, cosmetic and other sectors both internationally and in Ireland. Yet, the majority of products sold here are imported and the majority of ingredients used by the few manufacturers based here are imported. The growth in sales has not resulted in a revival or growth of the medicinal and aromatic plant industry, either at the cultivation or manufacturing level. In other countries governmental and non-governmental agencies have responded to the growth in the market by bringing together the various stakeholders in the sector to ensure that raw materials are cultivated and wild-harvested sustainably, processed locally and marketed in the home and export markets to help ensure environmental, economic and social sustainability for rural populations and to help these populations stay on the land. In these regions co-operatives have often been used as the most appropriate structure for organizing the industry. Therefore, the objective of this thesis is to examine the profile of the Medicinal and Aromatic Plant (MAP) industry in Ireland, concentrating on the herbal medicinal sector of the industry. It will review the main issues in the industry on a global level, examine which are relevant in Ireland and research what barriers to growth are being experienced by the industry in Ireland. It will then examine the potential of co-operative approaches to further the growth of the MAP industry in Ireland.

1.2 What is the MAP industry?

The Medicinal and Aromatic Plant (MAP) industry encompasses the cultivation and wild harvesting or wild-crafting of plants with medicinal and aromatic properties and their processing into products of various applications in the medicinal, cosmetic, food and other sectors. Wild-crafting is the harvesting of plants from their natural habitat, rather than producing them by cultivation, although plants can also be wild-crafted from areas such as hedgerows and other habitats on organic farms and are not necessarily taken from the ‘wilderness’.

De Silva and Attal (1995) comprehensively review the potential uses of plants in the current carbon cycle as raw materials for pharmaceuticals; as active pharmaceutical

ingredients (API) for human and veterinary medicines; herbal medicinal products and herbal teas; homeopathic medicines; aromatherapy (as essential oils and carrier oils); development of new drugs; cosmetics and toiletries; inks, dyes and pigments for the printing, fabric and paint industries; cleaning products; alternative polymers to those made from oil; fibres for textiles, ropes etc.; solvents; glues; paper; insecticides; health foods and nutriceuticals. Lange (2006) mentions other uses, including dietary supplements, varnishes and flavourings for sweets and spirits. In addition to their uses in manufacturing, plants are used in many countries for folk medicine (an estimated 50 000 - 70 000 species worldwide). The World Health Organisation (WHO) estimates that 80% of the world's population depends on (rather than just uses) herbal medicines (Arekele, 1992).

1.3 The International MAP industry

Several authors have reviewed the MAP industry with regard to consumption, production, conservation and the future of the industry (Craker, 2003; Hoareau and DaSilva, 1999; Lange, 2004, 2006; Hamilton, 2003, 2005) and these authors have all presented a similar picture of the industry. The first point they make is the increased demand for MAP materials and products throughout the world. This increased demand is occurring in the developed, transition and developing worlds. In the developed world more people are moving towards organic produce and products manufactured from natural ingredients. The increase in sales of such products for health care, cosmetics and medicines, as well as for food and flavouring, has been exponential. There are several reasons for this which include concerns about environmental damage caused by many synthetic products and their manufacture; concerns about detrimental effects of synthetic pesticides and fertilizers to the health of humans, animals, plants, insects and soil; and health concerns relating to the effects of pharmaceutical products on the consumer and the environment. At the same time pharmaceutical companies have engaged in bioprospecting and biopiracy in the search for new plant-derived drugs and have entered into the lucrative 'natural medicines' market, placing a strain on the resources traditionally used for health care in regions such as Polynesia (Kava Kava), Africa

(Pygeum, Hoodia cactus, Devil's Claw), India (Neem), Madagascar (Madagascar periwinkle), Europe (Arnica), USA (Echinacea), Mexico (Enola beans).

In the developing and transition worlds there is also a rise in interest in using medicinal plants. The main reasons are the rise in cost of prescription drugs and of Western medicine, especially in areas where population growth is occurring; a renewed recognition of the value of traditional systems of medicine and their value in healthcare and social sustainability; recognition of the potential of sustainable harvesting of MAP species and their local process into valued-added products as a means of providing economic sustainability for marginalized groups, whilst enabling conservation of valuable habitats. (Hoareau and DaSilva, 1999).

With the increase in demand created by these factors the net effect has been a huge growth in demand for MAP crops, with a resulting potential for these to be explored as alternatives crops. The move towards exploring the cultivation of these crops has also been fuelled by concerns about the sustainability of current wild harvesting practices and erosion of biodiversity as will be discussed later in this chapter.

1.3.1 Major consumers and producers in the international MAP market

According to Lange (2006) the trade in MAP plants and products is dominated by a few countries, with twelve countries making up about 80% of both imports and exports. There are three international trade centres; Germany for Europe, USA for North and South America, Hong Kong for East-and South-east- Asian markets. Japan, USA, Korea, Germany and France are the biggest consumer countries. China, Mexico, Bulgaria, Chile, Egypt, Morocco and Albania are the leading sources for raw materials. Thus, it can be seen that the major markets are in the developed world, whilst the bulk of exports are from developing countries. Lange also states that the bulk of internationally traded material is in its raw state or has only undergone minimal processing and that most of it is of wild origin. Lange states that

> *' The benefit for source countries is relatively low due to the fact that value-adding takes place in the consumer countries and trade centres.*'

This has led to many regions exploring the possibility of the producers vertically integrating in the business chain to give a better return for the wild crafters and growers.

Lange does not include a discussion of regions where MAP crops are grown and processed for local use in traditional medicines where growth is also being experienced in the industry. In these regions, where the MAP industry plays a traditional role in the economy it is especially important for the more marginalized groups in society such as women, shepherds and subsistence farmers.

1.3.2 Structure of business in different regions/countries

Due to the labour intensive nature of harvesting and the fact that often MAP growers and harvesters are from more marginalized sectors, co-operatives have been used in many regions as a way of organizing the industry, to prevent unsustainable harvesting and to enable vertical integration in the MAP business chain to improve economic sustainability. Alongside the co-operative structures there are small to medium-sized businesses producing valued-added products and small producers selling to wholesalers or manufacturers. In addition, there are small scale farmers and collectors supplying multinationals, who often place unsustainable demands on the crop and attempt to patent constituents, without giving any remuneration to the local people - biopiracy. Due to the ecological and economic consequences of over-harvesting, in a large number of regions governmental bodies and NGOs are getting actively involved in setting up co-operatives and local processing initiatives, ensuring that all the local stakeholders are involved and that outside interests give proper remuneration and property rights to the local region and it's peoples. Some examples where co-operatives have been used include:

Grenadian nutmeg growers have used a co-operative approach to develop a highly successful industry for the export of both the raw dried material and value added products, with Grenada being the second largest producer of nutmeg in the world after Indonesia, despite the country's small size; Bulgaria which is one of the major MAP producers in Europe (Lange D. and Mladenova M., 1998); the Nordic countries which have used a co-operatives structure for caraway spice production and the MAP industry development (Galambosi, B. and Dragland, S., 2002); the Netherlands where MAP growing is mainly managed by 3 co-operatives with another co-operative being responsible for marketing of MAP crops (Van der Mheen, H., 1993); the Uttaranchal region of India co-operatives have been set up with the encouragement of governmental

organisations to encourage sustainable gathering of MAP species (Van de Kop et al, 2006); Morocco where the MAP industry has a number of co-operatives, but there are also small farmers, collectors and private processing companies (Kenny, 2002); Albania where Novib support a project in the region of Shllak to develop permaculture which includes the establishment of a co-operative for herbs which intends to export under an organic label (Peculi, V. 2002); the Saw Palmetto industry in Florida which is divided between a co-operative and private enterprise.

1.3.3 Sustainability

Many authors discuss the importance of addressing sustainability in the MAP industry (e.g. Mathe and Mathe, 2008; Hamilton, 2003, 2005; Lange 2004, 2006; Hoareau and Da Silva, 1999; Craker, 2003; Brinckmann, 2004). The majority of botanicals or MAP species are still wild-crafted (Lange, 2006). Due to the fact that plants are taken from the wild population the MAP industry has been highlighted as one that raises concerns regarding biodiversity and sustainability (Hamilton, 2005). In most cases problems of over-harvesting, habitat degradation and loss of plant biodiversity arise due to the low return given to the producers by the manufacturers. Endangerment of species occurs when large businesses offer low prices for the raw material for export, which is then processed in the developed world into high value manufactured products to meet demand in the pharmaceutical and herbal medicinal product markets. Examples of species coming under pressure include *Piper methysticum, Harphagophytum procumbens, Guaiacum officinale, Pygeum sp., Echinacea sp., Arnica montana, Taxus sp*. (Hamilton, 2005). Further problems arise when traditional harvesting processes are not followed and unskilled harvesters use destructive methods of gathering, causing the destruction of the plant or its' habitat. Problems also arise when habitats are destroyed by non-sustainable practices such as logging, agribusinesses, land drainage, or overgrazing. Over harvesting may also lead to the genetic diversity of a species falling below a sustainable level.

However, the MAP industry is also cited as a way to help conservation, protect biodiversity and provide a sustainable livelihood for farmers and landowners moving towards a more conservation-minded approach to producing crops and managing the land. In addition it is seen as a way of supporting traditional ways of life, folklore and

cultural heritage, such as traditional systems of medicine (Janis, 2001; Wickramasinghe, 2001).

Thus, the MAP industry may either be a cause of degradation and environmental disaster or can be part of a conservation plan and a technique to protect biodiversity. This depends on the approach taken by the industry and its stakeholders.

The various authors recommend that GACP (Good Agricultural and Collection Practice) guidelines should be followed and that collectors receive proper training in sustainable harvesting. Secondly, in order to decrease pressure on plant populations value-added products should be produced in the country of origin. Also, MAP wild resources are not drawn evenly across the world and this leads to over–exploitation in some regions to service the demands of the areas of low production and high use. Therefore, there needs to be an expansion of cultivation and collection in the areas of highest use and a revival of the MAP industry throughout the world to ensure that populations in specific regions are not put under undue pressure. In addition, the authors conclude that when local stakeholders work together with government agencies, NGOs and other parties, the potential of developing industries that can give economic sustainability, particularly to marginalized groups becomes realized. This approach allows peoples to remain in contact with their environment, their culture and social structure and fosters good environmental management; it is in the interest of those involved to ensure the long term sustainability of production, since the returns in economic and social sustainability gained by proper environmental stewardship can be seen to be advantageous, as regards long term employment and sufficient financial return.

1.4 The MAP Industry in Ireland

Historically, there was a tradition in rural areas of gathering wild MAP species (such as bilberries, Sexton, R., 1998) and of some cultivation in gardens for local use. Material was also harvested and dried to supply the herb market in Dublin with herbs for use by the urban population, but these practices died out. Recently there has been a resurgence in interest in the use of medicinal and aromatic plants. However, although there is an increasing demand for medicinal, cosmetic and culinary products the majority of raw material and value-added products used in Ireland are imported even when the species

used as ingredients are endemic or easy to cultivate here. Even species such as nettle, dandelion, bilberry, hawthorn, elderberry and so forth are imported sometimes from as far away as New Zealand or USA, often from the Near East or the Balkans.

In Ireland, many of those growing herbs are producing for the fresh culinary market. A few companies add value by drying and blending e.g. Kylemore Herbs [dried blends of culinary herbs], Peppermint Farm [herbal teas]. There are some small cottage industries producing cosmetics and toiletries (or example the Burren Perfumery) or organic tinctures and creams (for example Wild West Herbs). However, considering the amount of herbal products sold in health foods shops and other outlets, there are surprisingly few growing for the MAP industry and little production of value-added products in the medicinal herbal product sector. Some examples are laid out in the table below:

Table 1.1 Examples of participants in the MAP industry in Ireland

Type of business	**Species grown/wild-crafted**	**Products**
Grower/processor (ceased trading)	Melissa	Essential oil and aromatic water
Grower/processor	Lavender	Essential oil for perfumery
Grower/manufacturer	40 species	Tincture and powdered herb
Manufacturer	A range of species are obtained from growers and wild-crafters in Ireland and overseas wholesalers	Tinctures, encapsulated dried herb etc.

Another manufacturer is using all imported material but is in the process of trying to find farmers and growers to produce the crops here; in this instance the main problem they have encountered is the lack of a milling facility in Ireland to produce the powdered herbs they require. In addition to the examples given above there are small growers searching for markets for their produce and for ways of adding value to their crops to make the enterprise economically viable, as well as growers interested in entering into the industry. Many of those involved in growing medicinal plants are enthusiasts, producing on a small scale for their own use. There are also practitioners of herbal medicine who produce products on a small scale for use in their own clinics.

It is estimated that there are less than 10 growers producing MAP crops on a commercial scale although further material is wild-crafted on organic farms and that there are less than 10 companies producing MAP products in Ireland on a commercial scale.

1.5 What aspects of the MAP sector in Ireland will be examined and why?

1.5.1 Novel and alternative crops

Crops with potential to be used as bio-fuels have received a lot of media attention in Ireland. However, vast areas of land are required and thus pressure may be put on food production needs. Lawrence (2008) has put forward the view that the main emphasis in the agriculture of the future will need to be on food production, rather than bio-fuels, in terms of land use. MAP crops have the advantage that they have the potential to be grown alongside other crops and included as rotation crops in organic cultivation systems (Power et al., 1996).

1.5.2 Wild-crafting, biodiversity and habitat restoration

Protection of biodiversity, habitat protection and habitat reclamation to halt the loss of species, and encourage restoration of ones already lost, has become a burgeoning issue in Ireland (as well as the rest of the world).[1] Following a ruling by the EU's highest court, that the Irish government has broken EU law by failing to protect Ireland's most endangered bird species, the Minister for the Environment, John Gormley, said that there was a growing appreciation by landowners and farmers of the importance preserving our natural heritage. They are also becoming aware that it is possible to farm for a conservation purpose, supported by a compensation package (Smyth, 2007).[2]

Under the REPS scheme farmers are being encouraged to participate in the restoration of the various habitats which have been eroded by the agricultural techniques of the last 50 years (Feehan, 2004; Sheridan, 2004; Kelemen, 2004). Farmers are also being encouraged to grow crops according to organic standards in order to reduce environmental impact . Farmers who decide to participate in the return to more traditional

[1] (www.heritagecouncil.ie/landscape, www.heritagecouncil.ie/wildlife, www.biology.ie)
[2] Reviews of the EU and Irish legislation relating to conservation may be found at www.heritagecouncil.ie/publications/agriherit/1.html and www.wpa.ie/environment/biodiversity/protected areas

tillage methods and habitat restoration may have concerns about how to ensure sufficient income as areas under intensive cultivation are diminished. Diversification can be a way of enabling farmers to stay on the land, participate in environmental renewal and also make a reasonable income. The only MAP species which is mentioned on the Teagasc website under alternative crops is lavender which is not the most well suited to the Irish climate; the National Non-Food Crops Centre website (www.nnfcc.co.uk) to which the Teasgasc website directs the enquirer, has a broader range of crops listed. Yet there are a range of indigenous and naturalized species which are in demand for the MAP sector (e.g. nettle, elder, dandelion, cleavers, hawthorn, oak, bilberry, valerian, marshmallow and many others), which would be well suited to cultivation or wild-crafting in Ireland. Also, other non-endemic species, such as Echinacea, can be successfully cultivated here.

1.5.3 Environmental sustainability and local production of MAP species

The issue of over-harvesting of medicinal plants in more exotic locations (Hamilton, 2005) means that it would be more sustainable to develop the production and use of more local produce throughout the world. In this light, the fact that there are many products imported from distant locations when they grow here naturally or can easily be cultivated in the Irish climate needs to be examined.

1.5.4 What barriers are there to developing the industry in Ireland?

It is also important to examine the state of the industry at present and look at what issues impede further development. It is necessary to examine how other regions have overcome difficulties and whether co-operatives play a part in the solutions. In common with other agricultural sectors such as organic fruit and vegetable production, there is a huge potential for herbal crops and products to be produced in Ireland, with sufficient support from governmental and NGO agencies. The historical and cultural reasons why these sectors have not been developed within agriculture will not be examined but the role that co-operatives can play in providing a solution where other agencies have failed will be examined.

1.6 Thesis layout

This chapter has discussed what the MAP industry is, and briefly outlined the international MAP industry. It explored the MAP industry in Ireland and laid out what aspects of the industry will be examined and why. Chapter 2 will review the literature relating to the issues in the MAP industry at a global level and explore which of these are relevant to the industry in Ireland. Chapter 3 will outline the methodology used to examine the MAP industry in Ireland. It will also comment on the limitations of the study. The findings are laid out in Chapter 4. Chapter 5 will present the conclusions drawn by the researcher as a result of the literature review and the findings obtained from the pilot survey. It also presents any recommendations and any possibilities for further research that the research thinks are relevant.

CHAPTER TWO LITERATURE REVIEW

2.1 Introduction

The purpose of this thesis is to examine the MAP industry in Ireland, look at the present state of the industry, examine what barriers to growth and development are being experienced by the participants in the industry and explore whether co-operatives have an actual potential to help improve the growth of the industry.

It is therefore important to examine the literature pertaining to the state of the global MAP industry and the challenges that it is experiencing. It is also necessary to look at the literature relating to the types of co-operatives that could be helpful to the Irish industry and to how they have been used to address issues in the MAP industry or similar agricultural industries in the global arena. This chapter will therefore review the literature relating to these areas.

2.2 The current issues in the global MAP industry and their relevance to the Irish industry

Large sections of MAP production are located in the developing and transition worlds, with a smaller proportion located in the minority world. However, a large portion of the consumer market is located in the minority world and a number of authors highlight the advent of the ethically informed consumer in this region, wanting to know that the product they are purchasing is sustainable environmentally, economically and socially (Karki, et al 2003, Brinckmann, 2004) and therefore locally produced products that fulfill all these criteria are a potential growth market. It is also important to recognize that, because of the different geographical and socio-political factors affecting the disparate areas of MAP production, some of the current issues in the global industry have more relevance to the sector in Ireland than others. From the reviews of the international MAP industry made by various authors (De Silva and Attal, 1995; Lange, 2004, 2006; Hoareau and Da Silva, 1998;, Mathe and Mathe, 2008; Hamilton, 2003, 2005; Craker, 2003; Brinckmann, 2004) the current issues in the MAP industry may be summarized as:

***Economic sustainability*;**

The MAP industry traditionally plays a role in the economy of widely dispersed geographical regions [3]. In all the regions the majority of the MAP industry is made up of small-scale producers who work alone or are organized into small co-operatives. Although the industry is especially important for more marginalized groups of people within these societies (e.g. women, shepherds and subsistence farmers) and, whilst it provides an important source of income for them, they are still economically vulnerable (Van de Kop et al, 2006). The producers are forced into the role of sole traders selling to local middle agents who then sell the produce onto the manufacturers, thus denying them sufficient income. The producers find it difficult to produce sufficient quantity (individually or collectively) to access indigenous and international markets that yield an economically viable income from the crops without negatively impacting upon social and environmental sustainability. Vertical integration in the MAP business chain has been put forward as a solution; WWF (2003) discusses how MAP production in the Balkans could be protected and made more viable by vertical integration;

> *It may be possible to achieve higher market price if the raw material is processed in the region or country (of production) and products are sold on the national and international markets.*

Legislative issues;

The key legislative issues within the MAP industry are how to comply with regional legislation on Good Manufacturing Practice (GMP) and compliance with legislation on Good Agricultural and Collection Practice (GACP).

Good manufacturing practice (GMP): For all sectors within the MAP industry there is the need to ensure that the systems of production and manufacturing are compliant with

[3] Examples include: The Balkans states, including Bosnia (Kosovic and Dunjic, 2000), Bulgaria (Lange and Mladenova, 1998), Kosovo (Lonner, 2003), Lithuania (Radusiene, 2004), Herzegovina (Kosovic and Dunjic, 2000), Albania and Croatia; Turkey (Kixmaz, 1997); African countries including South Africa (Hamilton, 2005), Tunisia (Neffati and Ouled Belgacem, 2006), Kenya (Ng'etich, 2005, Egypt and Morocco; Asian countries including India (Karki, 2003;Van de Kop et al, 2006; Subedi, 1998), Bhutan (Wanchuk, 2005,; Myanmar (Swe and Win, 2005), Thailand and Korea; and South America (Perkins and Chompi,2001; Taylor, 1998, Janick, 1999)

legislation as regards GMP in their region of production and also in the countries they are planning to market to. In Europe traditional medicinal herbal products for sale over-the-counter (OTC) are now regulated by the Traditional Medicinal Herbal Products Directive (TMHPD - Directive 2004/24/EC). This legislation means that products have to comply with GMP standards stipulated in the document. For the grower and producer the implications of this legislation are that there must be complete traceability of produce and compliance with GMP. For products that are marketed with therapeutic indications on their packaging or inserted leaflets, registration with Irish Medicines Board (IMB) [or the equivalent body in another EU state] is necessary and formulations made from more than one plant may also need to be registered; completing the registration process would be an added cost for the producer.

Good Agricultural and Collection Practice (GACP) and organic certification: Mathe and Mathe (2008) summarise the international guidelines on wild-crafting that are available and point out that there are no regulations in this area, only guidelines. In most regions, these guidelines include a preference for following organic certification and there is legislation for organic certification. No legislation exists on other areas of GMPP (Good Medicinal Plant Practice), however, new standards are being drawn up to include GGP (Good Gathering Practice), GHP (Good Harvesting Practice) and GLP (Good Laboratory Practice). Guidelines are now available from the WHO on Good Agricultural and Collection Practices in the MAP industry (GACP)[4]. The Soil Association have issued an organic wild-crafting standard and there is also a draft international standard for the sustainable wild collection of medicinal and aromatic plants (Hamilton 2005). EUROPAM, the European Herb Growers Association, have issued guidelines for Good Agricultural Practice (GAP) of medicinal and aromatic plants[5]. These are the standards that manufacturers require growers and producers to conform to for the production of raw material for use in the medicinal, herbal tea and cosmetic sectors. In the guidelines it is recommended that the use of herbicides, pesticides and other chemicals is restricted as far

[4] WHO Guidelines on Good Agricultural and Collection Practices (GACP) for Medicinal Plants, WHO press 2003

[5] http://www.europam.net.GAP.htm

as possible; premium price is commanded by organic produce. In the European Union the basic regulations on organic food products (which are also the standards applied to MAP products) are set out in Council Regulation (EEC) No. 2092/91. The administration and enforcement of organic standards are carried out by national authorities;[6] in Ireland organic cultivation is overseen by the Department of Agriculture, Fisheries and Food[7] and certification is carried out by one of 3 organisations.[8]

Social and environmental sustainability; Social and environmental sustainability are discussed together because they are closely intertwined in the context of the MAP industry; both are aspects of how the people in a particular region interrelate with their natural environment and natural resources. In the introduction it was pointed out that the MAP industry has the potential to either contribute to environmental and social erosion or to become a vehicle for supporting sustainability. In order to ensure that the industry has a positive impact on social and environmental sustainability several issues need to be addressed. One issue that is highlighted is the need to ensure that wild-harvesting is carried out in an environmentally and socially sustainable manner (Brinckmann, 2004; Hamilton, 2005; Subedi, 1998; De Silva and Attal, 1995; Lange, 2004, 2006;Van de Kop et al, 2006; Karki, 2003). It is necessary to ensure the illegal and unsustainable harvesting and the depletion of wild population of plants is prevented [9]. Research into maintaining biodiversity and sustainable harvesting methods is needed, as discussed later in the chapter.

In many cultures the use and production of MAP products is part of the culture; it is woven through the fabric of the community and is part of the way of life of the people. The skills of producing and processing have been passed down over many generations. Great value is put on this traditional knowledge, it's place in healthcare (80% of the

---

[6] A consolidated version of the 1991 Regulation and its amendments is available at http://www.organics.com/organic-info/certification/links/index.html.

[7] (www.agriculture.gove.ie)

[8] The Organic Trust (www.iol.ie/-organic/trust.html), The Irish Organic Farmers and Growers Association (www.iofga.org), Demeter (Ireland Ltd, Biodynamic Agricultural Association of Ireland, Watergarden, Co. Kilkenny.

[9] For example Echinacea, Black Cohosh, Golden Seal and American Ginseng in the USA http://www.unitedplantsavers.org

world's population still rely on traditional medicine as their main form of medicine, (Akerele, 1992)) and in many other areas of their culture (Subedi, 1998). Linden (1991) describes the importance of keeping traditional knowledge and discusses how its loss can impact on a culture's self respect and it's very existence. Ng'etich (2005) discusses the importance of placing proper value on the protecting traditional knowledge of the use of MAP species, along with traditional cultivation and harvesting techniques.;Another issues that is highlighted by a number of authors Brinckmann (2004), Van de Kop et al (2006), Karki (2003), Neffati and Ouled Belgacem (2006) Subedi (1998), Johnson (1998) is the necessity of ensuring that all stakeholders are consulted and involved in the development of the MAP industry.

The potential for the MAP industry to support social and environmental sustainability has been recognized in various regions, for example:

In the Balkan states the herb growing and harvesting industry has come under threat due to environmentally unsustainable practices. In response the International Finance Corporation, working through the Southeast Europe Enterprise Development (SEED) has set up the Balkan Herbal Business Forum

> *to help rebuild what was once a thriving and important industry in Southeast Europe, due to the facts that political upheavals disrupted the manufacturing and trade and that some of the most important species are endangered due to over-harvesting* (www.amapseec.org/BHF_prog.htm).

In several regions solutions to these issues have been found and the wild-crafting or cultivation of MAP crops helps to support social sustainability, as well as environmental sustainability, for example:

In Morocco, much of the wild-crafted argan, is collected and often processed by co-operatives of women (Kenny, 2002). In Kosovo, the Sacred Circle Herb Company works with a co-operative of widows of Qyshk to market their products made from wild crafted herbs (Lonner, J, 2003). In the Herzegovina-Neretva canton of Bosnia-Herzegovina, co-operatives gathered and cultivated MAP crops, along with other non-wood forest products, before the war there and this practice is being revived with collectives collaborating with the German government (Kosovic and Dunjic, 2000). In Namibia a sustainably-harvested Devil's Claw project was set up on a resettlement farm in 1998 and

has rapidly expanded (Hamilton, 2005). Growers co-operatives in the Himalayas[10] and partnerships between Pukka Herbs and local producers[11] in India have established systems of sustainable harvesting and fair pricing. In many of the geographical regions mentioned the aspect of ensuring the continuation of traditional knowledge as part of social sustainability is highlighted because of the empowerment that this gives the local inhabitants. As with most Western cultures, severe erosion of traditional knowledge has occurred in Ireland. However, thanks to the collection of ethnobotanical information by the Folklore Commission, and the amount of information retained, particularly in the Gaeltacht areas, there is still a surprisingly large amount of information available (Allen and Hatfield, 2004). At the same time, some of the peoples immigrating to Ireland bring with them a large resource as regards knowledge about wild crafting and usage of wild herbs.

With regard to environmental sustainability in the Irish context; although there is a lower diversity of plants in Ireland than in mainland Europe (Blamey et al., 2003), the species growing here include a large variety of plants which have been traditionally used (Hatfield, 1999; Allen and Hatfield, 2004; Barker, 2001; MacCoitir, 2003; MacCoitir, 2006) as food stuffs, medicinal plants, dyes and alternative fibres for cloth and paper, as well as some of the other purposes mentioned by De Silva and Attal (1995). The species also include some that can be incorporated into forestry and other habitats mentioned in the REPS recommendations for habitat restoration. This means that the farmer has the potential to incorporate a crop that can be sustainably harvested into restoration work under the terms of the REPS scheme. Thus, the wild-crafting of MAP plants from restored habitats can also help to protect biodiversity and provide the farmer with an income from these habitats. Other species, such as garlic, can be used in the crop rotations necessary in an organic cultivation system.

Crop management: In order to develop a successful MAP industry it is necessary to address the issues of how to successfully integrate MAP production into agribusiness and how to successfully wild-craft the correct species at the correct time.

[10] www.pragya.org/mappa.htm
[11] www.plantlife.org.uk/international/plantlife-med-plants-project

Another issue relating to quality is how to ensure that the crops have sufficiently high levels of active constituents. Most medicinal and aromatic plants are essentially wild plants that produce their active constituents as secondary metabolites to protect against environmental and predator stresses. They therefore do not necessarily respond well to conventional methods of cultivation; such methods may yield large quantities of material, but it may be poor quality as regards its therapeutic effect for example; farmers in Wales growing daffodils to produce the API galanthamine, have found that the highest levels of the constituent are produced when growing the crops in the Black Mountains which are closer to the environment in which this crop is grown for medicinal use in the Balkans. This can be easily addressed by careful crop selection, choosing which to field grow and which to wild craft. Mathe and Mathe (2008) summarise the advantages for cultivation and wild crafting of various species and conclude that cultivation can be beneficial in allowing for relatively easy crop certification for organic produce; guaranteeing a steady supply of raw material; rendering the agreement between wholesalers/pharmaceutical companies and growers on prices and volumes easier; allowing the observation of product standards, reliable botanical identification; and generally allowing more efficient methods of quality control. However, they point out that for species with a long life cycle, species that are difficult to propagate or impossible to cultivate (e.g. mistletoes, lichens etc.) or where the quantity required is too small to justify the economic costs of cultivation, then wild-crafting is the best option. In such cases wild-crafting does not have to lead to environmental devastation but can be used to assist conservation and the protection of habitats, as well as social sustainability. It can help to promote good management for habitat protection, as this will ensure a better yield of the crop. For example, the Swiss pharmaceutical company Weleda collects fresh Arnica plants and flowers from the Vosges region of the Parc Naturel Regional des Ballons des Vosges in France and finance measures for the management of conservation habitats to protect the environment (Lange, 2004). Lange also mentions how European wetlands and bogs could be protected by sustainably harvesting *Menyanthes trifoliata* and *Drosera rotundifolia*. In Canada medicinal plants are being suggested as an alternative new crop for farmers, with wild collection being combined with cultivation as a way of

preserving economically important wild crops in their natural habitats.[12]

One of the major difficulties highlighted by Galambosi and Dragland (2002) is the mechanization of harvesting the small scale of crops grown; seed crops can be harvested using grain machinery, but leaf and root crops pose more difficulty, which raises the cost of harvesting, since it must be done by hand. However, the rising interest in growing MAP crops in areas with high labour costs such as USA and Australia have led to the development or rediscovery or small scale harvesting equipment.

Limited Research; The importance of including research in the MAP industry is highlighted by many authors (Galambosi and Dragland 2002; Van de Kop et al, 2006;Neffati and Ouled Belgacem, 2006; Karki, 2003; De Silva and Attal,1995;) Subedi, 1998; Johnson,1998). Several strands of research are seen as important: firstly, investigating traditional knowledge of use, cultivation, gathering and formulations; secondly, the use of analytical techniques for quality assurance and to investigate novel therapeutic applications of various species (Liang et al, 2004). In some instances, the neglect of these two strands of research has led to the use of raw material with little or no therapeutic value or to toxicological problems. The toxicity problems that occurred with Kava Kava were partially due to the fact that traditional harvesting and preparation methods were not followed and appropriate analytical techniques were not used to check quality. Therefore, stem peelings were used alongside root and rhizome material in preparations that did not follow traditional methods or doses. The pharmaceutical companies importing the raw material only used HPLC to analyse the quality of tissue, this being the technique used for the root/rhizome preparations. This meant that an alkaloid, piper methysticine, showed up as additional quantities of kava lactones (the desired active constituent), rather than as a separate constituent. However, this constituent, which occurs in the stem peelings, can cause fatal liver toxicity within 24 hours of ingestion (Singh, Y. 2003). This highlights the importance of including research facilities in the MAP industry and of researching traditional practice. Some companies set up their own facilities. However, it is recognized that there is value in using independent facilities to ensure objectivity. Within Ireland there are several facilities at third level

[12] http://www4.agr.gc.ca/AAFC-AAC/display-afficher.do?id=1174597.

institutions with expertise in the area of phytochemistry and plant tissue analysis e.g. the ZEPS Department at UCC, the School of Pharmacy TCD and the School of Pharmacy at UCC. CIT is also involved in research into phytotherapeutic materials, specifically through the Department of Herbal Sciences. A third strand of research that is needed is clinical research which can validate traditional or new therapeutic applications of various species or formulations (Braun and Cohen, 2005; Blumenthal et. al, 2000; Mills and Bone, 2005). Another strand of research that is needed in the MAP industry is research into biodiversity, sustainable harvesting levels and maintenance of adequate genetic pools in the crop species.

When governmental bodies recognize the value of MAP exports and support research into developing MAP products and the marketing of these products abroad it can lead to greater success in the market place. This has been shown by the success of green tea in the export market from China and of turmeric from India. Such marketing has been backed up by research evidence. This lead is being followed by government agencies and researchers in the Czech Republic who are now investigating the anti-oxidant properties of their own MAP species in comparison to green tea (Buricova and Reblova, 2008). In both Norway and Finland there are active research programmes being conducted through academic and governmental institutions on various aspects of the viability of a local MAP industry, some for culinary and some for medicinal use (Galambosi and Dragland, 2003).

Organisation of the industry; the need for an active central organization for growers and ideally for all stakeholders involved in the sector in a particular geographical region is mentioned by several authors (e.g. Galambosi and Dragland, 2002; Johnson, 1998; Karki et al, 2003). Without a central organization, there is a lack of co-ordination between the different sectors of the industry and issues such as unfair remuneration for workers at the beginning of the business chain, biopiracy, over-harvesting, loss of traditional knowledge about cultivation and harvesting and so on will arise. There is the need for the development of research and development to support the industry.

Another aspect of organization within the industry that needs to be considered is co-operation between the different sectors such as growers and harvesters, manufacturers and the marketing sector.

2.3 The potential role of co-operatives in the development of a MAP industry in Ireland

In order to develop the MAP industry in Ireland to a point where it is economically sustainable and is able to find solutions to the issues laid out above, it is necessary to expand the supply of produce and for the industry to support this expansion with a market for local produce. The role that co-operatives can play in this process is laid out below.

Business structure Henehan and Anderson (2001) list the 6 traditional structures of business organizations as: Individual proprietorship, Partnerships, Investor Orientated Corporations or investor-owned firms (IOFs), Co-operative, Not-for-Profit, Government provision (state-owned).

At present all the MAP growers and producers in Ireland are operating as individual proprietors, partnerships or investor-owned firms (IOFs). In some instances there is collaboration and co-operation between the individual ventures, with some individual growers supplying to IOFs but there are no co-operatives in the industry. However, due to the small amounts that growers are able to produce at present it appears that a more formalized co-operative structure could benefit the industry and the individual businesses. Co-operative structure has been used in other regions and other agribusiness sectors (e.g. the dairy industry in Ireland) to enable members to obtain a better return for their produce, to allow them to access processing facilities to add value to their product and to access more lucrative markets. In addition, co-operative structure has been used to facilitate collaboration with; research centres (Galambosi and Dragland, 2002); NGOs, governmental agencies; and sources of traditional knowledge about growing, harvesting and formulating herbal medicinal products (Johnson, 1998 and Karki, 2003).

Historically, co-operatives have frequently been used as a structure for industries that are not perceived as being sufficiently financially lucrative to the capitalist approach. For example, Downing et al. (1998) give 4 examples of agricultural co-operatives set up to produce bio- fuel crops. There are several types of co-operative structure that may be

used and Downing et al. (1998) discuss how agricultural co-operatives may be organized by function in the following ways:

- Producer co-operatives that allow farmers to work together to organize their farms as co-operative corporations
- Supply co-operatives which supply equipment, seed and other inputs at competitive prices
- Marketing co-operatives that work as contract and bargaining co-operatives, or to facilitate group processing and manufacturing.

These authors also point out that the co-operative can help to influence terms of trade and achieve market power either in the domestic or international market place. They also highlight the importance of risk-sharing as a function of the co-operative and thirdly, they highlight the role of the co-operative as a lobbying group with regard to public policy.

Co-operatives as an adaptable business structure familiar to Irish farmers

Co-operatives are a business structure that Irish farmers have used in the past to help to improve their economic sustainability. However, they are also structures which are continuing to evolve and which can be adapted to new market needs.

Katz and Boland (2002) argue that co-operatives are in transition and that there is a case for moving towards New Generation Co-op (NGC) concepts of limiting membership and having variable shareholding for members. They discuss how NGCs focus on adding value to their produce and on finding niche markets, both of which would be advantages for the MAP industry in Ireland. They also discuss the advantages of vertical integration in the business chain; this issue will be discussed in more detail further on in this section.

The rising interest in co-operatives in the USA and Canada, particularly NGCs, is due in part to the fact that farm income has become more volatile (Cobia, 1997) and that farmers need to diversify in order to make a living from their land, or indeed to stay on the land. There is a similar scenario in Ireland as evidenced by rural depopulation and the number of part-time farmers and individuals moving out of farming. Cobia (1997) shows that it is the younger farmers, with better education and less farming experience who are more likely to become co-operative members and investors in the geographical region he is discussing. In Ireland many of the younger generation are choosing to leave the land.

Ventures that enable farmers to receive sufficient income to allow them to continue to farm, and do so in an environmentally beneficial way, are beginning to get support from government-sponsored bodies such as the Heritage Council and Teagasc.

Co-operatives as a way of achieving sufficient supply and of entering into the market at a fair price

Unless farmers choose to convert fully to the production of crops for this market (as some farmers in the UK have) the yield of crop would be insufficient to either interest the majority of potential customers for the raw material or to produce value-added products in reliable and sufficient quantity to supply the retail market and therefore growers can experience difficulty in entering the market. By pooling their produce through a co-operative structure (a producer cooperative), farmers are able to access more lucrative markets, nationally and internationally. The Grenadian Nutmeg Growers are an example of a MAP co-op that has taken this approach (Grenada National Strategy team, 2006), as are the caraway producers in the Nordic countries (Galambosi and Dragland, 2002). Producer co-operatives are owned and democratically controlled by independent producers, for the purpose of improving the effectiveness and profitability of the producers' individual businesses (Briscoe and Ward, 2000). These authors point out that an agricultural producer co-operative can help the farmer obtain a better price for their produce by processing and marketing it and may also provide a range of other services such as the supply of seed, access to equipment and machinery (both which could have relevance to the MAP industry). In Ireland, producer co-operatives have a long history of use and success in the agricultural sector, especially within the dairy industry (e.g. Dairygold, Glanbia, Bandon Co-op). In this instance, the producer co-operative incorporates aspects of a marketing co-operative as well. Producer co-operative structure has been used by the argan oil producers in Morocco (Kenny, 2002), by the Nordic caraway growers (Galambosi and Dragland, 2002), by the herb growers in the Netherlands (Van der Mheen, 1993) and by the Sacred Herb Circle co-operative in Kosovo (Lonner, 2003) . Two further examples are discussed in more detail below:

- Farmers in North Dakota formed the Great Northern Garlic Growers Co-operative in 1996 to enable them to capitalize on the per capita increase in garlic

consumption. The co-operative was formed because market analysis showed that this needed to be a collective venture, and the incentive for farmers to diversify into this area was that it could be used in a crop rotation and that there would be a niche market for the fresh, chemical-free produce. The other incentive was to form a viable competitive structure to the large scale growers based in California and New York (Power et al, 1996).

- Saw Palmetto Berries Co-op of Florida (www.sawpalmettoco-op.com) was founded in 1994 to address the issue of getting a fair price for this much valued medicinal crop from the buyers for the farmers, and to ensure a steady supply to customers but also to ensure that the market is not flooded in glut years thus lowering price. Gregory P. Zaino, the CEO, has previously been involved in the cranberry industry which faces similar problems of the crop maturing once a year and low market price. Zaino's approach was to ensure that the co-op kept track of the demand, oversaw the picking and handled processing and shipping for the farmers. He targeted the US market initially, rather than going into direct competition with the biggest operation (Plantation Medicinals Inc.) which supplied the European market.

Co-operatives as a means to vertical integration

Thyfault (1996) points out the value of adding value to the crop and vertically integrating. By pooling their harvest farmers are able to access a more lucrative market and have the possibility of vertically integrating higher up the business chain by producing value added products. The success of many of the NGCs has been due to their vertical integration allowing them to retain ownership of their produce higher up the business chain and thereby getting a better return. Stefanson and Fulton, (1997) cite the following two examples of successful agricultural sector co-operatives (set up as NGCs), which have used the approach of incorporating some aspects of management from investor-owned firms (IOFs) and which have integrated higher up the business chain :

Southern Minnesota Beet Sugar Cooperative which was set up by beet growers when they were told there would no longer be a market for their beet. The large number of members that formed the cooperative meant that they were able to raise sufficient capital

to build their own factory. They have in the region of 465 members, employing 250 people and an additional 100 in the peak season. The seasonal employment of extra personnel is a factor that would be important in the MAP industry as well due to the requirement for extra labour during planting and harvesting seasons. This co-operative has shown the ability to diversify its production and processing into a variety of products for the domestic and international markets.

Dakota Growers Pasta Company began operation in 1993 and has 1200 members and employs about 230 people. This is another example of a large number of growers coming together in a co-operative structure to process their produce into a niche market product and thus vertically integrate and retain ownership of their produce further up the food business chain in order to optimize their income. The growers receive market price for their grain and also receive a share of the returns from processing it into pasta.

Ocean Spray is an example of how a nascent industry used co-operative structure to allow vertical integration and expansion. The enterprise started with three cranberry growers who wanted to design innovative products in 1930. In 1976, they included grapefruit growers and they have continued to design valued-added products and market them throughout the world (http://www.ocenspray.com/about/our_history.aspx).

Various authors, including Johnson (1998) and Karki (2003), mention the importance of growers and wild-crafters in the MAP industry achieving vertical integration in the business chain by adding value to their product, rather than selling at low raw material prices to large companies. Within Ireland, co-operatives could facilitate the minimum processing required for the raw MAP material; drying facilities and milling facilities are relatively cheap to set up. Drying facilities could be either set up on each farm or collectively within a region. However, the expense of training in milling and cutting techniques for the staff working in such a facility would need to be considered. The International Trade Centre (UNCTAD/WTO) published a Marketing Manual and Web Directory for Organic Spices, Herbs and Essential Oils in October 2004, listing sources of equipment and potential customers which would be a valuable resource in accessing processing equipment, researching potential markets and deciding how high up in the business chain to integrate.

Hendrikse and Bijman (2004) discuss how marketing co-operatives can be used to vertically integrate the producer into the business chain so that they hold ownership of their produce for longer and reap some of the benefits of adding value to it. Torgerson (2000, 2003) and Schaffner (2003) also discuss how using marketing co-operatives, or adding a marketing layer into an existing co-operative, can benefit the farmer.

Campbell (2006) says that:

There are three basic approaches to launching an agricultural marketing co-operative:

1. *Organize producers to invest in a plant to process their crops…into a value-added … product.*
2. *A new or existing co-op can buy an investor-owned company and convert it to producer ownership.*
3. *A producer group can contract with a third party to custom process its product on a cost-plus basis.*

Campbell makes the point that the third approach can be prudent where only razor-thin margins can be derived from processing and where there are processors with extra capacity available. It is also the most prudent approach where the set up costs of a manufacturing facility preclude the enterprise moving into adding value to the raw materials, as may be the case with the MAP industry in Ireland.

Warman and Kennedy (1998) describe how an agricultural marketing co-op pools the produce of several producers into larger lots for more efficient handling and better competition in the market place. A marketing co-operative may choose to perform first-stage processing or to vertically integrate to produce value-added products for consumer or industrial markets. They list the advantages of a marketing co-op as enabling the producers to:

1. *correct market failure where prices are too low or buyers have left the market*
2. *provide a service not available otherwise*
3. *gain negotiating power against much larger buyers*
4. *spread risks and costs*
5. *have enough volume to operate a processing plant* (or contract a third party as mentioned by Campbell,2006) *or enough to meet the demands of buyers.*

Co-operatives as a way of ensuring fair returns for workers at the start of the business chain

Harvesting MAP crops, particularly wild-crafting in a sustainable way to ensure continued supply, is a skilled craft. However, much of the work is by nature seasonal and located in different geographical areas. As Lawrence (2004) discusses there has traditionally been huge exploitation of labour of this nature in the food industry, and such exploitation has also been documented in the harvesting of MAP crops in some regions of the world. Given the nature of the produce many of the consumers of such products are keen to purchase ethically obtained products and many of the industrial customers look towards non-exploitative means of harvesting and production.

A possible answer to this is for workers to organize themselves into a workers co-operative which would work with a producer co-operative, or alternatively may become part of a multifactor (also known as solidarity or multi-user) co-operative incorporating; farmer/growers who manage the crop, organized as a producers co-operative; workers, who harvest and process the crops, organized into a workers co-operative; and a marketing co-op, which liaises with manufacturers and with retailers. A workers co-operative would have similarities to the island fishing co-operatives, or some of the enterprises within the Mondragon network (Briscoe and Ward, 2005). The workers own the enterprise and work together to ensure proper contracts and income from their work. In addition, workers could share equipment and provide training for themselves as regards harvesting techniques and so forth. The Kerala Dinesh Beedi Company in India (Franke, 1997), is an example of a workers co-operative.

Co-operatives as a means of dealing with legislative issues

One consideration in the production of value-added products is that the requirements for GMP, GAP and organic certification mean that the development of a processing plant by individuals, or indeed by a co-operative, could be prohibitive as regards the level of capital investment required. The need to comply with legislation has been one of the driving factors for the set up of NGCs, both in relation to spreading the cost of setting up processing plants that meet the standards and as a way of spreading the load of liability (Thyfault, 1996).

Agricultural marketing co-operatives are often seen as the structure to use to address this issue, since the growers and producers can work together to ensure compliance that would otherwise be too costly for small-scale producers.

In Ireland, there is the potential for a co-operative to contract out the processing of raw material into value added products to a suitable manufacturing facility, which holds certification from the IMB as regards GMP and from one of the organic certification bodies as regards meeting the organic manufacturing standards.

Co-operatives as self-help organizations building social sustainability

Co-operatives are self-help organisations which are designed to serve the users (Briscoe and Ward, 2000:7), and are particularly suitable for an enterprise which has social as well as financial concerns as a motivation in its set up and operation. Co-operatives are also a successful way of starting ventures that the capitalist approach may not consider worthwhile because they embrace "the vision of a better social order"(Bonner from Briscoe and Ward, 2000:15). Although the development of a MAP industry can benefit farmers financially (by supplementing income through diversification) there is also the benefit of enhancing the sustainable management of habitats in the rural landscape. This is a way of promoting biodiversity and of preserving the cultural heritage of traditional plant uses which have been severely eroded by urbanization and industrialization. Thus, the MAP industry can enrich both environmental and social sustainability. Lasserre (1959:103) says that co-operation is the counter-attack of the human against the inhuman and discusses how co-operatives can humanize the economy. This is of relevance to a MAP sector co-operative that seeks to address the issues of biodiversity, sustainability and cultural reclamation, as well as improving the financial return of its members.

Briscoe and Ward (2000) summarise the possible competitive advantages of co-ops as single-mindedness, or focusing on the interest and needs of a group of particular users rather than on pure financial gain. As there are no absentee owners to reward all the profit goes to the members of the co-operative and towards re-investment in the co-operative to further develop it. As Thirkell puts it

> "*In short the co-operative exists to make money [*or indeed social capital*], for the farmers; the investment based agricultural company exists to make money from the farmers* (Thirkell, 1998).

Jacobson and O'Leary (cited in Briscoe and Ward, 2000) also found that co-operative leaders believe that in the medium to long term fully-owned farmer co-operatives would perform better, since a plc has to service the investors first. Briscoe and Ward (2000) also point out that the co-operative form of organization is often perceived as the most suitable vehicle for promoting rural development and establishing small rural enterprises. Thus, a co-operative approach would appear to have great relevance for the growth and development of the MAP industry in Ireland.

Co-operatives as a way of bringing the varied and various stakeholders together

Another aspect of co-operatives highlighted by Henehan and Anderson (2001) is that they are usually composed of many entities who then work together. The importance of including all stakeholders in the setting up of a sustainable MAP industry is mentioned by several authors, all of whom emphasise the diversity of groups that are potential stakeholders. Johnson (1998) gives an example of how a co-operative structure has been used to bring various disparate groups of strongly individual and independent character together to work on a common issue:

Trinity Alps Botanicals is a non-profit agricultural co-operative located in Trinity County Northern California which describes its vision as:

> *To enable and encourage natural healing by providing quality medicinal herbal products; to protect the environment by only sustainably hand wild-crafting and organically growing medicinal herbs; to develop employment opportunities for people in local forest-dependent communities (Johnson, 1998)*

To this end, the co-operative has brought together various stakeholders including local Native Americans, local and regional forest-based practitioner groups, community members, wild-crafters and growers, migrant workers, academics and the public at large. They have used local and regional collaborative strategies to build trust and to identify how to work positively with all the stakeholders involved.

Karki et al (2003) also highlight the need to include all local stakeholders (especially weaker and marginalized groups, ethnic minorities, NGOs and governmental organisations,) in the setting up of MAP and other biodiversity-based livelihoods in South Asia. This strategy is a way of reducing poverty, protecting biodiversity and enhancing social sustainability by protecting traditional knowledge about the plants and their uses.

Two further examples of co-operatives which have brought together the various stakeholders:

In 1999 Dr Ismaili-Alaoui launched TAROMED (Tafilalet Aromes Mediterranee) in Morocco. The purpose of this enterprise was to harness the resource of wild rosemary in a rational and sustainable manner. Initially, the company worked with the Ministry of Water and Forests and the local governor. They also brought in a large company, Les Aromes du Maroc, as a partner. In return for investment by Les Aromes, the research team rejuvenated the plants on 2 000 hectares and established rational harvesting techniques. The agreement was for Les Aromes to turn over the operation to local co-operatives and TAROMED once the investment was recovered. It was expected that this would take 3 years, but was actually achieved in the first year.[13]

In the Humla region of Western Nepal a project has been set up to evolve an integrated conservation and development approach. A local community-based organisation called Humla Conservation and Development Association (HCDA) represents all stakeholders; it was created in the planning stages to develop a sustainable enterprise. Humla Oil Pvt. Ltd (HOPL) was established in 1994 as a processing business to produce essential oils. In 1997 the company ownership was taken over by the HCDA, the staff of HOPL and the community forest user groups so that the business became a community enterprise, owned and managed by the local people and structured as a co-operative. (Subedi, 1998).

Co-operatives as a way to organize the industry

According to a paper by Galambosi and Dragland (2002), in Norway, despite the climate constraints, dispersed locations of small farms and expensive transport logistics, farmers

[13] (http://reseau.crdi.ca/ev-43248-201-1DO-Topic.html).

have formed one co-operative for the processing and marketing of caraway for the domestic and international markets and another co-operative for the sale of ecologically produced herbal teas and spices. However, a difficulty highlighted by the authors is the lack of an active central organization which is one of the main issues for both growers and manufacturers; without a central organization it can be difficult for growers to access necessary information on growing, harvesting and processing or on marketing their crops successfully. They also experience difficulty in accessing markets, or potential customers. Similar organizational problems have been encountered in various regions; several authors have made suggestions about how to overcome them and a number of enterprises have demonstrated success in overcoming the barriers. Bulgaria has used co-operatives to build it's medicinal and aromatic plant industry, as mentioned above, and has a strong central organization that has helped make it one of the main European producers. Prior to the collapse of communism MAP drugs were mainly traded by two state run co-operatives. These continued to operate and amalgamated in 1996. In addition to the co-operative, there are also smaller, private, family-owned firms (Lange and Mladenova, 1998). Downing et al (1998) highlight the benefits of the co-operative as a central organization and a lobbying group. Dambiec (1997) also discusses the role of the co-operative as a pressure group and as an organization that allows the sharing of services, training and education. In the MAP industry training could also be provided in the skills of recognizing the required species and knowledge of proper harvesting times, harvesting techniques and post harvest storage, which are all factors of importance in the successful development of these crops and products (EUROPAM, De Silva and Attal, 1995). The potential role of a co-operative as a lobbying group and in education could be of great value to the MAP industry in Ireland. The role of a co-operative in coordinating research at all levels would also be invaluable.

Co-operation between co-operatives

Co-operation may be used to great effect between co-operatives in the MAP business chain and is one of the co-operative principles that is often neglected. The industry may choose to structure itself into co-operatives at the producer, worker and marketing levels as separate enterprises which then form an umbrella co-operative, or which collaborate to

form an efficient business chain to each sector's benefit, rather than forming a multifactoral co-operative. For example, although the Netherlands is one of the major importers of MAP in Europe, the indigenous growing industry is small. However, the small industry that has evolved is based around co-operatives – three cooperatives contract and dry the domestically grown material, and a fourth co-operative, the United Dutch Herb Cooperation or VNK which has been in existence for 50 years markets the produce collectively (Van der Mheen, 1993, (www.vnk-herbs-.nl).

2.3.1.2 The Disadvantages of co-operatives

There also can be disadvantages to using a co-operative structure:

Briscoe and Ward (2000) point out that there can be misconceptions that a co-operative is not supposed to make profit and is supposed to run uneconomic services, but such an approach will ensure the demise of a venture since only a sustainable enterprise will thrive.

Cross and Buccola (2004) argue that

> *Co-operatives flourish when competition is weak and decline when it is robust…. Co-operatives would wish to choose from a continuum of cooperative, new-generation and IOF models as market conditions vary*

However, Lerm and Parliament (1990) argue that little difference is found in the profitability of businesses in the fruit and vegetable processing and dairy industries following the two structures, and other authors (Notta and Viachvei, 2007, Hoffmann, 2005) suggest that differences in profitability are due to the fact that IOFs tend to show greater effectiveness with regard to capital structure determinants and market share. This suggests that a co-operative structure can be used effectively, once internal managerial matters are run adequately and a proper business structure is put in place and that the IOF structure is not inherently better for profitability.

Thus, co-operatives need to ensure that they have proper governance and business management structures in place. They need to see the value of marketing and of member education. In all these areas the co-operative needs to be willing to invest in outsourcing if the skills required are not available from within the membership. As regards governance, this may not mean bringing in non-executive board members, it may just

require that board members undertake training in governance and business acumen. Governance structures need to ensure that the co-op is not weakened by non-member usage (which can be addressed by only allowing members to use facilities, or by setting rates and returns at a level that makes membership attractive) (Briscoe and Ward, 2000). Membership participation is vital to ensure that the co-op continues to move forward with a positive vision, rather than stagnating. Therefore, it should be ensured that non-active members cash in their share (Briscoe and Ward, 2000).

Like any other business structure, co-operatives are not guaranteed to succeed as viable enterprises. The reasons for failure include some in common with other commercial enterprises and some which are particular to co-operatives (Henehan and Anderson, 2001; Thyfault 1996) and therefore it is important for the enterprise to be alert to this issue from the first stages of development.

Another issue that is highlighted by several authors is the fact that co-operatives often bring together people who are used to working by themselves, for themselves and with strong independent views and mindsets. This means that the board needs to have the skills that ensure that the co-operative remains cohesive in its vision and operation, rather than becoming fragmented as a result of the strong personalities involved in the venture.

2.4 Conclusion

The first two chapters of this thesis discuss and demonstrate the worldwide growth of the MAP industry and show that the industry has been developed successfully in various regions to facilitate economic, social and environmental sustainability, particularly within rural communities. The value of using co-operative structures in this development has also been demonstrated.

However, although the sales of herbal medicinal products in Ireland have been growing steadily, the majority of products and raw material are imported and the indigenous industry remains small.

At present there are less than 10 companies involved in the manufacture of herbal medicinal products for the home market or export. There are less than 10 growers producing crops on anywhere near a commercial scale. None of the growers have more than 5 acres under herb cultivation. The number of species being cultivated varies from

ten to forty, with an additional 5-10 being wild-crafted. However, there are also organic farmers who allow small scale wild crafting of suitable species on their land. In addition, there are enthusiasts who grow and/or manufacture on a small scale. Also, some of the practitioners in the field of herbal medicine grow and manufacture on a small scale to supply their own clinic and may sell surplus to colleagues.

Therefore it is necessary to examine what are the perceived barriers according to those involved in the industry and whether co-operatives have the actual potential to overcome these.

2.5 The Study

Having reviewed the literature relevant to the aim of the thesis the following research questions were identified:

1 What is the present state of the MAP industry in Ireland?

2 What do those working in the MAP industry perceive to be the main barriers to the growth and development of the industry in Ireland?

3 Do co-operatives have an identifiable potential to help overcome the barriers and facilitate the growth of the industry?

The next chapter will describe the method used to answer the research questions.

CHAPTER 3 METHODOLOGY

3.1 Introduction

The objectives of this chapter are to outline the research method used, to explain how participants were selected and how the data was analysed. The limitations of the research will also be discussed.

3.2 Aims of the Research

Having reviewed the literature, the aim of the research was to answer the following research questions:

1 What is the present state of the MAP industry in Ireland?

2 What do those working in the MAP industry perceive to be the main barriers to the growth and development of the industry in Ireland?

3 Do co-operatives have an identifiable potential to help overcome the barriers and facilitate the growth of the industry?

3. 3 Method used

~~In order to explo~~re the barriers to the development of the industry in Ireland and investigate whether co-operative structures would be valuable in overcoming these it was decided to carry out a qualitative pilot survey of the growers and producers based in Ireland. The medicinal herbal product sector was focused on since this is the part of the MAP industry that appears to be experiencing the most barriers to growing and developing in line with the increased popularity and sales of products in Ireland. A sample of nine representative key informants from the different levels of the MAP business chain were surveyed in order to get a full overview of the industry and assess at which stages barriers were being experienced. Also, it was hoped it would be possible to assess why so much raw material is sourced from abroad and why so many products are being imported. Rather than being a small representative sample, this number of informants is sufficient to paint a portrait of the fledgling industry, The industry is not at the stage of development where it is possible to draw statistical inferences from the survey results. As Aristotle (384-322 BC) said

It is the mark of an instructed mind to rest satisfied with the degree of precision to which the nature of the subject admits and not to seek exactness when only an approximation of the truth is possible

A questionnaire was designed to use in interviewing the individuals involved in order to find out their views on the barriers to the development of the industry in Ireland and the potential for co-operative structures to be used to overcome these. Since the objective was to garner the opinions of those involved in the industry the survey took a qualitative approach rather than quantitative one.

3.4 Primary Research

3.4.1 Selecting participants

Key informants were selected from the different levels of the MAP business chain in order to give a representative view of the whole medicinal herbal sector of the MAP industry in Ireland. The number of participants selected was constrained by the time available for the study and the size of the industry in Ireland, as mentioned above. It was also constrained by the fact that no studies have been conducted on this industry in Ireland before and that there is no central organization for the industry. Therefore, the initial part of the survey consisted of trying to identify the participants in the industry.

3.4.2 Preparing the Interview Guide Questionnaire

Due to the fact that several of the key informants participate in more than one level of the business chain and the fact that the different levels of the chain have an interdependent relationship it was decided that a single questionnaire should be designed and that the informants should be guided through the questionnaire so that they could select the questions that were most relevant for their own enterprise, but also express opinions on other sectors which are of relevance to their enterprise. For example, although a grower may not process material themselves they supply processors and therefore may well have opinions on the processing and manufacturing levels of the industry.

The questionnaire was laid out into four sections (see appendix 1):

i. Questions relating to general business structure
ii. Questions relating to marketing and distributions issues

iii. Questions relating to the barriers that the informants felt existed in the industry

iv. Questions relating to whether the informants felt that co-operatives have a part to play in overcoming the barriers in the industry and in what way they felt co-operatives could be helpful

3.4.3 Interview process

The key informants were contacted by phone and asked to participate. They all agreed and a convenient time to conduct the interviews over the phone was arranged. The interviews were conducted over the telephone to facilitate the participation of the informants who are widely dispersed geographically and to allow the informants to select a time which suited them to conduct the interviews which were between 40 and 50 minutes in duration. Due to the great variation of the organizations involved in the industry, the questionnaire needed to contain a wide breadth of questions, of which only some would be relevant to each organization. It was therefore felt that the interviewees needed to be guided through the process of identifying the questions that were relevant or would otherwise experience some confusion about the relevance of the survey for their business. Therefore the interviews were conducted verbally, rather than in written form. This also allowed the informants to tell their stories, while allowing the researcher to maintain the necessary degree of direction and control on the interaction.

The researcher took handwritten notes of the key comments of the informants.

3.4.4 Analysing the data

The researcher extracted the main themes from the hand written notes in order to answer the research questions. It was not possible to carry out any statistical analysis of the information due to the small sample size. Instead, a qualitative analysis of the main themes that emerged from the interviews was undertaken.

3.5 Limitations of the study

The main limitations of the study were the constraints placed by the time available and the fact that the industry is small and at a fledgling stage in Ireland. The nascent stage of the industry means that there is very little statistical data available. However, the

researcher works within the industry as a practitioner, researcher, consultant and educationalist, rather than in a commercial capacity, and therefore the key informants agreed to be interviewed and provide information about their enterprises.

3.6 Conclusions

The research method used was chosen in order to conduct a pilot survey to answer the research questions. The next chapter will analyse the findings of the survey.

CHAPTER 4 FINDINGS

4.1 Introduction

This chapter presents the findings obtained from the survey of the nine key informants and the answers they provided to the research questions laid out below:

1 What is the present profile of the MAP industry in Ireland?
2 What do those working in the MAP industry perceive to be the main barriers to the growth and development of the industry in Ireland?
3 Do co-operatives have an identifiable potential to help overcome the barriers and facilitate the growth of the industry?

4.2 Profiles of the informants and the industry

Participants in the MAP industry can be categorized as follows:

- *Growers,* who cultivate or wild-craft the raw plant material. They may also dry the material before it goes on to be processed.
- *Manufacturers*, who oversee the processing of the raw drug into value-added herbal medicinal products, including tinctures, medicinal teas and encapsulated dried powdered herbs. They also market the finished product to retailers in the health-food and pharmacy sectors, to practitioners or directly to the public.
- *Processors,* who provide facilities for manufacturing of herbal medicinal products from raw material. The difference between a manufacturer and a processor is that a processor may provide a processing facility for a number of different manufacturers producing products for different markets. For example, a processor may work with manufacturers in the herbal, cosmetic and pharmaceutical sectors. However, the processor manufactures the products under licence, rather than designing the products, the product identity and marketing strategies.

The research involved informants from all three groups. The details of the number from each group and general information about the informants are laid out in Table 4.1.

Table 4.1 Categorisation and general information about the nine key informants interviewed

Key Informant	Age of enterprise	Size (number of people working)	Business structure	Initial set up support
Growers (3)	2 years	1-2	Sole trader	Cultivation advice
	2 years	1	Sole trader	None
	4 years	1, plus seasonal workers	Sole trader	Private financial support
Grower/ Manufacturers(2)	18 years	1-2	Sole trader	Back to work grant
	10 years	2	Limited company	Financial and marketing advice from LEADER and West Cork Enterprise Board
Manufacturers (3)	7 years	1, previously 3	Limited company	Private venture capital and bank loan
	8 years	Several, number not specified	Limited company	Financial, business advice and mentoring from Bord Bia, Bord Glas, and local Enterprise Board
	5 years	1 plus 2 part time	Sole trader	Advice from Bord Bia and Local HSE
Processors (1)	8 years	18	Limited company	Shannon Development

As can be seen from the table, the key informants included three growers, three manufacturers, one processor and two who were involved in both growing and manufacturing.

Although none of the businesses is incorporated as a co-operative, one company had explored the possibility of using a co-operative structure when setting up and had sought advice from the FAS co-operative unit. However, they had found that support for such a structure at the time was insufficient and therefore became a limited company. This

suggests that greater support is needed in order for enterprises considering setting up as co-operatives; companies often find that the level of support from governmental bodies is insufficient and that they show no understanding of co-operative structures, that there is no governmental body dealing with co-operatives at present and insufficient legislation for recognizing co-operatives as a viable business structure,, and that banks and financial institutions and other professionals, such as accountants, have no understanding of what co-operative actually are and their ability to function as commercial ventures. All the enterprises were set up because the initiators saw a gap in the market for Irish produce and for high quality produce. All informants cited as their motivation an interest in the sector and in sustainable products, rather than pure financial gain. This agenda can differ significantly from that of the retailer, who may have a more financial motivation to their business.

With the exception of the oldest business (which is 18 years old) none of the businesses is older than 10 years, indicating the nascent stage of the industry in Ireland.

The enterprises in the sector are small. The majority of them have one or two people working full-time, and in several cases this is supplemented with some seasonal or part-time work as required. The exceptions are the processor, who also provides manufacturing facilities for other sectors and employs eighteen people and the manufacturer who produces the widest range of products who did not specify the number of people employed.

4.2.1 Profiles of Key Informants

The following is the basis for categorization of the nine informants:

Growers

The first grower was at the set up stage of starting to wild craft plants, refining techniques, and setting up drying and processing facilities and operations. This grower is a sole trader and is considering carrying out their own processing and manufacturing.

The second grower started cultivating plants about 12 months ago. Drying and processing facilities are being developed and techniques of processing refined. The informant is starting to carry out processing of herbs and is set up as a sole trader.

The third grower has been supplying a manufacturer of tinctures and other products. He found that this was not financially viable and he is now supplying a practitioner clinic with fresh material.

Grower/Manufacturers

Grower/manufacturer 1 is a practitioner who grows and processes some material into tinctures for use in his own clinic. He supplements his own produce with material provided by a colleague and dried material bought in from a wholesaler in the UK. In addition, he supplements his supply with finished products bought in from a range of UK manufacturers and sells any surplus of the tinctures he makes to other practitioners.

The second grower/manufacturer enterprise is made up of two growers working together to grow, dry and process herbs into raw dried drugs, powders and encapsulated powders which they supply directly to the general public. In addition, they dry Echinacea which they get processed into tincture by a UK processor and sell on to health food shops, practitioners and the general public in Ireland.

Manufacturers

The first manufacturer informant is the manager of a company that has been producing a range of 20 encapsulated powdered herbs, made from material imported from a UK wholesaler but processed in a facility in Ireland. The company has been attempting to source raw material in Ireland but has experienced barriers to this approach. They were marketing through distributors in Ireland and the UK.

The second manufacturer informant is the managing director of a company producing encapsulated dried herbs, tinctures and macerated oils. The enterprise sources some material from growers here, as well as wild crafting some material on organic farms in Ireland; they also import some of their raw material from overseas. They sell both directly and through distributors to outlets in Ireland and abroad.

The third manufacturer informant is manager of a company producing speciality and medicinal teas from imported raw material. The products are marketed directly to retail outlets and promoted through word of mouth and a website.

Processors

The joint managing director of a processing facility that carries certification from the IMB and the Organic Trust for good manufacturing requirements and licensing. This

facility has been used by several companies to carry out processing of MAP raw materials into finished products. In addition to holding the certifications, the company also offers facilities for export and international distribution. As well as carrying processing for the MAP industry the facility also carries out contract processing for the pharmaceutical, nutriceutical and cosmetic industry.

4.3 The main perceived barriers to the industry's growth and development and the reported potential of co-operatives to overcome these barriers

Perceived barriers: The informants were asked to outline what they felt were the key barriers. The main barriers that were identified by the informants were:

- Issues relating to marketing and distribution
- Export issues
- Niche- marketing strategies
- Lack of a central organization and of structured networking
- Growing sufficient material to break into the market and ensure continuity of supply
- Competing with low cost material from other regions
- Complying with EU and regional legislation and obtaining support from governmental bodies
- Lack of retailer, media and public education

Reported potential of the co-operative approach: All informants were familiar with the co-operative approach to some degree. All informants said that they thought co-operatives could help increase the success of the industry in Ireland and be a way of attaining sustainable growth and better success in the market. The informants were not sure where in the business chain co-operatives would be most applicable. In general they felt that growers might benefit from using a co-operative structure; one informant said

> *' they (co-operatives) have helped in other areas of agriculture so probably would help here'.*

The same informant felt that co-operatives could help at several levels, especially processing, but there could be a barrier if producers were too scattered geographically.

This view was echoed by one of the growers at the set up stage who felt that there needed to be a local cell structure for co-operatives and that if this were possible then they were the most appropriate structure to use to develop the industry. One informant felt that a multi-layered approach was needed and that co-operatives would be helpful at the processing level but the push to develop co-operatives needed to come from processors. Several key informants had concerns about whether it would be possible to bring those involved in the industry together to co-operate (as discussed in the literature review) and the general view was that any co-operative needed to be properly constituted to ensure that it was truly co-operative and not taken over by some of the members. One informant felt co-operatives would be particularly helpful in breaking into the international market. This view was shared by another informant who also felt that it was important for a co-operative to focus on funding the growing of the crops in Ireland.

The individual key barriers being experienced by the key informants and the perceived potential role of co-operatives in overcoming these barriers will now be discussed.

4.3.1 Marketing and distribution

All the informants stated that their percentage of the market for medicinal herbal products in Ireland was '*tiny*', or very marginal. It was difficult to assess the exact number of customers that the enterprises were supplying, as the key informants were in some cases unable and in other cases unwilling to provide this information. None of the informants was willing to provide information on annual turnover or an annual report. The key informants from the manufacturing sector felt that there were four factors contributing to their small market share:

- Lack of retailer support for Irish products in both the health food and pharmacy retailer sector. As one informant said

  "if the retailer is willing to promote the Irish brands then customers will choose them, but this requires incentives and training being provided for the retailers, which can be costly and time consuming."
- Competition from cheaper brands from other regions producing mass market products for the lower end of the market

- The difficulty of competing with the marketing strategies of larger international companies at the quality end of the market, including bonus packages for the retailers and aggressive marketing in the media, funded by large budgets
- The loyalty of consumers to the leading brands. One key informant said that brand loyalty to international brands is as a result of lack of retailer support for Irish brands

However, two key informants did not feel that competing with large international companies was an issue, once marketing strategies were properly formulated. One of these informants said

> *"marketing needs to be directly to the customer or retailer (rather than through a distributor), publicity needs to be properly organised and there needs to be a sufficiently large budget for marketing in order for the enterprise to succeed. In my experience properly directed marketing is what makes a company succeed."*

At present the main promotional tools used by manufacturers in the industry are websites and word of mouth. In addition, some of the key informants use public information talks and herb walks to promote their enterprises, which has been found to be a useful approach on a local level. The manufacturers also mentioned positive media coverage as a useful PR and promotional tool, but found that this was not always easy to access. However, one enterprise said that they have found their market share increasing due to the positive publicity they have received since their involvement with a research project at Cork Institute of Technology into the efficacy of *Inula helenium* in the treatment of MRSA and they are expanding their product range as a result.

One enterprise used a PR company to market the products but found the cost far outweighed the benefits. Two of the manufacturing enterprises had tried using retailer training as a way to promote the products and to combat the above barriers, but had met with limited success. This appeared to be due to the amount of time this process takes and the cost of employing suitably trained personnel to carry out this process which may be prohibitive for a small company on a limited budget as opposed to a large international company, many of which are subsidiaries of multi-nationals.

Routes of distribution: For the majority of the informants involved in manufacturing, the products were supplied directly to the customer base - either retail outlets they supply or the general public. One of the larger manufacturers combines this approach with the use of distributors. One enterprise started by marketing directly but decided to use a distributor in Ireland and a distributor in the UK. They found that using distributors had a negative effect on their sales, as the distributors did not have sufficient interest in promoting their products. The manager felt that this approach had not served the company well, a view echoed by the managing director of the processing facility that they used who expressed the view that

> *marketing needs to be directly to the retailer in order to build up the reputation of the company, at least in the initial stages.*

One manufacturer had tried supplying directly to retail outlets, but found that the fact that they did not have an IMB licence for their products was a barrier and now supplies directly to the public, and a few sympathetic retailers.

The manufacturers were all supplying over-the-counter (OTC) products for sale directly to the public or via retail outlets, partly because this is the more lucrative market and partly because most practitioners prefer to deal with the UK based companies that supply a wider range of products. One informant felt that there was a barrier to supplying practitioners, as regards being able to provide sufficient quality assurance, but the other manufacturers had not experienced this barrier and did supply a small amount of product to practitioners. Three of the manufacturing enterprises are expanding their market share and expanding their product range. One has found its market share reducing and feels that the initial product range badly designed.

4.3.1.1 Exporting

All the manufacturers export to the UK where the market is ten times the size of that in Ireland. One of the key informants from the manufacturing sector said that one of the main barriers to setting up export to regions other than the UK was getting the correct paper work organized and the difficulty of organizing this with governmental agencies.

One key informant said that in order for an enterprise to move into large-scale distribution and export they needed to find a sympathetic distributor.

For growers the main barrier to exporting was being able to grow sufficient material to market to manufacturers or wholesalers abroad. In addition, they found that the return offered for raw material was too low, since cheap material is available from other regions. They also found it difficult to guarantee continuity of supply due to the small size of their enterprises and the fact that each grower is working in isolation.

4.3.1.2 Niche marketing

All the informants had attempted to identify niche markets for their products.

Organic The majority of the informants felt that being organically certified was a marketing advantage. Although organic is generally perceived within the industry as being better as regards therapeutic efficacy (MacSharry, G., 2007), and EUROPAM encourage growers to follow organic techniques in their guidelines, one key informant felt that there is a high degree of consumer scepticism regarding organic certification; during his market research he found that the majority of customers who are looking for herbal products on line do not look for organic produce but look for products that describe themselves as "*pure, the best or cheap*".

Also, none of the growers had sought organic certification due to the cost involved and the perceived difficulty of dealing with the paper-work. However, they all followed organic cultivation techniques. The three manufacturers all used organic raw materials for their products. Only one company produced some products with biodynamic certification. This mirrors the situation in the UK where there is one company (Rutland Biodynamics) that produces some products from biodynamically grown material, some from organic and some from conventionally grown. The other manufacturers that produce for the practitioner market in the UK produce some conventionally grown and some organically grown products, but the key issue seems to be the guarantee of quality and the relationship of trust with customers. In the OTC market a similar picture emerges with consumers either displaying brand loyalty to the companies they perceive as offering the best quality products or going with the cheap brand. Thus in the growing sector, although the producers are committed to organic principles, there are differing opinions

as to whether it gives a marketing advantage. The other credential that manufacturers felt was important was being recognised by the Vegetarian Society.

Local/ Sustainable All of the key informants promoted their produce as being locally produced and their enterprises as being sustainable. The main aspects of sustainability promoted by the manufacturers were the organic cultivation of the produce and recycled, recyclable or biodegradable packaging (one company sources packaging made from sustainable forest). One of the growers at the set up stage is fuelling the drying facility with timber produced on their land by coppicing or from storm fall. Another approach that was mentioned was the use of email for invoices and other paper work in order to reduce waste paper. One key informant felt that sustainability was an important selling point, specifically reducing the carbon footprint of products, since this is currently such a large issue in the media. Another informant stated that sustainability was a key motivation in setting up the company.

Irish The Irish identity of products was seen as very important by all of the informants involved in the manufacturing and processing sector, with the exception of the practitioner. Interestingly, this aspect appeared to add more to the appeal in the export market than in the home market. One informant said that the GMO free status of Ireland and the international perception of Ireland as 'green and clean' can be an excellent marketing opportunity for export. A similar view was expressed by another informant who cited the example of how Kerry Gold broke into the international market by capitalizing on this perception.

Although the niche markets had all been researched carefully and have been shown to increase the market share of other products, the development of products fulfilling all the criteria in the Irish MAP industry had not resulted in attaining a sizeable share of the home market. The lack of support from the retailer sector appeared to be a major factor. Problems with designing marketing strategies and the limited budgets available for marketing may also have contributed.

4.3.1.3 The Potential Role of Co-operatives in overcoming marketing barriers

All nine informants felt that setting up a marketing co-operative, using an approach similar to the Fuschia food label and with guaranteed quality assurance of produce, could be valuable. This would be particularly valuable in breaking into larger markets in Ireland and for marketing abroad. All informants said that they thought it would be valuable to use such a group marketing strategy, once quality could be assured across all the products that came under the label and once all the products were promoted equally. The two informants at the set-up stage said that they would consider working with others only if a similar quality assurance to their own could be guaranteed; whilst they liked the idea of a group marketing strategy in general they preferred to work alone.

4.3.2 Lack of Central Organisation

All informants stated that there was no umbrella or central organization for the industry in Ireland, nor was there any formal structure for networking within the industry. Two availed of general business or manufacturing networks. All were involved in informal networking. In general, the informants felt that a central organization could be beneficial. One informant suggested

> *"this does not need to be a 'stand alone' organization but could be a subunit of a sympathetic organization such as one of the organic associations*"

He drew comparisons with the pharmacy subunit of IBEC[14], which is the central organization for the pharmaceutical manufacturing industry in Ireland. Such an approach would mean that the small size of the industry need not to be a barrier to setting up an organization. One of the growers pointed out

> *such an organization could be beneficial, but only if it were supportive, rather than competitive.*

Several informants expressed concerns about how to create cohesion amongst a group of very strong personalities, an issue that has already been raised in the literature review. However, all the informants said that there needed to be better support from governmental bodies and increased lobbying of such agencies. One key informant felt that

[14] Irish Business and Employers Confederation

the lack of support for the sector from governmental agencies is appalling when compared to other countries such as Germany.

Several other informants found that governmental agencies showed little support for the sector. They found procedures for applying for advice or funding over bureaucratic and that structures were not adaptable to unusual industries. All informants felt that there was a need for the industry to lobby for improved support and recognition of the industry from governmental agencies and that a central organization or better networking would facilitate this process. It was well recognized that a central organization could help to accomplish more positive education of retailers regarding support of Irish MAP products and education of the media to portray a more positive attitude towards herbal medicinal products. This is further discussed below.

4.3.2.1 The Potential Role of Co-operatives in Achieving Central Organisation

The benefits of better networking and an active central organization were seen as crucial by all nine informants. One informant suggested

Perhaps this should be organized along the lines of the strategy adopted by growers in the Nordic countries which allowed them to collaborate with research centres, share facilities and obtain a premium price for their produce.

Most of the informants felt that the provision of education and training by a central organization or network could be beneficial. However, one informant had some reservations about this and said

It needs to be carefully managed as there is a danger of too many people entering production at the same time, rather than sustainable growth and development being achieved, but that at the same time there should not be a barrier to suitable growers trying to move into production.

All the key informants agreed that a central organization could improve access to expert advice regarding marketing, cultivation and processing techniques and business matters. One informant said

Even if the herb growing industry in Ireland does develop it will not be on the scale of thousands of acres, but it could be a flagship for 'Green Ireland' and for biodiversity. However, the industry needs spearheading.

4.3.3 Producing sufficient quantity to break into the market and guarantee continuity of supply

All five informants involved in growing found that there were barriers to producing sufficient quantity to supplying overseas manufacturers and wholesalers since they require a minimum of about one tonne dried material of each species. They also had problems ensuring continuity of supply to manufacturers here and abroad due to the size of their enterprises and had not tried to set up back up mechanisms to break into this market.

Opinions differed regarding whether the direct supply of raw material to practitioners represents a viable market for growers. One key informant moved into this market when he found it unviable to supply manufacturers; however, his enterprise is linked to that of the practitioners he supplies. The other growers either have practitioner training themselves or have a close association with practitioners who are willing to buy from them, although the financial viability of supplying raw material has not yet been fully assessed.

The five manufacturers had also experienced the issue of how to ensure continuity of supply, but had set up mechanisms to ensure this by having back up supplies of raw material. They had found other sources of material, such as the large wholesalers based in the UK.

4.3.3.1 The potential role of co-operatives in achieving sufficient supply to break into the market and guarantee continuity of supply

All nine informants felt that the pooling of produce by growers to break into the market for APIs and botanical medicines in the international sector or to vertically integrate in collaboration with a processing facility to produce value added produce would benefit those in the growing sector of the MAP industry and could be organized as a co-operative. There were differing opinions about the provision of milling facilities to assist

vertical integration. All the informants felt that the provision of such infrastructure could be beneficial. However, four of them felt that the logistics of organizing these geographically might present a challenge. One informant said that they already allowed other producers to use their drying facility and that such an approach was possible.

4.3.4 Competing with the low cost of raw material from other regions

The only manufacturer who was using only Irish-produced material was the enterprise that was growing and processing the material itself. Two enterprises were only using imported material, due to the fact that they were experiencing difficulty in tracing sufficient quantities of Irish grown material and the fact the cost of raw material sourced in Ireland is so high. They had attempted to establish supply chains with Irish producers but had not succeeded so far. They said that they had entered into discussions with farmers or growers but in some instances the price they were asking was too high in comparison to the material available from the wholesalers. In other instances the growers were unable to produce sufficient quantity or guarantee the supply. One informant said that they had found growers and farmers with a potential interest in moving into production but that the farmers wanted a guaranteed market for the crop they were producing, or wanted support in the set up stages. Two enterprises use a combination of Irish-grown and imported material – they have a preference for Irish material, but some species that they use will not grow here and in some cases there is insufficient material produced here to supply their needs.

All key informants in the manufacturing sector had considered working with other growers and producers to ensure continuity of supply, but only one company (apart from the enterprise which grows all its own material for manufacture) had succeeded in setting up a supply chain of raw materials from Ireland, and they still needed to supplement their material with supplies from abroad. One key informant from the grower sector stated that although he was paid 5 times the normal market price for Valerian by this company the crop was still not financially viable and he had stopped trying to grow for manufacturers. However, the same informant pointed out that as oil rises in price this might change, due to the increasing cost of importing products and raw material. The company was willing to pay over the market price for the Valerian because they were

dedicated to sourcing material from Ireland and encouraging Irish growers to expand their production. There are several factors affecting the financial viability of the crop. Firstly, Valerian has a long growing period – it takes 4 years from sowing to harvest. Secondly, the small scale of production increases the cost of production. Other species that have a shorter growing period may be more financially viable, as may some of the crops that can be wild-crafted. If the grower cannot produce sufficient quantity, they may try to negotiate a co-operative approach with the manufacturer to vertically integrate in the business chain, or they may try to establish a producer co-operative with other growers to produce enough to break into the market successfully.[15] As noted above, manufacturers had also encountered the barrier of competing with cheaper products from other regions

Achieving Vertical integration. One key informant in the growing sector felt that his business would have been financially viable if he had vertically integrated into adding value to the raw material, but this would have required setting up manufacturing facilities, and the financial outlay involved was a barrier. One informant from the practitioner sector adds value to the produce he grows, and finds that this makes financial sense. The two growers at set-up stage are intending to add value to their products to make the business financially viable. They hope to finance the set-up themselves, but may explore funding or look at working with an established facility if they produce sufficient quantity. The key informant from the processing facility stated that they would only be interested in processing quantities larger than one tonne unless it was as part of setting up a business that would expand to the level of processing that quantity. All

[15] This approach has been used successfully by organic vegetable growers in the UK. An example is Eostre Organics. http://www.defra.gov.uk/farm/policy/sustain/procurement/casestudies/europe-cooporg.htm, http://www.eafl.org.uk/default.asp?topic=OFarticle – 18

informants agreed that vertical integration was necessary to make the business viable for growers.

4.3.4.1 The potential role of co-operatives in competing with low cost material

All nine informants felt that growers could benefit from using a co-operative structure to compete with lower cost raw materials. However, all the informants felt that growers also needed to vertically integrate to ensure economic sustainability. One informant from the growing sector felt that the manufacturers needed to lead the way in setting up co-operative structures that ensured a sufficient return for the growers so that the grower and harvester sector became economically sustainable. Better networking between the different layers of the business chain was felt to be necessary in order to find solutions to this barrier.

4.3.5 Compliance with Legislation and Support from Governmental bodies

All five informants from the manufacturing sector felt that the Traditional Herbal Medicinal Products Directive (THMPD), Health and Safety Regulations and other legislation were barriers. The introduction of the TMHPD and how to comply with this legislation, particularly the cost of licencing products with medicinal claims, was felt to be a particular barrier. One key informant felt that this legislation could either be a barrier or provide opportunities, depending on how the sector responded to it. One possible response that he suggested was for companies to work together to apply for licences for products made from the same herb; however, the legislation does not allow this approach. The implications of the THMPD as regards traceability and quality assurance were also felt to be challenges although one informant said that adequate analysis could easily be obtained from companies in the UK; the main question would be the cost of this per batch. Quality assurance was felt to be a barrier by the two growers who are already vertically integrated into producing tincture and dried material. All the informants agreed that the cost of analysis for small companies producing small batch sizes could be a barrier by making the products more expensive.

Organic certification Interestingly, although all the growers comply with organic cultivation techniques they have found the cost and procedure of getting certified too onerous to pursue the process.

4.3.5.1 The potential role of co-operatives in achieving compliance with legislation and getting sufficient support from governmental bodies

There were differing opinions about whether seeking funding and negotiating with governmental agencies as a co-operative would be beneficial. One informant said that whilst there would be some benefits, there are advantages to the individual enterprises involved with the co-operative building their own relationship with governmental agencies. However, other informants felt that there would be advantages to a co-operative helping to raise the profile of the industry with governmental bodies and helping to lobby for more support.

4.3.6 Education and research

One informant mentioned the hostility of the Irish media and the amount of negative press given to the complementary health sector in general. Three informants mentioned the need for media support and education to improve the growth of the indigenous MAP sector.

Informants felt that there needed to be better public support for an Irish industry, which could be improved by lobbying the media and the retail sector. One informant said that

"*Public education can only really occur through retail and media.*"

Several informants found retailers were not willing to support indigenous products but were more interested in the bonuses they could obtain from achieving sales targets of the large international brands and preferred to stay with the chains of supply and the support packages they were used to, rather than promoting the products of the Irish MAP industry.

In the researcher's own experience of conducting retailer education it was found that many retailers were not interested in the concept of supporting indigenous produce. The researcher found that in many cases retailers would prefer to promote the international brands. Part of the reason for this was that international brands have sufficient budgets to

run training seminars and offer bonuses, and part is that the retailers rely on the established saleability of the product and do not need to actively promote it to the consumer. In the researcher's experience the pharmacy retail sector appeared to be more supportive of Irish MAP products than the health-food sector. This might be because pharmacists are more likely to be asked for advice on alternative products, whilst those purchasing from health food outlets have often read an article or received a recommendation from someone for a particular brand. However, the health-food retailers are also asked for recommendations, so the difference may be that pharmacists are more highly trained in how to advise consumers about OTC products.

All informants commented on the need for governmental agencies to be better informed about the sector, an issue that is echoed by growers in the organic sector. The regional variability of governmental agency's awareness of the MAP sector was also mentioned; some informants had found that the representatives that they were dealing with were well-informed or willing to learn about the sector, whilst other found that the representatives were not willing to see how legislation and regulations could be adapted for *"an unusual sector"*.

Research: Research was seen to be more important by manufacturers than by growers. The manager of the company producing encapsulated herbs said that a centralised research facility was needed, although on further discussion he said that it was central co-ordination of research that was crucial; this view was shared by the other manufacturers. All informants felt that the lack of coordinated research presented a barrier for the industry in Ireland and worldwide.

4.3.6.1 The potential role of o-operatives in education and research

All nine informants felt that there was a need for improved education of the public, media, retailers and governmental bodies regarding the MAP sector and that a co-operative could help to coordinate better education; if the industry were organized as a co-operative there would be a stronger voice for lobbying. A central organization and pooling of funds would facilitate activities such as building awareness among the public, the media and retailers.. The role of research was felt to be crucial, and the need for a

centralized coordination of research conducted in the sector was seen to be an important factor in improving the performance of the industry; several informants felt that a co-operative would be a possible structure to use in this process.

4.4 Conclusion

From the analysis of the findings from the interviews discussed it can be concluded that there is general agreement among the key informants as regards the barriers that exist for the industry, the potential solutions and the potential role that co-operatives could play in overcoming the barriers.

Barriers: The key barriers are the lack of coordination and organization within the industry; the need for better education of the retailer sector, the public, the media and the governmental agencies and vertically integrating those at the start of the business chain in order to ensure that they get a reasonable level of income for their produce. The development of more successful marketing strategies was also recognized as an important issue and this is closely linked to the issue of education. Any solution to the barriers depends on possible choices and decisions taken by the participants in the industry. The full realization of the industry's potential depends on all of the participants making the relevant choices.

The Potential Role of Co-operatives: All the informants felt that co-operatives had a role to play in overcoming the barriers laid out above. All informants felt that a marketing co-operative would be particularly valuable and it may be concluded that this form of co-operative is a potential central structure on which to build the systems of central organization, better education and research coordination and vertical integration. The main reservation voiced by all the informants is the issue of how to ensure that any co-operative that was set up would remain truly democratic and that systems were put in place to ensure equal promotion of all the members' produce and to ensure the same level of quality assurance across the industry.

CHAPTER 5 CONCLUSIONS

5.1 Introduction

This chapter will review the findings, discuss the conclusions and recommendations that can be drawn from the findings, and indicate the possibilities for further research.

5.2 Review of the research questions

The research questions were:

1 What is the present profile of the MAP industry in Ireland?

2 What do those working in the industry perceive to be the main barriers to the growth and development of the industry?

3 Do co-operatives have an identifiable potential to help overcome the barriers and facilitate the growth of the industry?

5.2.1 The Present Profile of the MAP Industry in Ireland

It was shown that the MAP industry in Ireland is made up of few participants at both the grower and manufacturer level in comparison to the level of products retailed to the consumer. The enterprises were found to be small and all younger than ten years, except for one enterprise that is eighteen years old; MAP in Ireland is a nascent industry. However, the industry is attracting new participants, particularly at the grower and producer level, indicating an increase in the number interested in becoming involved and therefore a growth potential.

5.2.2 The Perceived Barriers to Growth and Development of the Industry

All nine key informants identified similar perceived barriers and reflected the barriers that had been uncovered in the literature review.

All the informants had experienced a lack of retailer support for Irish products, vis-à-vis cheaper products from abroad and the large international companies with large marketing budgets. The key solution seemed to be better retailer and public education and two informants felt that it would be possible to compete with the large companies with proper marketing strategies. The key issue was the lack of a coordinated approach by the

industry to achieving this end. Although the informants had researched the niche markets (organic, sustainable, Irish) well, they still found that the development of products fulfilling these criteria did not increase market share. Lack of retailer support for indigenous products still remained a barrier, as did the lack of effective marketing strategies. In the export sector manufacturers found the lack of support from governmental agencies to be an additional barrier. In both the literature review and the survey the lack of central organization appeared as a major barrier to developing the industry. Producing sufficient quantity was seen as a barrier to breaking into international markets with raw material, and for the individual grower endeavouring to supply Irish manufacturers. However, the informants believed that co-operation amongst those in the growing sector would help overcome this barrier. The participants within the industry need to support each other; growers need to know that there is sufficient demand for Irish raw material in order to expand their production and manufacturers need to work together to encourage growers to increase production, better co-operation between growers and manufacturers is needed for growth and development of an indigenous industry. Vertical integration of growers in the business chain is part of the solution; the idea of using this approach is supported by the relative success of the enterprise run by growers who retain ownership of their raw material the whole way up the business chain, and another enterprise which has successfully set up a chain of supply with indigenous growers and producers to provide some of their raw material. The informants generally felt that for growers the solution to competing with the low cost of raw material from other regions was to work together in order to get a better price for the raw material and to work together with the processors and manufacturers to achieve vertical integration in the business chain to retain ownership of produce to a level yielding economic sustainability. For manufacturers the solution to this barrier was felt to be better education to encourage retailer and consumer support of indigenous produce.

The central themes that emerged from the barriers and possible solutions were:
The formation of a central organization or a more formal network is crucial to the growth and development of the industry. The formation of such a body would help to coordinate better education of the public, the media and retailers which in turn could encourage

better support of indigenous products. Such a body would also facilitate lobbying of governmental bodies and NGOs for better support for the industry. It would also facilitate the informing of these institutions as regards the potential role the MAP industry has to play in rural development and social sustainability, as well as environmental sustainability and the protection of biodiversity. It would form a more efficient network with those involved in research. The second theme that emerges is the need for the industry to co-operate to achieve better education and research. The third theme that emerges is the need for growers to achieve vertical integration in the business chain and for growers and manufacturers to co-operate together to ensure that this is achieved. Addressing the three central themes would involve bringing together all the stakeholders in the industry, the importance of which has been discussed in the literature review.

5.2.3 The Potential Role of Co-operatives to Facilitate Growth of the Irish MAP Industry

The informants all agreed that co-operatives could play a role in facilitating the growth and development of the industry, some even went as far as to express the opinion that it was the most suitable way of structuring the industry. All the informants felt that a co-operative approach to marketing could overcome the barriers experienced in this area. The informants also felt that co-operatives have a potential role to play in providing central organization for the industry. However, they all emphasized the need for a regional structure to organization in the industry and the need for ensuring that any such body remained true to co-operative structures and approaches. Although the informants felt that co-operatives might help to overcome problems with producing sufficient quantity of raw material for growers to supply indigenous and international markets, the central issue that emerged was facilitating the vertical integration of growers and harvesters higher in the business chain, which could be achieved through a co-operative approach. Similarly, the potential role for co-operatives in helping all sectors to compete with low cost material would appear to be through facilitating vertical integration and co-operation between growers and manufacturers. The informants had differing opinions about the role of co-operatives in dealing with legislation. However, co-operatives were

felt to have a strong potential to assist with education of the public, retailers, the media and other groups and for helping to coordinate liaising with research facilities.

The central themes regarding the potential role of co-operatives in the development of the MAP industry in Ireland were:

The formation of a central organization or formal network to facilitate co-operation between the different sectors of the industry such as growers and manufacturers a group marketing strategy; achieving vertical integration for those at the start of the business; and coordinating education and research.

5.3 Conclusions and Recommendations

The MAP industry has the potential to develop into a sustainable industry, as shown by various examples in the literature review. It also has the potential to address various issues around environmental sustainability, biodiversity and rural development and form part of an integrated agricultural strategy.

Like any nascent industry, the MAP industry in Ireland is experiencing various barriers and the participants have ideas about solutions but are impeded in implementing them by the lack of co-ordination between the different stakeholders, including those in the industry, growers, manufacturers, processors; those in the market – retailers and consumers; those in state bodies and NGOs with a potential input; and those in academia and research, including agricultural teaching and research centres, Institutes of Technology and University Departments involved in relevant research and education. A better system of networking and central organization needs to be developed in order to allow more discussion between the participants in the industry, to enable a proper analysis of the industry's resources and to achieve the education needed to get consumer and retailer support and to lobby governmental bodies and semi-state bodies. Vertical integration is also a core issue that needs to be addressed in order for growers and producers to achieve economic sustainability. The potential to develop group marketing strategies and to collaborate to sell into larger markets are areas that manufacturers and growers need to collaborate on.

Co-operatives have a strong potential to play a part in improving the growth and development and giving a viable structure to the industry, given the successful role that

they have played in other regions and other sectors.

5.4 Possibilities for Further Research

As a result of the pilot survey the need for further research in several areas has emerged. Firstly, there is a need for a more in depth study of the industry and its structures, including all the stakeholders involved including state and semi-state bodies, non-governmental organizations, distributors and retailers as well as the growers, producers, manufacturers and processors. Secondly, there needs to be further investigation of how other regions and sectors, especially the organic sector, have successfully overcome the barriers to develop a sustainable industry. Case studies of successful co-operatives within the MAP industry abroad are needed to document best practice for the Irish context. Thirdly, research into which crops are sustainable on an environmental and economic level needs to be conducted, as regards which crops and wild-crafted species are suitable for the Irish climate and which have a ready and viable market.

APPENDIX 1

MASTERS QUESTIONNAIRE

General

1. What is the trading name of the organization?
2. When was the organization set up?
3. How are you incorporated - limited company, co-operative or other structure (please describe)?
4. How did you decide on the business structure?
5. How many people are employed/ working in the enterprise?
6. Has there been an increase or decrease in the number of people working in the company over it's history?
7. What is your role in the organization?
8. How did you get involved in the organization?
9. What level of support was available to the organization in the earlier years?
10. From whom did you receive support?
11. What type of support did you receive:
    i. Financial
    ii. Mentoring
    iii. Business advice
    iv. Advice about the industrial processes
    v. Other (please describe)?
12. Is there an umbrella organization for the industry based in Ireland?
13. Do you belong to an umbrella organization abroad?
14. What networks are you part of (please describe)?
15. Can you give an idea of your approximate turnover?
16. Is it possible to have a copy of your annual report?

Marketing

17. What market do you supply :
    i. Manufacturers
    ii. OTC (over the counter) to public

iii. Practitioners

iv. or other (please describe)?

18. Is your market in Ireland or overseas?
19. What approximate percentage of the market in Ireland does your company hold?
20. How do you promote your company?
21. Is your market share increasing or decreasing (please describe)?
22. Is your product range increasing or decreasing?
23. How many customers do you supply?
24. What products do you produce?
25. Are there other products you intend to expand into?
26. When do you market?
27. How do you market – directly to customer or through distributor?
28. Have you found a niche market for your produce and what is it?
29. Does the fact that your product is Irish add to it's market appeal?
30. Is your produce organic and is this a selling point for it?
31. Is any of your produce certified biodynamic?
32. Does your produce carry any other certification?
33. Does your company promote itself as being sustainable?
34. What aspects of sustainability do you promote?
35. Do you promote the fact that it is locally produced?
36. Please describe any other aspects relating to the growth of the company.

Growers

37. If you are growing, how many species do you grow commercially (please list by botanical name)?
38. Do you wild craft any other species?
39. Are there other species you would like to bring into production?
40. If you are growing do you supply one or more manufacturers, and is the material supplied in a fresh or dried form?
41. Do you process and market the material yourself?
42. Do you work with a processing facility and market the material yourself?

43. Do you have a problem finding a market for your produce?
44. What barriers do you experience to finding a market for your products?
45. Are you able to produce sufficient quantity to supply wholesalers/manufacturers?
46. Are you able to guarantee continuity of supply to wholesalers or manufacturers with your own produce or do you have a back up mechanism for supplying them?

Processors

47. Can you ensure quality of produce and access analytic facilities to measure quality?
48. If you are processing, do you:
    i. grow the material yourselves,
    ii. buy it from Irish growers,
    iii. buy from overseas wholesalers
    iv. or other (please describe)?

Manufacturers

49. For manufacturers - what barriers do you find for supplying OTC products to retailers? e.g. competing with larger overseas companies who offer trips, promotional materials, educational and training support or other (please describe)?
50. Have you considered supplying directly to practitioners, or are there barriers to this approach?
51. Have you considered working with other growers and producers to ensure continuity of supply?
52. Have you considered pooling produce with other growers and producers to break into the market?
53. Have you considered developing a joint marketing strategy with other producers, perhaps something similar to the Fuschia label used by small artisan food producers in West Cork?

Barriers

54. What do you consider are the main barriers to developing the industry?
55. Have you encountered any of the barriers listed below:
    i. Continuity of supply
    ii. Producing sufficient quantity to break into the market?
    iii. Low return for raw drug?
    iv. Accessing suitable processing facilities?
    v. Competing with the marketing strategies of larger international companies?
    vi. Complying with EU regulations?
    vii. Finding a niche market - e.g. Irish product/ organic/ less 'herb miles' etc.?
    viii. Identifying ideal customer base? Retailer, wholesaler, manufacturer, practitioner or other?
    ix. Getting adequate analysis carried out on produce to satisfy regulations or customers?
    x. Lack of support from governmental agencies?
    xi. Lack of central organisation for the industry in Ireland?
56. What do you consider to be the best solution to overcome the barriers you have encountered:
    i. Continuity of supply
    ii. Public support
    iii. Growers working together
    iv. Expanding business to a sustainable level
    v. Support from a central organization
    vi. Support from governmental bodies
    vii. Other (Please describe)
    viii. What is required as regards suitable processing facilities for you produce?
57. Can you provide these facilities for yourself?
58. If you cannot provide these facilities for yourself are there suitable facilities

available in Ireland or do manufacturing need to be carried out overseas?

Co-operatives

59. Are you familiar with co-operative approaches?
60. Do you feel that using a co-operative approach could potentially help to increase the success of the industry?
61. Do you feel that working as a co-operative would be a way of attaining sustainable growth and better success in the market?
62. At what level of the business chain could the co-operative approach be useful e.g processing, selling pooled produce or do you feel it should be used at several levels?
63. Which of the following potential aspects of working as a co-operative do you feel you would benefit from/ like to participate in?
    i. Pooling crops to ensure sufficient quantity of produce to break into the API or botanical medicines market?
    ii. Pooling crops and working with a manufacturing facility with certification to produce value added products such as creams, tinctures etc, and to market the same?
    iii. Provision of drying/comminuting/ milling facilities?
    iv. Education and training in relevant areas such as cultivation, certification, standards of production?
    v. Accessing expert advice?
    vi. Seeking funding?
    vii. Negotiations with governmental bodies such as Dept of Agriculture, Teagasc, Heritage council and with NGOs?
    viii. Networking with other growers and producers?
    ix. Marketing produce already being produced?
    x. Research?

Research

64. Are you involved in working with any research projects?

BIBLIOGRAPHY

Akerele, O., 1992. *WHO guidelines for the assessment of herbal medicines* Fitoterapia 63(2): 99-110.

Allen, D.E., & Hatfield, G., 2004. Medicinal Plants in Folk Tradition, An Ethnobotany of Britain & Ireland. Timber Press, Portland, Oregon

Barker, J., 2001. The Medicinal Flora of Britain and Northwestern Europe. Winter Press, West Wickham, Kent

Blamey, M., Fitter, R., Fitter, A., 2003. Wild Flowers of Britain and Europe A&C Black, London

Blumenthal, M., Goldberg. A., Brinckmann, J., 2000. Herbal Medicine Expanded Commission E Monographs American Botanical Council, Newton, MA

Braun, I., and Cohen M., 2005. Herbs and Natural Supplements An Evidence-based Guide Elsevier, Marrickville, NSW

Brinckmann, J., 2004. *The Medicinal Plant Supply Chain: Creating Social and Environmental Sustainability* HerbalGram 2004;64:56-60

Briscoe R., and Ward M., 2000. The Competitive Advantages of Co-operatives Centre For Co-operative Studies, Cork

Briscoe R., and Ward M., 2000. The Co-operatives of Ireland Centre for Co-operative Studies, Cork

Briscoe, R. and Ward, M., 2005. Helping Ourselves Oaktree Press, Cork

Buricova, L., Reblova, Z., 2008. *Czech Medicinal plants as possible sources of antioxidants* Czech Journal of Food Science, 26: 132-138

Campbell, D., 2006. *The Third Way* Rural Co-operatives July/August 2006: 2

Cobia, D., 1997. *New Generation Cooperatives: External Environment and Investor Characteristics* Paper presented at Conference on "Co-operatives: Their Imoprtance in the Future of the Food and Agricultural System," Food and Agricultural Marketing Consortium, Las Vegas, NV January 16-17, 1997

Craker, E., 2003. *Production and Demand – A View to the Future of MAP* in Proceedings International Conference on MAP Eds. J. Bernath et al. Acta Hort. 597, ISHS 2003

Cross, R. and Buccola, S., 2004. *Adapting Cooperative Structure to the New Global Environment* Amer. J. Agri. Econ. *86 (No.5, 2004): 1254-1261*

Dambiec D., 2008. *Cooperatives Alternative Economic Structures and Business Enterprises* (www.prout.org/pna/cooperatives.html) (June 2008)

Davis J. M., 2008. *Specialty Crop Production: Vegetables, Herbs and Other Uncommon Crops* (www.ces.ncsu.edu/fletcher/sraff/jmdavis/uncommon.html) (June 2008)

De Silva, T. and Attal C.K., 1995. *Processing, Refinement and Value Addition of Non-wood Forest Products* in International Expert Consultation on Non-Wood Forest Products Forestry and Agriculture Organisation of United Nations, Rome, Italy 1995

Downing, M. et al., 1998. *Agricultural Cooperatives and Marketing Bioenergy Crops: Case Studies of Emerging Cooperative Development for Agriculture and Energy* BioEnergy'98 (http://bioenergy.ornl.gov/papers/bioen98/downing.html)

Edberg, K., 2006. *Leveraging Benefits for Producer, Consumer Co-ops* Co-operative Grocer No.122, January – February, 2006

Feehan J., 2004. *Enhancing Biodiversity* in National REPS Conference Proceedings TEAGASC 2004

Franke, R., 1997. *.Kerala Dinesh Beedi: The Dynamics of Work and Democracy in an Indian Industiral Cooperative* presented at the Socialist Scholars Conference 1997

Galambosi, B. and Dragland, S., 2002. *Possibilities and Limitations for Herb Production in Nordic Countries* Proc. Int. Conf. On MAP Eds. J. Bernath et al. Acta Hort. 576, ISHS 2002

Grenada National Strategy Team, 2006: *Growing out of poverty: A Strategic Direction in the Agriculture Sector - Grenada's case* www.intracen.org/wedf/ef2006/global-debate/country-team-papers/grenada_paper.pdf

Hamilton, A., 2005. *Resource assessment for sustainable harvesting of medicinal plants* International Botanical Congress Vienna on Source to Shelf: Sustainable Chain Management of Medicinal and Aromatic Plants, organized by Dagmar Lange, Klaus Durbeck amd Chlodwig Franz (21-22 July 2005)

Hamilton, A., 2003. *Medicinal plants and conservation: issues and approache* Plants Conservation Committee and Medicinal Plants Specialist Group, IUCN 2003 http://www.wwf.org.uk/researcher/issues/plants/0000000181.asp/medplants andcons.pdf

Hatfield, G., 1999. Memory, Wisdom & Healing The History of Domestic Plant Medicine Sutton Publishing, Stroud, Gloucs

Henehan, B. and Anderson, B., 2001. Considering Co-operation: A Guide for New Cooperative Development , New York, Department of Applied Economics and Management, College of Agriculture and Life Sciences, Cornell University

Henrikse, G. and Bijman, J., 2004. *Ownership Structure in Agrifood Chains: The Marketing Cooperative* in Amer. J. Agr. Econ. 84(1) (February 2004): 104-119

Hoareau, L. and DaSilva, E., 1999. *Medicinal Plants: a re-emerging health aid* Electronic Journal of Biotechnology Vol.2 No.2, Aug 15

Hoffmann, R., 2005. *Ownership Structure and Endogenous Quality Choice: Cooperatives versus Investor-Owned Firms* In Journal of Agricultural and Food Industrial Organisation, 2005, vol.3, issue 2, pages 1098 – 1098

Johnson, C. , 1998. *Weaving Sustainability Into A Cooperative Network* North American Conference On Enterprise Development Through AgroForestry: Farming the AgroForest for Specialty Products (Minneapolis, October 1-7, 1998)

Karki, M., 2004. *Community-driven medicinal plants conservation: wise practices from South Asia* in Proceedings of a Global Synthesis Workshop on "biodiversity Loss and Species Extinctions: Managing Risk in A Changing World http://www.iucn.org/congress/2004/documents/outputs/biodiversity-loss/community-driven-karki.pdf

Karki, M. et al, 2003. *Creating livelihoods Enhancing Medicinal and Aromatic Plants based Bio-diversity-Rich Production Systems: Preliminary Lessons from South Asia* 3rd World Congress on Medicinal and Aromatic Plants for Human Welfare (WOCMAP III) Chiang Mai, Thailand, February 3-7, 2003

Katz, J. and Boland, M., 2002. *One for All and All for One? A New Generation of Co-operatives Emerges* Long Range Planning 35 (2002) 73-89

Kelemen J., 2004. *Bringing Back Small Scale Tillage Farming in Ireland* in National REPS Conference Proceedings Teagasc 2004

Kenny, L., 2002. *Morocco* Options Mediterraneennes, Serie B n. 40 2002: 112

Kizmaz M.,1997. *Production of Medicinal, culinary and aromatic plants in Turkey* in Medicinal, Culinary and Aromatic Plants in the Near East Proceedings of the International Expert Meeting Forestry and Agriculture Organisation of the United Nations, Cairo, Egypt 1997

Kosovic, N. and Dunjic, L., 2002. *Some indicators of the status and possibilities to improve the collection, purchase and processing of medicinal and aromatic plants in the region of Herzegovina-Neretva Canton in the Federation of Bosnia and Herzegovina* in Seminar Proceedings Harvesting of Non-Wood Forest Products Menemen-izmire, Turkey 2-8 October 2000

Lange, D., 2004. *Medicinal and Aromatic Plants: Trade, Production and Management of Botanical Resources* in Oroc.XXVI IHC – Future for Medicinal and Aromatic Plants Eds. L.E. Craker et al.

Lange, D., 2006. *International Trade in Medicinal and Aromatic Plants* . In R.J. Bogers et al. (eds.), Medicinal and Aromatic Plants Springer, Netherlands

Lange, D. and Mladenova, M., 1998. *Bulgarian model for regulating the trade in plant material for medicinal and other purposes* in Medicinal plants for forest conservation and health care Forestry and Agriculture Organisation of the United Nations, 118

Lasserre, G., 1959. Co-operative Enterprises the Co-operative Union Ltd., Manchester

Lawrence, F., 2004. Not on The Label Penguin, London

Lawrence, F., 2008. Eat Your Heart Out Penguin, London

Lerman, Z. and Parliament, C., 1990. *Comparative performance of cooperatives and investor-owned firms in US food industries* in Agribusiness Vol. 6, Issue 6, pp 527-5401990

Liang, Y. et al., 2004. *Quality control of herbal medicines* Journal of Chromatography B, 812 (2004) 53-70

Linden, E., 1991. *Lost tribes, Lost knowledge.* Time (September 23): 46-54

Lonner, J., 2003. *Essential oil, Tisane & Medicinal Herb Production, Processing and Marketing in Kosovo, including other Niche-Market High-Value Horticultural Commodities June 3 to June 23, 2003*
http://www.cieer.org/geirs/regions/eu/kos/kosovo/pdf/Alkire_report.pdf

Mac Coitir, N., 2003. Irish Trees, Myths, Legends & Folklore The Collins Press Cork

Mac Coitir, N., 2006. Irish Wild Plants Myths, Legends & Folklore The Collins Press, Cork

MacSharry, G., 2007. *Why Medicinal Herbs Must be Grown Organically* Organic Matters Issue 99 December 2007/January 2008 26-27

Mathe, A. and Mathe, I., .2008. *Quality Assurance of Cultivated and Gathered Medicinal Plants* in Proc. XXVII IHC – Plants as Food and Medicine Eds-in Chief: G.Gardner and L.E. Craker Acta Hort. 765, ISHS

Mills, S. and Bone, K., 2005. The Essential Guide to Herbal Safety Elsevier, Churchill Livingstone, St. Louis, Missouri

Neffati, M. and Ouled Belgacem, A., 2006. *A multidisciplinary study of herbal, medicnal and aromatic plants in Southern Tunisia: a new approach* in Regional consultation on linking producers to markets: Lessons learned and successful practices, Cairo , Egypt Jan 29 – Feb 2, 2006

Ng'etich, K., 2005. *Indigenous Knowledge, Alternative Medicine and Intellectual Propert Rights Concerns in Kenya* in proceedings of 11th General Assembly, Maputo, Mozambique, 6-10 December, 2005

Notta, O. and Viachvei, A., 2007. *Performance of Cooperatives and Investor-owned Firms: The Case of the Greek Dairy Industry* in Vertical Markets and Cooperative Hierarchies Springer, Netherlands, pages 275-285

Peculi, V., 2002. *Albania Regional Report* in Options Mediterraneennes, Serie B n. 40 p 55

Perkins J. and Chumpi S., 2001. Spirit of the Shuar, Destiny Books, Rochester, Vermont

Power et al, 1996. *Great Northern Garlic Growers Cooperative Seeks Market Niche* in Fedgazette Jul96, Vol.8, Issue 3

Radusiene, J., 2004. *Trade, Use and Conservation of Medicinal and Aromatic Plants in Lithuania* in Proc XXVI IHC – Future for Medicinal and Aromatic Plants Eds. L.E. Craker et al. Acta Hort. 629, ISHS 2004

Schaffner, D.J., 2003. *The Challenges Facing Co-operative Marketers and Bargaining Co-operatives in Today's Food System* in Merrett C. & Walzer N. Co-operatives and Local Development M.E. Sharpe, New York pp.207-223

Sexton, R., 1998. A Little History of Irish Food Kyle Cathie Ltd London

Sheridan, H., 2004. *Creation, Rejuvenation and Management of Field Margins* in National REPS Conference Proceedings, TEAGASC 2004

Singh, Y. 2003 Kava Toxicity in U.S. Pharmacist Vol. No. 28:05 http://www.uspharmacist.com/oldformat.asp?url=publish/content/8

Smyth, J., 2007. *Court Rules State failed to protect endangered birds* The Irish Times Dec 15, 2007 page 8

Stefanson,B. and Fulton M., 1997. *New Generation Co-operatives: Responding to Changes in Agriculture*. Centre for the Study of Co-operatives, University of Saskatchewan

Subedi, B. 1998. *Participatory Utilization and Conservation of Medicinal and Aromatic Plants: A Case from Western Nepal Himalaya* from International Conference on Medicinal Plants, February 16-19, 1998, Bangalore, India

Swe, T. and Win, S. 2005. *Herbal Gardens and Cultivation of Medicinal Plants in Myanmar* in Regional consultation on Development of Traditional Medicine in the South East Asia Region, Pyongyang, DPR, Korea, 22-24 June 2005 World Health Organisation, Regional Office for South East Asia

Taylor, L., 1998. Herbal Secrets of the Rainforest Prima Health Rocklin, CA

Thyfault, C. , 1996. *Developing New Generation Co-ops: Getting started on the Path to Success* Rural Cooperatives, July,August 1996, Vol.63, No.4

Torgerson, R.E., 2003. Producer Marketing Through Co-operatives System in Merrett C. & Walzer N., .Co-operatives and Local Development M.E. Sharpe, New York pp.224-246

Torgerson, R., 2006. Cooperative marketing in the new millennium www.rurdev.usda.gov/rbs/pub/jan00/century.htm

Van de Kop, P. et al, 2006. *Developing a Sustainable Medicinal-Plant Chain in India* . In Agri-food Chains and Networks For Development, 191-2-2. Eds R. Ruben,et al, Springer, the Netherlands

Van der Mheen, H, 1993. *The Cultivation of Herbs and Research on the Cultivation of Herbs in the Netherlands* Acta Horticulturae 331, 1993

Vieira, R., 1999. *Conservation of Medicinal and Aromatic Plants in Brazil* in Perspectives on new crops and new uses J. Janick, ASHS Press, Alexandria, VA.

Wangchuk, D., 2005. *Sustainable Manufacturing of Traditional Medicine in Bhutan* in Regional consultation on Development of Traditional Medicine in the South East Asia Region, Pyongyang, DPR, Korea, 22-24 June 2005 World Health Organisation, Regional Office for South East Asia

Warman, M. and Kennedy, T. 1998. *Understanding Agricultural Marketing Co-operatives* Rural Development Service United States Department of Agriculture

Wickramasinghe A., 1997. *Gender Concerns in Conservation* in Beyond Fences Seeking Social Sustainability in Conservation Volume 1, ICUN Gland Switzerland, pp.22-25

WWF 2003. http://www.wwf.biz/about-wwf/where-we-work/europe/whatwedo