

The role of high-value crops in rural poverty reduction in the Near East and North Africa



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Project funding:
International Fund for Agricultural Development (IFAD)

Project manager:
Tawfig El-Zabri
Country Programme Manager
Near East and North Africa Division

Contact information:
International Fund for Agricultural Development (IFAD)
Via del Serafico, 107
00142 Rome, Italy
Telephone +39 06 54591
Facsimile +39 06 504 3463
E-mail ifad@ifad.org
www.ifad.org
www.ruralpovertyportal.org

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in Rural Poverty Reduction
in the
Near East and North Africa**

**Near East and North Africa Division
Programme Management Department**

IFAD

January 2008

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Acronyms

EU	European Union
HMAPs	Herbal, medicinal and aromatic plants
HVCs	High-value crops
ICARDA	International Center for Agricultural Research in the Dry Areas
NENA	Near East and North Africa (IFAD region)
NGO	Non-Governmental Organization
PN	Near East and North Africa Division

Foreword

The primary mission of IFAD is to enable the rural poor to overcome their poverty. IFAD accomplishes this mission through the provision of loans and grants for poverty targeted agricultural and rural development programmes. In the process of supporting agricultural and rural development, the Fund has formed partnerships with governments, multilateral and donor agencies, NGOs and local and regional institutions.

Among these institutions, the International Center for Agricultural Research in the Dry Areas (ICARDA) has the mission to improve the welfare of the rural poor and alleviate poverty through agriculture research and training in dry areas of the developing world, which is clearly concomitant with and complementary to the mission of IFAD. In their efforts to address the problems of poverty, IFAD and its partners in the Near East and North Africa (NENA) region are confronted by a large number of socio economic and environmental constraints. The experience of IFAD and ICARDA suggests that these limitations may best be resolved through innovation in farming systems and diversification in livelihoods. One promising avenue is the production and improved marketing of high-value crops (HVCs) of non-traditional horticultural types and the judicious use of herbal, medicinal and aromatic plants (HMAPs).

To help define a practicable approach for the promotion of HVCs and HMAPs, and to direct the research agenda, IFAD and ICARDA organized two regional expert consultation workshops during 2007. The workshops were held at ICARDA headquarters in Aleppo, the Syrian Arab Republic. Both workshops attracted the attendance of about 50 delegates, representing NENA countries, other countries with relevant experiences in this field, a cross-section of donors, research and development institutions and private-sector firms active in HVCs and HMAPs.

This summary report is a synthesis of the findings and conclusions of the workshops and illustrates the implications that will guide IFAD and its partners in promoting and supporting the development of these commodities as an approach to sustainable rural poverty reduction in the NENA region.

I would like to thank Dr Mahmoud El Solh, Director General of ICARDA, and the ICARDA staff for their excellent cooperation and professional input in holding these workshops. I would also like to thank Mr Tawfiq El-Zabri, PN Country Programme Manager, who coordinated this effort and prepared this summary. Thanks are also due to Ms Sara Oliván and Ms Shaza Saker, PN Programme Assistants, for their administrative support.



Dr Mona Bishay
Director
Near East and North Africa Division
IFAD

The Role of High-Value Crops in Rural Poverty Reduction in the Near East and North Africa

A Introduction and Background

IFAD has been strongly engaged in agriculture and rural development support since 1977. As of the end of 2007, IFAD is funding 33 programme loans and 34 regional and country research grants in the Near East and North Africa (NENA) region¹, with a total commitment of about US\$520 million. In the process of supporting agricultural and rural development, the Fund has formed partnerships with governments, multilateral and donor agencies, NGOs and local and regional institutions.

Among these institutions, the International Center for Agricultural Research in the Dry Areas (ICARDA) has the mission to improve the welfare of the rural poor and alleviate poverty through research and training in dry areas of the developing world, which is clearly concomitant with and complementary to the mission of IFAD.² ICARDA has extensive research experience in non-traditional agricultural crops in North Africa and western Asia. One of its key research themes is the diversification of cropping systems and increasing the quality and end-use value of agricultural commodities.³ ICARDA-IFAD collaboration has embraced both agricultural research in support of project activities and of wider capacity-building and institution-strengthening. IFAD has a similar track record in cooperation with other regional and national research institutes and NGOs and, to a degree, with the commercial private sector in the region.

In their individual and joint efforts to address the problems of poverty, IFAD and its partner agencies in the NENA region are confronted by a large number of constraints, including:

- The natural resource base in both quantity and quality, in particular, the prevalence of desert and semi-arid areas and the frequency of adverse climatic effects, especially drought.
- The reliance of many farming systems in the NENA region on subsistence farming systems and traditional crops.
- The increasing price volatility of agricultural commodities, particularly cereals and oilseeds, causing greater uncertainty among farmers of traditional crops.
- Farm fragmentation, the small size of holdings and the limited role of farmer organizations.

The project experience of IFAD and recent ICARDA study results both suggest that the quandary posed by these limitations may best be resolved through innovation in farming systems and diversification in livelihoods. One promising avenue is the production and improved marketing of high-value crops (HVCs) of non-traditional horticultural types and the judicious use of herbal, medicinal and aromatic plants (HMAPs). Such an approach is consistent with the thrusts of IFAD's strategy in empowering the poor and diversifying livelihoods, and it is rational in terms of exploiting the greater water use efficiency, the better economic returns and the capacity for value addition and employment creation associated with these crops and products.

¹ The countries of the region referred to as NENA in this report comprise Algeria, Djibouti, Egypt, Gaza and the West Bank, Jordan, Lebanon, Morocco, Somalia, the Sudan, the Syrian Arab Republic, Tunisia, Turkey and Yemen.

² See the ICARDA mission statement, at <http://www.icarda.org/Mission.htm>.

³ See ICARDA (2007), "Improving Livelihoods in Dry Areas: Strategic Plan 2007-2016", section 4.4.

To help define a practicable approach toward the design and implementation of IFAD's support for HVCs and HMAPs, IFAD has financed two regional expert consultation workshops. Organized by ICARDA, the workshops were held at its headquarters in Aleppo, Syria. Both workshops attracted the attendance of about 50 delegates, representing virtually all NENA borrower countries, as well as other countries with relevant experiences in this field and a cross-section of donor agencies, research and development institutions and selected private-sector firms active in HVCs and HMAPs.

The first workshop, "The Role of Domestic and Export Marketing of Horticultural Commodities in Poverty Alleviation in the NENA Region", was held on 13-15 March 2007. The second workshop, "The Role of Herbal, Medicinal and Aromatic Plants in Improving Livelihoods of the Rural Poor in the NENA Region: Challenges, Constraints, Prospects, and Strategic Directions", was held on 10-12 July 2007. In both events, the focus was on domestic and export market potential, country comparative advantages, constraints and opportunities in production, marketing partnerships, reviews of success stories and lessons learned through case studies within and outside the region, and strategic and operational directions for the promotion of production and marketing. The output of the deliberations was presented in over 50 papers and PowerPoint presentations and two synthesis reports.

The purpose of this summary report is to offer a synthesis of the findings and conclusions of the workshops and note the relevant implications for the way forward in the application of a coherent approach that will guide IFAD and its partners in promoting and supporting the development of these commodities as a major input in rural poverty reduction in the NENA region.

B The role of domestic and export marketing of horticultural commodities in poverty alleviation in the NENA region: findings, conclusions and recommendations

B1. Perspective. Horticulture is a well-established and economically important industry that makes a significant contribution to livelihoods in the dryland, rainfed and irrigated farming systems of the NENA region. Many of the major species are indigenous and particularly well adapted. They include fruit and nut crops from trees or bushes, such as olives, grapes, pomegranates, citrus, figs, almonds, pistachios, walnuts, dates and other stone fruits such as plums, apricots and cherries, as well as the principal vegetables, such as beans, peas, cowpeas, garlic, onions, tomatoes, potatoes, aubergines, peppers, melons and cucumbers.

Many of these crops have been farmed in the region for hundreds of years. They provide options for income diversification and pathways out of poverty. Studies consistently show that the ratio of benefits to costs for fruit and vegetable crops is two times higher than the corresponding ratio for predominant cereals and pulses. Over the last 10 years, ICARDA has established programmes in the region aimed at many of these crops, including protected vegetables in Yemen, dates in the Gulf countries, olives in the Syrian Arab Republic and figs in Egypt. Other research and technology development institutes and networks, international NGOs and several major donor agencies, notably the World Bank, the United States Agency for International Development, the German Agency for Technical Cooperation, the French Agricultural Research Centre for International Development, the Danish International Development Agency and the Food and Agriculture Organization of the United Nations, have also been actively involved in supporting the production and marketing of HVCs. Much development has been tied in to the private sector, reflecting the specific objective of facilitating processing and marketing.

B2. Market Characteristics: Domestic Markets. In the well-established domestic markets for HVCs, consumption is increasing strongly in response to population and income growth, expanding urbanization and increased awareness of the health and nutritional value of fresh fruit and vegetables, particularly organic produce. Export demand is also growing due to increased access by some NENA countries to European Union (EU) and Gulf Cooperation Council markets. Capitalizing on their suitable climates and agroecological conditions, their long experience with these crops and their proximity to EU markets, countries such as Morocco and Tunisia have managed to obtain substantive preferential access and higher prices in selected EU agricultural markets under the Euro-Mediterranean Partnership. To accomplish this, these countries have had to fulfill strict phytosanitary standards and high quality controls. However, the increased sales have been limited to specific commodities (e.g. tomatoes, strawberries, dates and olive oil) and have not been of sufficient size to counter the steady decline since the 1970s in the share of agriculture in national economies and in total exports and the share of regional exports in world markets. This steady decline has been mainly due to expanding populations and consumption in the producing countries, the falling value of traditional export crops until recently, and the failure of countries, so far, to diversify into higher-value non-traditional agricultural exports. Between 1975-2004, the average share of the NENA region in the world export market of vegetables (4 per cent) and fruit (5 per cent) has been small compared with the production in the region. Moreover, the share in the world export market for both vegetables and fruit has been showing a declining trend since 1983. Despite the fact that total production in the region grew by about 77 per cent between 1983 and 2004, the percentage share in world exports has eroded from about 7-8 per cent in 1983 to only 3-4 per cent in 2004.

Meanwhile, the wider international demand for high-quality and, especially, out-of-season fresh fruit and vegetables has led to industry expansion in several least developed countries in Latin America, South-East Asia and Africa.⁴ In their experience, export development has delivered

⁴ Hallam, D., P. Liu, G. Lavers, P. Pilkauskas, G. Rapsomanikis and J. Claro (2004), "The Market for Non-Traditional Agricultural Exports: Raw Materials, Tropical and Horticultural Products Service Commodities and Trade Division", FAO Commodities and Trade Technical Paper 3, Food and Agriculture Organization, Rome.

significant impacts in economic growth and poverty reduction through employment and the inclusion of smallholder out-growers in the supply chain. Given sufficient grower interest and technical, financial and commercial support, this experience could be repeated in the majority of the countries of the region, in cases where suitable land and adequate water supplies are present to complement the favourable climate.

In the NENA region, value chains for horticultural produce vary considerably, particularly with regard to the level of development and the actors involved. Nevertheless, in virtually all cases, performance is based on the participation of the private sector and relations with producers and grower groups. As a general rule, domestic supply entails either (i) direct retail sales by growers or small traders in villages or the main local towns or (ii) the collection and accumulation of supplies ex-farm or ex-local market informally and through wholesale arrangements. The latter often involves a series of transactions before the final delivery of bulk quantities to a formal wholesale (usually city) market at which distributors or retailers obtain their supplies. Public-sector participation in the chain is mostly restricted to the enforcement of marketing regulations or the provision of certain common good infrastructure such as market buildings or stores. The supply of domestic processed or manufactured markets, such as the market for dried produce, preserves and juice or oil extracts, is often based on a process similar to that for fresh produce; however, it more frequently features formal contracting, tighter quality controls, higher prices, and explicit delivery schedules. In many small- or medium-scale processing enterprises, the processor is also the major producer and supplier.

The countries and HVCs that featured most during the workshop proceedings can be categorized as follows:

Country	HVCs Discussed
Morocco	Tomatoes, strawberries, cantaloupes, bananas
Tunisia	Dates, pomegranates, olives, potatoes, tomatoes, apples, grapes
Egypt	Broad beans, green beans, okra, figs
Gaza and the West Bank	Strawberries, aubergines, bell peppers, citrus, ornamental plants, cut flowers
Jordan	Tomatoes, aubergines, peppers, melons, okra, green beans, strawberries
Syrian Arab Republic	Olives, olive oil, pears, apples, plums, apricots, pistachios
Turkey	Pistachios, almonds, grapes, figs, cherries, apricots

The domestic marketing of fresh produce for immediate consumption and for additional processing is well developed in the NENA countries possessing more advanced agricultural sectors. Particular examples are found in the chains for the supply of field vegetables, fruit and salad crops from irrigated areas or upland producing areas to the main urban centres in Egypt, Morocco, Tunisia, Turkey and, to a less-sophisticated, but still significant degree, other countries. For instance, the marketing of olives in the Syrian Arab Republic, dates and pomegranates in Tunisia, stone fruits and melons in Jordan and figs in Egypt provide good specific cases of efficient and appropriate systems.

B3. Market Characteristics: Export Markets. The terms and processes of the export produce value chain are largely dictated by the exporting entity, which, overwhelmingly, is a commercial company, operating within the parameters of demand, the conditions of supply and the prices of the destination market. Occasionally, it may also be a foreign company, e.g. supermarket chains that import directly to the receiving market. For the processing and manufacturing supply chain for export products, the flow of produce has to be meticulously planned and controlled to optimize uptake and revenue on the external market, and contracted production and supply patterns are the norm. In some cases, the foreign importer may establish processing units in the originating country; the production of tomatoes in Morocco is an example. Public-sector involvement in exporting is generally confined to assistance with marketing research and

information, the formulation and enforcement of legal and regulatory provisions and scientific and technical support for players in the value chain.

Key obstacles to expansion in horticultural exports from the region include (i) the bias of national macroeconomic, trade and tariff policies against agriculture, particularly against agricultural exports; (ii) the need to ensure the highest criteria in quality and the presentation of produce in order to avoid rejection of exports for failing to meet standards; and (iii) the complexity of the seasonal duties, quotas and prices applied by the EU, the major export market. Conversely, the rewards for proficient export market development are significant: examples of success include the effort by Egypt to carve out a contra-seasonal niche in the early potato market in the United Kingdom and northern Europe, the substantive contribution of Morocco to the French and Spanish tomato markets and the strong position of Tunisia in the world date market.

Most of the regional exports of fruit and vegetables involve fresh produce that is subject to sanitary and phytosanitary controls imposed by importing countries. Another obstacle is the lack of harmonized technical standards and approaches. An inability to meet the high standards of compliance set by clients in terms of quality, defect tolerances, presentation, packaging, traceability, marking and pesticide residues often restricts export expansion. Statutory food safety policy instruments are also being overtaken by a large number of private standards imposed by global retailers and processors, led by supermarkets. Despite these difficulties, some NENA countries have achieved significant penetration of EU markets in specific commodities. Overall, however, as a result of these challenges and difficulties, deliveries have fallen short of the supply quotas available to the NENA countries.

B4. Challenges to the Expansion of Perennial Fruit Tree Crops. The major perennial crops of the semi-arid areas of the region are olives, figs, dates, almonds and pistachios; those of the moderate rainfall (above 400-500 millimetres per year) or irrigated areas are the stone fruits (peaches, apricots and cherries), as well as citrus and grapes; and those of the higher-rainfall and higher-altitude upland areas are the more temperate species (plums, apples, pears). Of these, olives and grapes are the predominant species for processing, which involves milling for oil extraction or for winemaking; figs, dates, nuts and table grapes are generally only dried and packaged for domestic or export sale. The processing and packaging of these commodities are carried out in plants and through operations of varying sizes, from the cottage or village level to modern, high-volume industrial factories, for example, in Egypt and Morocco. These operational modalities present additional opportunities for employment and service provision, and even well-established companies and plants offer scope for the modernization and expansion of processes.

Although the stone and temperate fruits may be dried, preserved through pickling or jam-making, or juiced, these fruit, like citrus, are predominantly grown for the fresh market both locally and for export, where the key factors are the consistent supply of a uniform article that is high quality and free of pesticide residue. The production of tree and bush crop fruits and nuts has more than doubled in the region since 1975 in response to population and economic growth; it now reaches 65 million tons. However, exports have not kept pace with domestic demand and still constitute less than 5 per cent of output.

A major obstacle to expanding and realizing the potential of perennial crops is the high cost of establishing new plantations and the recurrent cost of financing crops for the four to five years that are generally required before yields and revenues become significant. For the small, poor farmer, these costs may be beyond reach and not sustainable without external subsidies or other support from chain partners.

B5. Challenges to the Expansion of Vegetable Crops. The vegetable crops of the region are produced under open field conditions in areas of high rainfall or irrigation and under protected culture in greenhouses, mostly in plastic tunnels. Beans, peas, potatoes, onions, garlic and green leaf vegetables are the main open field crops; tomatoes, cucumbers, salad green crops, eggplants, peppers and melons may be grown in fields under proper conditions, but are increasingly produced in greenhouses, particularly for sale in the higher-end domestic and export

markets. The introduction of field vegetables into prevailing farming systems is relatively straightforward, although husbandry and management require a greater degree of expertise and discipline and the input costs may be two or three times higher than the input costs for cereals. The introduction of protected cultivation is more difficult, inasmuch as the initial investment, like that for tree crops, may not be recovered for several years, and, unless there are explicit and sound marketing arrangements, there will be a risk of corresponding operating losses.

B6. Lessons Learned from Successful Experiences. Workshop delegates presented case studies of success in the development of smallholder horticulture: in Morocco, where the winter export tomato crop now dominates the market in France and Spain; in Tunisia, where policy and institutional reform, liberalization and investment have enabled a multitude of small growers to participate in the EU market, particularly for dates and dried fruits; in Egypt, where the private-sector horticultural export industry is bringing smallholder out-growers into the quality domestic and export markets and where an HVC production project in Upper Egypt has doubled the output among small farmers over the last few years and enabled the penetration of regional and EU markets; and in Turkey, where commercial contract farming is now well established in a wide range of horticultural crops for the export of fresh produce and for the processing of diversified products and significant additional markets are being tapped, for example, for organic produce and dried products. Key factors in these successes include:

- an enabling macroeconomic and trade policy;
- a favourable institutional and regulatory environment;
- demand-driven and export-oriented strategies based on market opportunity;
- effective producer and marketing associations with strong private-public and grower-trader-exporter partnerships;
- skilled management along the entire supply chain;
- the availability of horticultural education, training and extension;
- rigorous product differentiation and market segmentation; and
- Strategic planning and government support.

Lessons learned include the need to support entrepreneurial “champions” and replicate successes to ensure economies of scale; the need to develop strategies to target different markets, including domestic, EU and Gulf Cooperation Council markets; the need to ensure good long-term planning capabilities at the national, local and grower levels; and the need to develop national standards for certification of good agricultural practice, which may be provided domestically at reasonable cost.

The success stories recounted in the workshop imply that the introduction of HVCs into traditional smallholder farming systems depends on the success of promoting three complementary axes: (i) entrepreneurial grower organizations that are supported by the public sector in research, development and training, (ii) government assistance in investment and export promotion, and (iii) partnerships between producers and private-sector traders and processors, with the latter leading development and contributing to filling the need for credit and the mitigation of market risk.

The workshop presentations demonstrated that the impact on smallholder outputs and incomes from the adoption of HVCs is likely to be considerable; assuming that natural resource factors are favourable, even a small acreage dedicated to a fruit or vegetable crop may be expected to double total farm output and, with the collaborative technical and marketing support described above, more than treble the income of the typical small-farm family.

SWOT Analysis of HVCs in the NENA Region

Strengths

- Favourable climate and natural environment and good conditions for receiving the organic classification, particularly for off-season production for remunerative export markets.
- Experience in production and in successful efforts at expansion and export.
- In some countries, well-established specialist value chains with increasing small-farm out-grower participation in marketing and good potential for replication.
- Sufficient technical capability for support by research institutes and public-sector agencies.

Weaknesses

- Absence of or limitations in national policies and regulations on for market development, particularly for export.
- Limited capacity, market information and conviction among most farmers and many actors along product value chains.
- Low domestic quality and food safety standards militate against grower incentives and exporting.
- Absence of farmer organizations and reluctance to undertake market collaboration and contract production due to high potential risk.

Opportunities

- Buoyant markets for many products, including fresh produce and processed for domestic markets and export.
- Increased financial returns and enhanced farm incomes through improved production and marketing.
- Better efficiency in water use and in the use and conservation of natural resources.
- Application of technical know-how through extension services contracted by growers or by projects supporting HVCs.

Threats

- Large investments required for the establishment of perennial crops and modern, protected cultivation.
- Need for compliance with the highest standards of quality and phytosanitary and food safety measures.
- Absence of realistic comparative analysis of norms in gross and net crop and product margins.
- Difficulty of accessing and meeting the competition in domestic and export HVC markets, particularly for smallholders.

Conclusions

The foregoing findings and analysis imply that the most promising opportunities for rural poverty reduction through horticulture in the NENA region lie in the following:

- Better organization and management of the supply of the traditional range of produce to domestic and regional markets, but with much improved quality, marketing and presentation and with organic certification, where feasible; this implies that specific supply chain analyses are needed.
- Exploitation of out-of-season market demand in the EU, the Gulf Cooperation Council and, possibly, Russia and other Commonwealth of Independent States countries, particularly for tree crops, nuts and lower-volume, higher-value niche products among the field and greenhouse vegetables (e.g. beans, zucchini, and peppers).
- Use of natural or improved solar drying and other simple technologies to facilitate the evacuation of higher-value products from areas remote from the fresh market.
- Mobilization and reorganization among farmers and producer groups to rationalize, plan and impose discipline in production and supply and relate constructively to their private-sector trading partners and their public-service and NGO providers of research, extension and development services.
- Ensuring that the needs of all chain stakeholders for information and explicit advice through communication, knowledge management and paid-for consultation systems are met.
- Making sure that the means and procedures are in place nationally for export produce to meet – and be certified as meeting – the relevant criteria for import, such as the good agricultural practice standards of the European Retailers Group.

Main Recommendations of the Workshop in Support of Small Producers of HVCs

The workshop delegates recommended that:

- Studies of specific supply chains should be undertaken to define the entry point for developing the chain and ensure benefits to small and poor producers.
- Farmer associations should be set up in clusters to aggregate products, enable collective bargaining and link with private-sector value chain partners in contract farming arrangements, as appropriate.
- Provision of technical advisory services to farmers should include assistance in compliance with phytosanitary regulations in domestic and export markets, with the necessary attention to opportunities from eco-labelling and good agricultural practice certification as a means of assuring reliable quality with minimal contamination that can reduce buyer costs for quality control and additional verifications.
- Insurance or other mechanisms (such as out-grower schemes) to share or minimize climate, production and market risks need to be explored and developed.
- Special efforts should be devoted to identify private-sector operators with experience in linking small producers to markets and incorporating them in donor-supported projects.
- Support should be provided for sustainable and, preferably, community-based rural financial service institutions, probably organized by experienced local or international NGOs or private agencies that can offer training, capacity-building and mentoring, as well as farm and microenterprise credit for HVC producers.
- National and international organizations working in the sector should encourage the establishment of an HVC group, comprising farmers, national and regional research institutes, NGOs and the private sector, to share information and provide a focus for development support; this group could link with existing networks and organizations, for example, the Regional Working Group on Greenhouse Crop Production (Food and Agriculture Organization of the United Nations).
- Key policy issues should be addressed, including those related to the regulation of horticultural standards, the clarification and application of intellectual property rights, secure land tenure, credit markets for small producers and agribusiness, water use, and post-harvest and food safety protocols.
- Apply commodity chain analysis for market assessments and the identification of key bottlenecks and for guiding investment plans and appropriate policy formulation.

C. The role of herbs, medicinal and aromatic plants in improving the livelihoods of the rural poor in the NENA region: findings, conclusions and recommendations

C1. Perspective. The range of species that comprise the HMAP group probably extends to over 35,000 worldwide, of which at least 9,000 are known to have medicinal properties and between 2,000 and 3,000 are widely traded high-value products in commercial use. Most of the plants from which products are derived grow wild, notably in desert, semi-arid or mountain locations, and probably up to 80 per cent of the products are collected rather than cultivated. Products may be whole plants, their fruit, seeds, leaves, or roots, and bark or exudates from stems, and most are traded as dried, chopped or ground materials, or extracts such as juices, oils, or concentrated distillates.

The principal uses of HMAPs fall into four broad categories: foods, beverages, spices and flavourings; medicines and pharmaceuticals; fragrances, essential oils and cosmetics; and biochemicals, such as pesticides, dyes, detergents and intermediates. Several products have more than one use. In the absence of precise statistical data, it is estimated that the international export trade in medicinal plants, which comprise the majority of traded HMAPs, stands annually at around 600,000 tons at a value of over US\$1.2 billion. Three regional countries – Egypt, Morocco and Turkey – feature among the top 10 exporters, of which the leading countries are China, India, Germany and the United States, while the main importers are the United States, Japan, Republic of Korea, Germany and France. In the late 1990s, imports into Europe of medicinal and aromatic plants totalled 120,000 tons, and exports totalled 70,000 tons. There is a large range in the value of HMAPs; typical shipped product prices run between US\$1,000 and US\$10,000 per ton.

C2. Production and Market Characteristics. The demand for HMAPs is growing worldwide at an estimated 10-15 per cent per year because of the trend towards more use of natural medicines and the proliferation of new uses for the plants. According to the World Health Organization, over 80 per cent of the world population rely on traditional plant-based medicines. The value and buoyancy of this market represent a promising economic development opportunity for the NENA region, given the region's immense agroecological and plant diversity; the established position of several countries as major HMAP producers and exporters; the region's extensive knowledge and use of traditional, natural plant products; the interest in diversification among agricultural products; and the high domestic demand for indigenous species.

Moreover, HMAPs represent a promising opportunity for reducing rural poverty in the region because of their high efficiency in water use, the low costs of collection and cultivation (making them attractive crops for the rural poor), the high economic returns per unit area compared to traditional crops, and their potential to add value and create employment through processing and marketing. The significant extent to which drying, distilling and other forms of the processing and marketing of HMAP products are carried out by women indicates the potential for the expansion of this sector to empower women and enhance their opportunities to generate higher household incomes.

Thus, the potential of HMAPs as a catalyst for rural development, increased household cash incomes and livelihood improvements among poor communities and, especially, among women, youth, the landless poor, and marginalized farmers is increasingly being recognized. Cultivated HMAPs typically provide on-farm economic returns two to three times greater than the returns to basic food crops. Wild gathering of HMAPs is a minimal cost exercise that may provide a buffer in times of crop failure and other periods of economic stress and contribute to local economies and meeting subsistence health needs. Conversely, the negative environmental impact of excessive unregulated collection is increasingly being witnessed and recognized.

The countries and HMAPs that featured most during the workshop proceedings are listed in the table.

Country	HMAPs and Products Discussed
Morocco	Thyme, camomile, oregano, jasmine, lavender, basil, geranium, eucalyptus, rose
Tunisia	Rosemary, thyme, juniper, artemisia, alliums
Egypt	Camomile, mint, marjoram, fennel, cumin, basil, lemon grass, jasmine, sage
Palestine	Oregano, salvia, cyclamen
Lebanon	Saffron, damask rose, nectarine, fennel, marjoram, lavender, micrometria
Syrian Arab Republic	Laurel, caper, jojoba, aloe vera, cassia, henna
Yemen	Henna, coriander, cumin, nigella, aloe vera, mint
Sudan	Gum arabic, kerkadeh, cassia, henna
Somalia	Frankincense, myrrh, aloe vera

In addition to these products, presentations on regions and other countries identified neem, liquorice, hing, hot and sweet peppers, bay, peppermint and valerian as important products. Cases that were reported and that might be replicated elsewhere include (a) the industry in Iran operates under a favourable policy structure and now extends to over 180,000 hectares of cultivated crops, principally spices and essential oils, such as cumin, coriander, camomile and fennel, mainly for export to the EU; (b) exports from Egypt in 2006, mainly of camomile, peppermint, marjoram, lemon grass, jasmine and geranium, comprised around US\$50 million in bulk herbs and US\$30 million in oils and concentrated extracts, demonstrating the possibility for smallholders to capitalize on market opportunities; and (c) a development project for lemon grass and essential oil crop production by small farmer groups, in association with a large private-sector buyer in Bihar State, India, resulted in the cultivation of 300 hectares of crop, yielding over 38 tons of oil and producing net incomes in a range from US\$210 to US\$650 per hectare per season within only a few years. The effectiveness of farmer organizations in this particular case is especially noteworthy.

A general look at the utilization and output of HMAPs in NENA countries shows 200 to 500 species in commercial use from a potential population of several thousand species. Cultivation is confined to areas under 1,000 hectares in smaller countries and 75,000 hectares or more for major export products in larger countries. The HMAPs are cultivated mostly as crops for large-scale use, for instance, in food and beverage production and drug manufacture, where consistency in quality, guaranteed quantities and steady supply are paramount. HMAP cultivation methods are necessarily low input because chemical fertilizers and pesticides interfere with the maintenance of quality, and many species do not produce an economic yield sufficient to warrant the use of such inputs. The methods also demand a high level of management, which entails higher cost and are most often adopted under contract farming arrangements with buyers.

In all countries, collection from the wild is the predominant source, particularly for higher-value products. If properly controlled and managed so that the plant population is maintained and allowed to extend naturally, weed competition is removed and regrowth after harvesting is assured, then collection is almost always the optimum method of supply from the point of view of both economics and product quality. Conversely, where there is insufficient control (few countries have effective regulation or policing), collection from the wild may overexploit and decimate the basic stock of vegetation; since gatherers are often low-pay wage labourers, they have little incentive to exercise care in harvesting.

C3. Constraints to Production and Marketing. Collection, cultivation, processing and marketing are constrained by several obstacles despite the potential of HMAPs. The obstacles include lack of innovative and practical measures for the sustainable management and utilization of wild stocks; lack of appropriate technologies for collection and processing; the difficulty of market access; inadequacy of policies and regulations in encouraging development, particularly for export; lack of funding for expansion; and paucity of monetary returns to collectors or primary processors, which reflect a very small share of the final value because of ignorance of the real value of the product or inability to reach key buyers in a timely way with the requisite products.

The HMAP supply chain is typically long and complex; there are numerous small-scale collectors and producers. The chain is characterized by a limited number of large, specialist growers; several layers of local traders, contractors, and processors; local primary markets and regional bulk markets; principal wholesale markets, often city-based and national; and a multiplicity of specialist suppliers and buyers who show a wide range of interests in products and final use. Major industry users may have specific demands for products or for a range of products that are to be additionally processed, blended and manufactured; they normally buy from the specialist suppliers at the final wholesale level. Since the lots of raw materials offered at this stage are typically made up of products from several sources, quality control may be an issue, and traceability may be nearly impossible. These factors tend to be reflected in prices, but they may be mitigated by consolidating a successful sale or track record of sales by means of producer-processor dialogues about standards and the evolution in market requirements.

SWOT Analysis of HMAPs in the NENA Region

Strengths

- Experience in the collection, cultivation and trading of a variety of products and in expansion.
- Favourable economic situation and climate, natural environment, and good conditions for organic classification.
- Established value chains; large, private company leaders and out-grower and collector interests.
- Availability of skills, technology to add value, improve quality and marketability.
- Existence of relevant research results produced by ICARDA and others.
- Water-use efficiency in HMAPs.
- Pro-poor crops that may be easily integrated into smallholder farming systems.

Weaknesses

- Absence of national policies, regulations, policing and control with respect to collection and cultivation in the wild.
- Small domestic market; difficulty of certification and registration for prime food and drug markets.
- Limited capability or sophistication among small producers and many value chain actors.
- Absence of farmer collaboration and scarcity of contract production arrangements.

Opportunities

- Buoyant demand for most products as raw materials, or part-processed or finished goods.
- Solid financial returns and enhanced household incomes from collection, production and marketing.
- Scope for the improved management of wild stock and the better extension and conservation of natural resources.
- Spin-offs available in related non-farm enterprise development and employment creation.

Threats

- Risks involved due to high costs of marketing, and large investments required for modern processing.
- High transaction costs and difficulties faced by small producers in complying with the highest standards in purity and quality and with the conditions in supply and import.
- Absence of objective product technical guidelines and comparative financial and economic returns.
- Volatility of market prices and fierce and increasing competition, especially in export markets.

Conclusions

The foregoing findings and analysis indicate that the most promising opportunities for the regional development of HMAPs for rural poverty reduction lie in the following:

- In HMAP harvesting from the wild, it is crucial that the balance between commercialization and conservation be maintained; this needs to involve local communities and local district or area authorities, as well as national regulatory bodies.
- Widespread education and popular information about natural products as outputs from farms and enterprises and as commodities for cost-effective, everyday use.
- Promotion of products and technologies that are suitable for adoption by poor small-farm or rural families and awareness of the good agricultural and processing practices necessary to support their production and market access.
- Influencing the policy, regulatory and enforcement framework covering infrastructure, communications and information provision, technical assistance, business development services, inspection and certification and financial support.
- Promotion of HMAP production, especially the rigorous field husbandry and careful, hygienic processing required, as key elements of gender empowerment.
- Development of new markets and products, for instance, in food ingredients and pharmaceuticals, in association with private-sector commercial operators in the various markets.

Main Recommendations of the Workshop

The workshop delegates recommended that:

- Databases should be established for the region that encompass the biodiversity of HMAPs, the availability of the related human resources and the capacities of concerned governmental organizations and NGOs.
- A network should be established connecting all involved individuals, government and NGO stakeholders, farmers, manufacturers and exporters to share technological know-how in the fields concerned.
- Emphasis needs to be placed on community participation in identifying HMAP products, developing organized production and marketing and establishing market linkages that are appropriate to the context and circumstances and that communities might successfully commit to and engage in.
- An educational, training and extension work programme should be established for people involved in HMAP collection, cultivation, manufacture and marketing.
- Market assessments are necessary to guide initiatives and investments that seek to enhance HMAP production and marketing.
- Research and development in HMAPs should be enhanced through national agricultural research centres and universities, in cooperation with farmers and other industry and value chain actors.
- The organization of small farmers to participate effectively in the supply chain is a key success factor in rural poverty reduction through the sector; it requires support and capacity-building interventions by donors, governments, NGOs and participating private-sector partners.
- Broad, multistakeholder partnerships are needed at the local and national levels to ensure a well-performing supply chain; appropriate partners and agencies should be identified at an early phase of development of the targeted interventions.
- Financing should be sought through international organizations working at the national and regional levels through projects that could become financially self-sustaining and would reflect concerns about quality control, safety and meeting international standards.

D. Selected Features of the IFAD Approach in Promoting Non-Traditional Crops

The overriding opportunity for IFAD participation in the promotion and development of the HVC and HMAP sectors arises from the *favourable economics* of the relevant production activities in relation to the farming and livelihood systems of its target group, the rural poor. Incorporation of HMAP collection or cultivation and HVC production activities as elements in *project and programme plans* has the potential to improve rates of return and expectations of impact and sustainability significantly and would complement and strengthen other project components.

There needs to be inter-agency cooperation to take forward the exploitation of the potential for HVCs and HMAPs. A clear need emerges from the workshop proceedings and from the disparate nature of current crop and product development for IFAD to partner with ICARDA and other agencies in stimulating, fostering and coordinating promotional and support activities. The structure, mandate and operational experience of IFAD and the Fund's established position as a *proactive player* among the national agencies and regional institutions involved and the donor and NGO community provide the *opportunity* for the Fund to advance its role in the promotion of HVCs and HMAPs for the benefit of poverty reduction in the region.

In most countries of the region, there is already a reasonable amount of sound information on the production and marketing of the principal fruit, nut and vegetable crops of the domestic and traditional export markets and on established HMAP products. What is most likely to be required in respect of these categories of produce would be a *simple, in-country exercise* to compile and present the available information in a more systematic and easily updatable way. Every situation and location will have particular possibilities and constraints; the *existence of precedents* in terms of existing cropping patterns, plant product enterprises and marketing and processing activities will be the best guide to what may be appropriately introduced and the performance that one might expect to achieve.

It therefore becomes necessary to assess selected commodity supply chains, including opportunities for the following:

- *Assisting smallholders in understanding and internalizing the requirements* of domestic, regional and international markets.
- The *organization of farmer and producers* to optimize (i) economies of scale in operations, (ii) a critical mass in marketing and (iii) negotiating strength in selling and trading.
- The establishment of *rural financial services* to provide investment and operating credit for diversified production; these services would preferably be supplied by NGOs, local rural finance institutions and private-sector operators who might also offer business development advice and mentoring of producer enterprises.
- *Assistance in research and development* by national agricultural research institutes and universities for activities in support of HVC and HMAP promotion and development.

Through policy dialogue with governments and national partners, IFAD will also help formulate *policies and regulations* to bring HVC and HMAP production, processing and marketing activities into line with best practice in terms of meeting the needs of the domestic market and complying with the rules and controls of the export market. IFAD will also support government and other national partners in engaging *all stakeholders* – small farmers and plant collectors and their groups; private-sector traders, marketers, exporters and processors, as appropriate; government agencies; and national and regional institutions – in the process of *defining the precise needs* for support and then in assisting in popularizing and expanding HVC and HMAP activities.

IFAD will also work closely with ICARDA and national research institutes to elaborate on researchable questions. The major *criteria for the selection* of crops, plant products or enterprises and the associated research questions are likely to be as follows:

- the adaptation to agroecological conditions and farming systems;
- the applicability to poverty and livelihoods issues;
- the scope for and ease of adoption by small, poorer farmers;
- the potential for farmer and collector mobilization, good organization and commercialization;
- the prospects for the attainment of the critical mass required for marketing and export;
- the likelihood of wider socio-economic impact; and
- the need for and availability and cost of external support and the implications for governments, as the borrower, of providing such support.

The interlinked issues of cultivation and harvesting of selected crops and the potential adverse impact on the conservation of wild species from overexploitation and from competition over resources that were highlighted during workshop proceedings will also be carefully assessed, with a view to assuring the conservation of local and national biodiversity. Together with ICARDA and other partners, IFAD will investigate the *critical deficiencies in information supply and flow* for the promotion of the pro-poor production and marketing of HVCs and HMAPs and the expansion of the sectors and to arrange for, finance and support improvements in data provision, including the *ongoing updating* and distribution of key marketing information on a selected range of key crops and products. IFAD, together with ICARDA, will promote existing networks that seek to share information among involved individuals, government and NGO stakeholders, farmers, manufacturers and exporters about HMAP and HVC markets, technologies and experiences.

IFAD will support and collaborate with ICARDA in the initiation of commodity chain analysis for selected HMAPs and HVCs with comparative advantage and potential to benefit small growers and collectors in the NENA region. The study is expected to give strategic directions for government and private-sector support for the sector, to inform and guide investment opportunities and project development possibilities, and to support policy dialogue to improve the sector.

Finally, IFAD will promote the *incorporation* of appropriate HVC and HMAP crop and product components in *IFAD projects and programmes* and, where relevant, intensify and expand the focus on farmer and producer organization, group formation and support, the provision of credit, trade linkages, contract farming and public-private partnerships.



Via del Serafico, 107
00142 Rome, Italy
Telephone: +39-06-54591
Facsimile: +39-06-5043463
E-mail: ifad@ifad.org
www.ifad.org
www.ruralpovertyportal.org