

LAMP

LINKING AGRICULTURAL MARKETS TO PRODUCERS



Market Profiles and Competitiveness Inventory Report—Volume II A Subsector Analysis

December 2004



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- EC Agribusiness and Textiles in BiH, Phase I Agribusiness Report, prepared by Agrisystems and RES&Co.
- *Development Studies for Sectors with Potential—Food Sector Study, Bosnia and Herzegovina*, prepared by GTZ.
- *Bosnia and Herzegovina Agribusiness Study—Final Mission Report*, prepared by IFC South East Europe Enterprise Development (SEED).
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December 2004

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*Market Profiles and Competitiveness
Inventory Report—Volume 2
A Subsector Analysis*

December 2004

Rural and Agricultural Incomes with a
Sustainable Environment (RAISE)
Contract No. PCE-I-00-99-00001-00
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Prepared by:
ARD, Inc.
159 Bank Street, Suite 300
Burlington, VT 05401
www.ardinc.com



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LAMP LINKING AGRICULTURAL MARKETS TO PRODUCERS

INTRODUCTION

THIS *MARKET PROFILES AND COMPETITIVENESS INVENTORY REPORT* IS THE second volume of an in-depth assessment of 20 different agricultural products, or subsectors, that the Linking Agricultural Markets to Producers (LAMP) Project Team has determined to offer commercial viability in Bosnia–Herzegovina (BiH). The report is the culmination of a process that the Team used to determine which agricultural products have the greatest potential to be competitive in BiH and export markets. As a result of this detailed investigation into the potential competitiveness of identified products, the Team is providing targeted assistance to participants in the selected value chains. This second volume initially was planned to cover 8 product markets; however, during their investigations, the LAMP Team acquired information on unanticipated market opportunities. As a result, the Team broadened its research to include 10 product markets.

Overview

LAMP conducted an extensive analytical process to identify those agricultural subsectors that offer the greatest opportunity for competitive growth, which are distinguished by the following characteristics:

- Competitive advantage through product uniqueness, superior quality, or low cost.
- Relatively low-cost investment.
- Broad impact on residents in rural areas.
- High value with high growth opportunities.

Introduction

Overview (continued)

A report on this analysis was issued in November 2003.* Following this analysis the LAMP Team then conducted further research into 10 initial subsectors. This subsector research was reported in *Market Profiles and Competitiveness Inventory Report—Volume 1: A Subsector Analysis* (April 2004). Each section of Volume 1 was also released as a separate, product-specific report addressing BiH's market demand and present production conditions.

This volume continues the analysis of product markets that was begun in Volume 1 and provides a detailed analysis of 10 additional products that are identified as having high development potential. The Team, as described in Volume 1, employed several methods for these detailed analyses. These methods include:

- Supply/demand profiling of each cluster and product.
- SWOT analysis (strengths, weaknesses, opportunities, threats) of BiH conditions.
- Basis of competition analysis of each product to inventory the product value chain's competitiveness characteristics.

Organization of the Report

This second volume of the report covers 10 products that have been identified as having potential to be competitively produced in BiH; many of these products do not have strong seasonal characteristics.

Volume 2 comprises the following subsectors:

1. Beef and veal
2. Cut flowers and seasonal annual plants
3. Dairy production
4. Honey
5. Mushrooms
6. Processed vegetables
7. Sheep
8. Snails
9. Swine
10. Wine.

Each subsector profile is presented in four sections: *overview*, *supply profile*, *demand profile*, and the *basis of competition report* inventorying key product competitiveness criteria. Additionally, each profile presents a SWOT analysis in a text box.

* "Selection Process Results: Findings on the Highest Potential Products and Clusters,

" USAID Contract No. PCE-1-00-99-00001-00, Order No. 822, November, 2003.

Summary of Findings

As described in the Introduction to Volume 1, in developing the product profiles and competitiveness inventory the Team examined important factors, such as:

- Market structure
- Buyer information
- Competitor information
- Basis of competition information from the processor's perspective
- Basis of competition information from the buyer's perspective
- Market transaction information.

The Team's main findings for products covered in Volume 2 are summarized below.

- **Beef and veal:** Beef and veal consumption has been declining in favor of poultry. Prices are highly volatile, linked to the unpredictable influx of imported meats from many different regions. Except for at the high end of the market, sales are driven mainly by price. This lack of market predictability and low profitability have led many processors to experience challenging market conditions.
- **Cut flowers and seasonal annual plants:** The most serious issue facing domestic seasonal plant producers is imports and the large number of unregistered individual producers. These operators grow plants from low-quality seeds, sell at very low prices because they do not pay taxes, and thereby depress prices in the market below levels that reward serious, long-term investments. The low-quality flowers of unregistered producers damage the reputation of all domestically produced flowers. Strong international competition exists from Holland, Italy, Germany, and others. Since flowers are a luxury and price is still a more important factor than quality, this activity has a serious impact on the legitimately registered producers.
- **Dairy production:** The BiH market structure tends strongly toward lower margin, fast-turnover products, deriving from cash flow constraints that prevent most Bosnian dairies from tying up working capital in products with longer-term returns, such as cheese. Four-fifths of the country's dairies are small, privately owned with a daily capacity of 2,000–10,000 liters (L). Domestic production does not satisfy domestic demand (i.e., the internal market continues to present opportunities for locally supplied production). Domestic production, though, must also meet the requirements of consumers, processors, traders, and supermarkets regarding consistency, stability, quality, food safety, labeling, packaging, and regular supply.
- **Honey:** Local BiH honey bulk prices and retail prices are well above the world's lowest. Therefore, the best opportunity is in the domestic market by competing against imports before considering export. Much could be done to increase sales of local honey, such as distribution and improving packaging, especially packaging in small volumes and indi-

Introduction

Summary of Findings (continued)

vidual serving sizes. Other luxury goods are offered in small quantities, yet the smallest unit available of locally produced honey is usually 1 kg. Locally produced honey is usually sold door to door to friends and neighbors. In general, improving marketing will require considerable training and education of honey producers and processors. Further, an opportunity exists for a large honey aggregator that will collect the smaller quantities of honey from small-scale producers and market the product in volumes that interest the supermarkets.

- **Mushrooms:** Virtually all wild mushrooms collected in BiH are exported fresh or frozen and/or dried. In BiH, approximately 15 cooperatives and small to medium enterprises (SMEs) are involved in processing and marketing wild mushrooms. They normally have processing plants that dry and/or freeze the mushrooms for export. It is estimated that the mushroom subsector employs thousands of collecting families in BiH, the vast majority being low-income rural families. Substantially all of the collected wild mushrooms are now exported as organically certified. A major issue identified in this subsector relates to illegal/nonregistered producers and illegal imports of compost and mushrooms.
- **Processed vegetables:** There is idle capacity among vegetable processing companies, thus providing BiH producers with an excellent opportunity to be competitive within this market. Moreover, consumer demand for processed vegetables shows that BiH processors have considerable room to compete with foreign exporters to BiH. Processors need better information on consumer demographics, tastes, and preferences. Generally, consumers are most concerned about price; quality is a secondary concern.
- **Sheep:** The market for sheep is fragmented, so there are opportunities for consolidation. Sheep, though easy to rear, have been subject to frequent disease outbreaks in the Balkans. Major export market buyers have stayed away from dealing in spring lambs in the Balkans. There has been a distinct lack of desire by key entities to test the market's suppliers, owing to the chaotic, confused, and unreliable manner in which the region's spring lamb suppliers have operated for many years. BiH consumers are highly price sensitive because of the country's continuing economic situation. As with other meats, those buyers that process sheep for forward sale are focusing on the fresh meat segment of the market so as not to compete head-to-head with opportunistic buyers who adulterate their products with other cut-price meats.
- **Snails:** Snail growers and snail meat processors in BiH have a reasonably reliable market for their production because 100% of sales are pre-sold to customers in the EU. The two most important characteristics that buyers look for in a product are price and quality. The processors stay in close communication with the needs of the final consumer and try to match these needs accordingly. They conduct strict grading (by BiH standards), sorting, cleaning, and processing in order to provide the final buyer with the ordered product.

Summary of Findings (continued)

- **Swine:** Swine are raised mainly in the Republic Srpska (RS). For pork and pork byproducts, slaughterhouses and processors are buying as many animals locally as they can and still cannot meet domestic demand. With only half of that demand being met with domestic production currently, there seems to be an opportunity for efficient swine producers to prosper in the near term. Export to the EU is not possible, as there is no state authority for meat certification, and none of the slaughterhouses holds EU certification.
- **Wine:** The BiH wine industry is small and concentrated in a relatively small region. However, within this region the wine industry is a significant part of the agricultural economy. The best opportunity for expansion of the industry is to sell more wine in the domestic market. This challenge is complicated by the fact that top-quality wine is not selling well, and inventories of it are accumulating at the wineries. This trend is detracting from cash flows and profitability. Most wine is sold at wholesale prices directly by the winery to stores, supermarkets, and retailers.

Conclusion and Recommendations

The 20 product subsectors identified for potential interventions have over time, through the process of investigating and writing this *Market Profiles and Competitiveness Inventory Report*, been narrowed down to a smaller subset of subsectors. For example, during our market research the Team learned that, although cut flowers are grown in BiH, the business is in the hands of importers and exporters whose high level of prosperity is constrained by limited disposable income among the general population. In another example, the Team discovered that the only oilseeds processor is large, well capitalized, and capable of expanding its domestic sources without LAMP's help.

Other subsectors of limited potential include beef, which is relatively noncompetitive with imported meats, and the sheep market, which although at first glance might appear to have potential, is actually highly fragmented and dispersed.

Moreover, some subsectors are region specific. Fish farming is concentrated in Herzegovina, with some also occurring in western RS and central Federation (FBiH). Grape growing and wine production are found almost exclusively in Herzegovina, whereas swine production is primarily limited to the area around Banja Luka.

The consequence of these findings is that the subsectors targeted for LAMP intervention now include three:

1. *Dairy*, including milk and milk products.
2. *Fruits, Vegetables, and Berries*, including fresh and processed products.
3. *MAP (Medicinal and Aromatic Plants) and Specialty Products*, including honey, mushrooms, and snails.

Introduction

Conclusion and Recommendations (continued)

To a lesser degree, activities will be conducted in the poultry subsector and, where a narrow range of activities may be highly advantageous, there will be activities in fish, swine, and wine.

Given that the LAMP project does not have unlimited resources, going forward the three primary subsectors of focus will employ project resources in the following constructive ways:

- Provide credit assistance to facilitate increased agricultural financing.
- Encourage market linkages among domestic producers and processors, and explore export opportunities.
- Address policy obstacles that can be reasonably accomplished during the time period of the project.
- Provide technical assistance and training that can improve the competitiveness of the targeted subsectors.

1 Beef and Veal Subsector

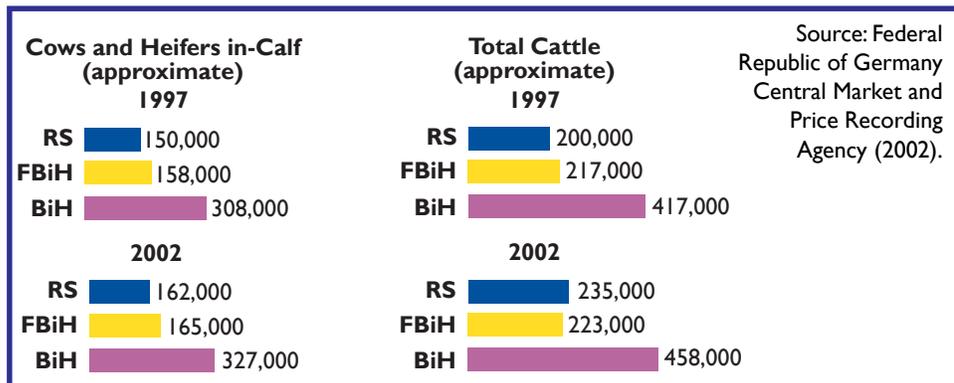


I.0 OVERVIEW

Supply Profile

The BiH cattle population in 1991 comprised 852,000 head of beef cattle, of which 622,000 were cows and heifers. Comparing the prewar situation with that of 2002 (the last year for which data are available), the number of cattle decreased to 51.5% of the prewar total (458,000); the number of cows and heifers (327,000) was down by about half as well. Cattle production has recovered somewhat from the postwar lows (Graph 1).

Graph 1.
Approximate
Number of Cattle
in the FBiH and
the RS



Small-farm cattle production is characterized by small herds and seasonal milk supply. Of the farmers who owned cattle before the war, 60% had only one cow, 30% had two, and fewer than 1% had five or more. Cattle production was mainly concentrated on state-owned farms. Most cows are a mix of the local Busha breed with Grey Tyrol, Brown Swiss, or Simmental. Production of cows' milk is very low because of poor nutrition (especially during the winter), late weaning of calves, and slow rates of genetic improvement (only 32% of farmers use artificial insemination). Nevertheless, gross-margin analysis indicates that small-farm cattle production is profitable and the milk income improves household cash flow.

The 10 state-owned dairy farms had herds of 400–1,700 cows, mostly imported Holsteins, and achieved production levels close to those obtained in western Europe. Animals were housed year-round and fed on green-cut in the summer and hay or silage in the winter. War damage to these state farms was severe. Latest data show that the number of Holsteins is increasing in the regions that are close to dairy processing plants. Once dairy cows are spent, they are sold to slaughterhouses or butchers for meat, most of which is processed into sausages and similar processed products.

Beef and Veal Subsector

Supply Profile

(continued)

SWOT ANALYSIS FOR BEEF AND VEAL

Strengths

- Available premises for bull fattening/existing capacities to accommodate animals exceed the number of cattle.
- Substantial idle land intended for cattle (meadows and pastures).
- Meat and processed meat products are a preferred food in BiH.
- Meat is a high-priced product, generating significant cash flows.
- Small nucleus of private slaughtering/meat processing capacity; with modern equipment and improved practices, ability to expand if sufficient livestock input is assured.

Weaknesses

- Expensive feed; volatile prices of beef/calf meat.
- Small farms cannot satisfy the needs of local processors.
- Poor condition of animal accommodation facilities.
- Beef and veal pass through a long supply chain. Each stage faces serious problems and raises retail prices to levels deemed expensive for the average local consumer relative to prices of other kinds of meat.
- Cattle growers lack operating funds needed for proper animal feed mixtures, medicines, and artificial insemination. Lack of necessary veterinarian care; endemic animal diseases.
- Poor winter feed conditions.
- Resistance to improved rearing and record-keeping practices.
- Preference for traditional breeds, which have generally weaker genetic characteristics for milk production and market potential.
- Slaughterhouses are neither modern, competitive, nor use Hazard Analysis Critical Control Point (HACCP) practices; export possibilities are limited because of poor animal health controls.
- Absence of identification/professional animal monitoring system, though one is being introduced in 2004.
- Poor access to farm credit from banks.
- Few service providers are directed to farmers' needs (e.g., input suppliers, extension/research services).

Opportunities

- Introduce new breeds.
- Introduce new further-processed meat products to offer consumers a wider variety of domestically produced meat products.
- Increase production results per head through improved animal feeding and hygiene.
- Increase consumption of locally produced beef and veal, which currently satisfy about 19% of total meat consumption (based on 2001 data).
- Establish accepted rearing practices as a means to increase production quality and build customer loyalty.

Threats

- Subsidized and sometimes illegal beef imports sold at low prices or at prices below BiH production costs.
- Lack of export certification for animal products.
- BiH consumer perception of beef and veal food safety quality.
- Insufficient fodder crops (alfalfa, clover, vetch, beets, grass and cereal legume, maize, etc.), owing to small land holdings and lack of mechanization (equipment for harvesting, packing, and drying) and proper storage. Together, these factors hinder local production of good-quality, low-cost animal feed and in turn force most of small livestock growers to depend only on hay and silage for animal feed during winter. Such a practice has a devastating influence on fattening rates, milk production, support of pregnancy, and eventually on livestock numbers in BiH.
- Danger of importing infectious diseases because of inadequate border controls.
- An inefficient veterinary system and veterinary inspection.
- Advent of diseases and ability to control them.

Supply Profile
(continued)

Reestablishment of the dairy herd will depend largely on livestock retention and private sector imports, as donor support will not meet the full cost of herd replacement. Farmers themselves must assume most of this responsibility. Future livestock policy should thus ensure that farmers have adequate incentives to retain young heifers, the resources to retain or buy them, and the ability to import stock—free of tariffs and without unnecessary bureaucracy. Support measures should be directed only to those farmers who have larger herds and a commercial orientation.

Recovery of cattle stock should be oriented to the reduction of the number of household farms, whereas the average number of cattle per farm should increase along with specialization in cattle raising (orientation to only one type of cattle and intensified cattle raising under modern methods).

A number of cattle and sheep were imported into BiH through humanitarian programs (non-governmental organizations [NGOs] in the postwar period). Donated livestock was distributed mostly through such programs to noncommercial producers and refugees. Some were used for household production of milk and meat. In many instances, the animals were slaughtered shortly after distribution, and thus the impact of those programs was not significant in terms of regenerating the livestock sector. Unfortunately, there are no official data about the number of imported cattle by international NGOs and through different humanitarian programs.

2.0
DEMAND PROFILE

BiH suffers a deficit of beef and veal. According to slaughterhouses, butchers, and processors, such a deficit results from several factors: the meat processing industry's poor coordination in the interest of improving their own raw material base, the lack of proper incentives for efficient cattle fattening, and lack of a genetic improvement program that would improve the overall quality of the cattle population.

2.1 Summary of Trends

Slaughterhouses, processors, and producers report that their most serious problem is the price volatility of meat. This volatility disrupts cash flow and makes it very difficult to forecast or set prices. Smuggling, unpredictable enforcement of laws, and fluctuating policy all contribute to this volatility. Government-mandated standards for product purity do not exist, affecting the market for processed meat in particular. For instance, reputable sausage processors must compete with processors that adulterate their pork with other, lower quality meats. The trend is for reputable companies to concentrate on the market for fresh beef and veal products, where they will not be penalized by opportunistic behavior.

Meat slaughterhouses and processors are sourcing available animals from village markets using a number of strategies. Some of these buyers originate their animals opportunistically by sending their agents to the village on designated market days to buy animals. Certain localities have a reputation as being good sources for beef and veal, such as Dabrovka in the

Beef and Veal Subsector

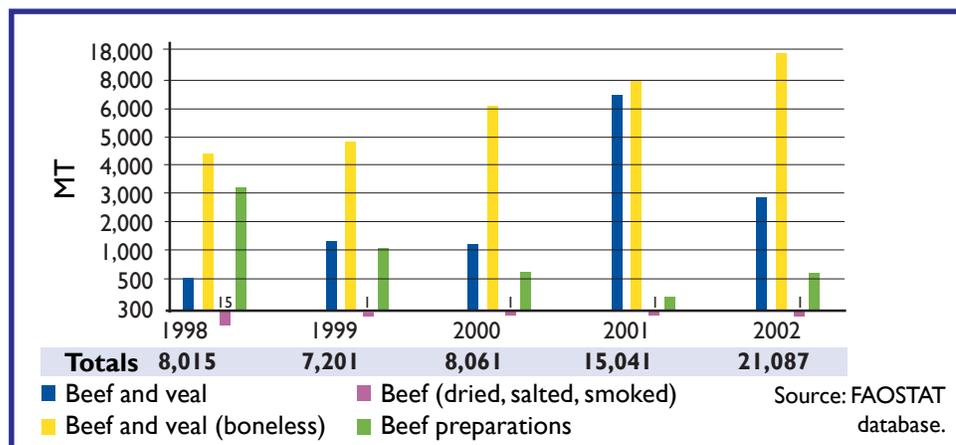
2.1 Summary of Trends (continued)

RS. Trucks can generally transport up to 40 cattle (beef or veal) at a time, and the objective is to return with a full load.

Domestic production costs in bull fattening amount to 3.5 KM/kg live weight compared with an import price of 2.0 KM/kg plus duty (2.7–2.8 KM/kg). As of May 1, 2004, these duties have been eliminated under a new free trade agreement (FTA) for trading partners, including Croatia, Serbia–Montenegro, Macedonia, Turkey, Moldova, Bulgaria, and Romania.

As Graph 2 shows, imports of beef and veal products have been increasing rapidly over the last five years. Besides indicating that consumers have enough purchasing power to afford imported meat, the data indicate that BiH producers have ample opportunity to be import competitive.

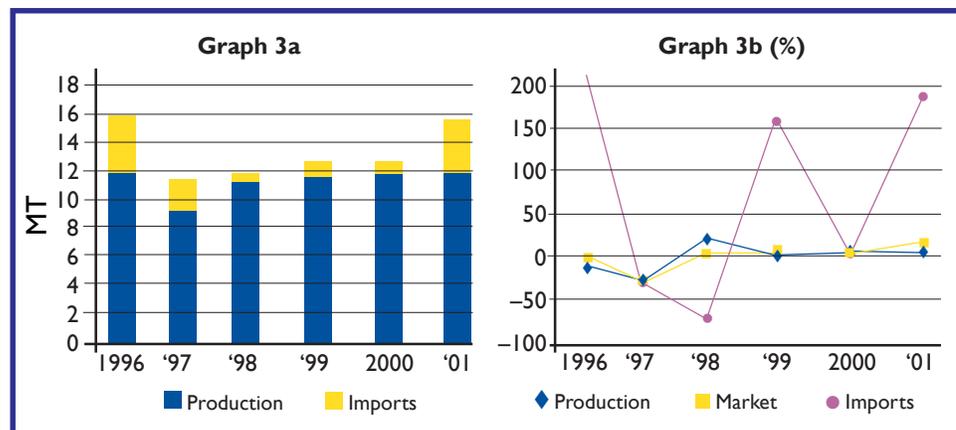
Graph 2. Beef and Veal Imports (MT) into BiH, 1998–2002



Graphs 3a and 3b show domestic beef and veal production relative to imported meat, including total market supply and growth within the subsector.

Graph 3a. Market for BiH Beef and Veal, 1996–2001

Graph 3b. Average Annual Growth for BiH Beef and Veal, 1996–2001



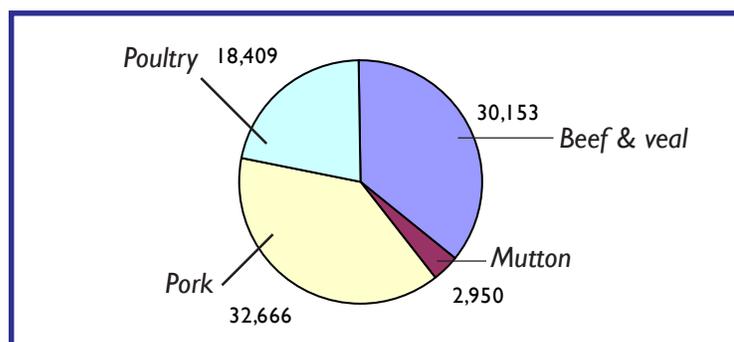
The market for bovine semen is estimated to be about 270,000 injections annually. Artificial insemination is estimated to be used by just a quarter of farms, but this number is expected to rise due to government subsidies supporting acceptance of artificial insemination. Import tariffs on the semen of improved breeds ranges from 0% to 10%.

2.2 Statistics

In the former Yugoslavia, the consumption of meat was extremely high, at 100 kg/person. The pattern of meat consumption has now changed: there is less demand for expensive beef and lamb, whereas the consumption of relatively cheap poultry has increased by 50%. The Bovine Spongiform Encephalopathy (BSE, or “mad cow”) Disease and Foot-and-Mouth Disease crises in 2000/2001 further changed consumption patterns.

According to Food and Agriculture Organization (FAO) data (see Graph 4) for 2001 (the most recent year for consumption indicators), total per-capita consumption of meat is around 21 kg, of which 7.4 is beef. Consumption is expected to double by 2006. As Graph 4 shows, total consumption of meat and meat products is 84,178 metric tons (MT) and total consumption of

Graph 4. Total Consumption (MT) of Meat and Meat Products in BiH, 2003



consumption of beef is 30,153 MT. Table 1 indicates the observed prices of beef for the month of November 2003.

Table 1. Average Beef Prices (KM/kg live wt.) for November 2003 by City

Product	Sarajevo	Mostar	Tuzla	Banja Luka	Bijeljina	Bihac	Zenica	Brcko
In-calf heifers	4.00	3.00	4.00	3.00	3.50	2.07	3.50	3.50
Young cows	3.00	3.20	3.30	2.80	3.35	3.00	3.50	3.50
Calf	4.75	5.50	4.60	3.75	4.40	4.00	4.25	4.25

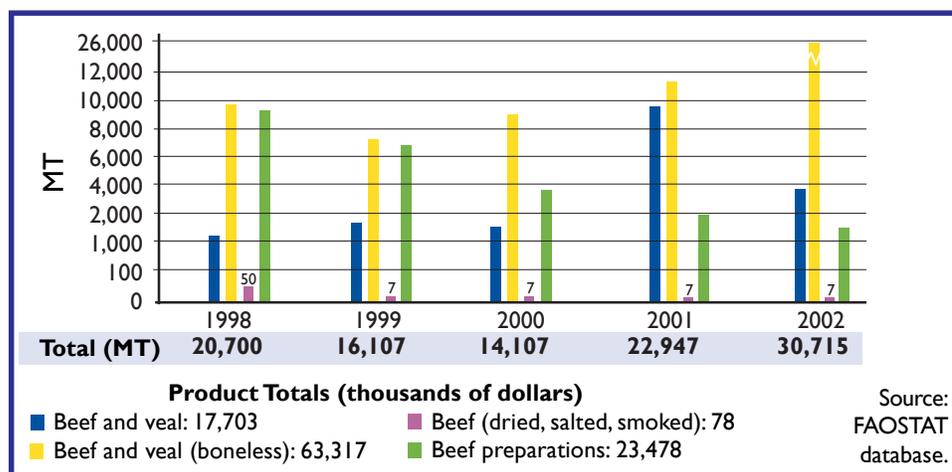
Source: Federal Republic of Germany Central Market and Price Recording Agency (2002).

For additional information on average prices by location, see p. 14.

2.3 Imports

The value of imports into BiH is given in Graph 5. The estimated total value of BiH beef and veal imports (process and unprocessed) is over \$100

Graph 5. Beef and Veal Import Value, 1998–2002



Beef and Veal Subsector

2.3 Imports
(continued)

million. BiH slaughterhouses, processors, and butchers ought to be able to position themselves to capture some of this market share.

BiH import tariffs on live cattle, excepting FTA partners, are given in Table 2.

Table 2. Import Tariffs for Live Animals

Commodity	Tariff
Breeding heifers	5%
Breeding cows	10%
Other	10%
Other Live Cattle	
Less than 80 kg	5%
For slaughter, 80–160 kg	5% + 0.50 KM/kg
Other, 80–160 kg	10% + 0.50 KM/kg
For slaughter, 160–300 kg	10% + 0.50 KM/kg
Heifers for slaughter, more than 300 kg	5% + 0.50 KM/kg
All other cattle for slaughter, less than 450 kg	10% + 0.50 KM/kg

2.4 Exports

There are no officially reported exports of BiH beef and veal products, although there are reports of unofficial exports. In part, this is due to the lack of accepted certification procedures within BiH.

3.0 BASIS OF COMPETITION

Beef and veal are consumed by the Muslim and non-Muslim populations of BiH. Consumers buy their beef in hypermarkets, supermarkets, and from butchers; meat in general is no longer sold in local “green” markets.

As with other livestock, selecting the cattle to buy is not done scientifically: the animals are not all weighed, nor are their measurements taken with any precision. The cattle are checked for good health, often inspected by hand, and their fat ratios estimated. Sales for the highest end of the market are made as much on reputation and relationship as on price; for the lower end of the market, sales are price driven. Aging dairy cows contribute to the low-priced market segment.

3.1 Quality Characteristics

BiH consumers are highly price sensitive because of the country’s continuing economic situation. As discussed in Section 2.1, many slaughterhouses, butchers, and processors are focusing on the fresh meat segment of the market so as not to compete head-to-head with opportunistic buyers who adulterate their beef with other cut-price meats.

As in most parts of Europe, BiH consumers now prefer leaner meat with most of the fat trimmed off before purchase. However, this is a recent trend and represents a shift in preference away from meat with more fat. Thus, there is still a segment of the population—older buyers—that continues to prefer meat with higher fat quantities and more marbling. Consequently, meat vendors need to buy animals and stock a certain amount of meat with higher fat content.

3.1 Quality Characteristics
(continued)

There is no accepted system for categorizing the quality of animals (e.g., *select, choice, prime*). In the former Yugoslavia, such systems were developed and enforced by municipalities. This regulatory function no longer exists in BiH.

Key Finding

There is clearly an opportunity for industry participants to take the lead on this issue and introduce their own classification system. This action could strengthen consumer confidence in the quality of meat that they are buying and discourage opportunistic companies. It would be even better if one of the criteria of categorization of meat quality is HACCP compliance plans. The most effective action would be for the BiH beef and veal industry to adopt EU production standards, perhaps introducing improved practices in stages over some years.

3.2 Packaging

Live cattle are slaughtered at the slaughterhouse or on the butchers' premises. Meat cuts are typically wrapped in plastic wrap so that consumers are able to observe the meat's quality. In butcher shops customers can see meat cut before their eyes. BiH consumers are very discriminating in needing to see for themselves a product's quality, so transparent packaging is a must. This consumer preference gives a premium to those beef and veal producers who have the best rearing practices and can raise the leanest meat that will have the choicest cuts.

3.3 Services

There are two types of farmers in BiH: those dedicated to farming as their principal source of income and those engaged in it as supplemental income. The buyers who were interviewed complained that too many of the farmers are of the latter type and therefore are not serious about the quality of their cattle. Typically, buyers will come to the market or the farm. The most efficient buyers arrange their transactions in advance over the phone rather than traveling from village market to village market in search of good cattle. An ability to operate through such arrangements indicates the reputability of both parties to the transaction.

3.4 Marketing

There are some large producers who have established contractual relationships with buyers wherein the sellers will supply a certain number of animals every day. Such relationships are not common, but they seem to be increasing.

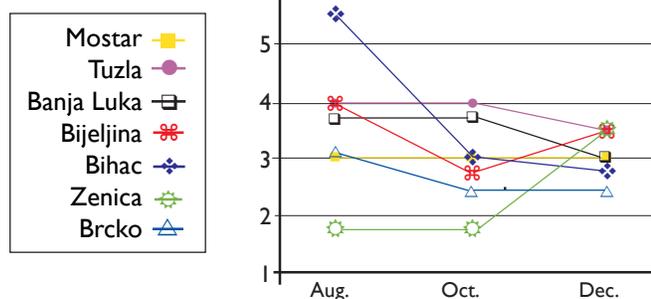
Beef and Veal Subsector

Reported Prices (KM/kg live wt.)

Average Price for in-Calf Heifers (2003)

Location	Aug.	Oct.	Dec.
Mostar	3.00	3.00	3.00
Tuzla	4.00	4.00	3.50
Banja Luka	3.70	3.70	3.00
Bijeljina	4.00	2.70	3.50
Bihac	5.50	3.00	2.70
Zenica	1.75	1.75	3.50
Brcko	3.10	2.40	2.40

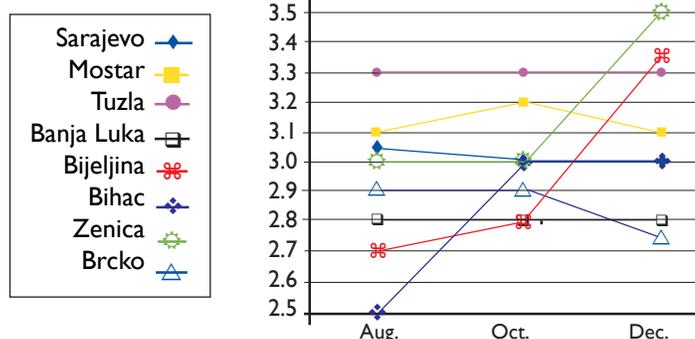
Average Price for in-Calf Heifers (2003)



Price of Young Cows (2003)

Location	Aug.	Oct.	Dec.
Sarajevo	3.05	3.00	3.00
Mostar	3.10	3.20	3.10
Tuzla	3.30	3.30	3.30
Banja Luka	2.80	2.80	2.80
Bijeljina	2.70	2.80	3.35
Bihac	2.50	3.00	3.00
Zenica	3.00	3.00	3.50
Brcko	2.90	2.90	2.75

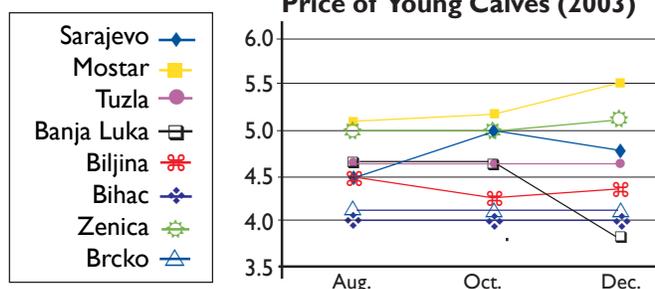
Price of Young Cows (2003)



Price of Young Calves (2003)

Location	Aug.	Oct.	Dec.
Sarajevo	4.50	5.00	4.75
Mostar	5.10	5.25	5.50
Tuzla	4.60	4.60	4.30
Banja Luka	4.60	4.60	3.75
Bijeljina	4.50	4.25	4.40
Bihac	4.00	4.00	4.00
Zenica	5.00	5.00	5.25
Brcko	4.25	4.25	4.25

Price of Young Calves (2003)



Livestock Production in BiH

Product	Year								FBiH 2000	RS 2000
	1993	1994	1995	1996	1997	1998	1999	2000		
Meat										
Production, total (MT)	89	67	48	44	35	24	24			
Edible offals (MT)	7	5	4	4	4	4				
Total consumption, including edible offals (MT)	100	75	55	52	54	65	100			
Cattle										
Cattle stock (1,000 head), total	630	550	380	205	217	230	350			
Dairy cows	470	380	250	152	159	165				
Beef and veal production, slaughter weight (MT)	34	22	13	15	13	16	8.8			
Beef and veal consumption, slaughter weight (MT)	34	24	16	16	18	20				

Source: ZMP 2000 for 1993–1999, Statistical offices of FBiH and RS for 2000.

2

Cut Flowers and Seasonal Annual Plants Subsector



1.0

OVERVIEW

Supply Profile

Although BiH, especially its southern part, used to be one of the largest producers of cut flowers in the former Yugoslavia, today the country's overall flower production sector is relatively small. The domestic production of cut flowers in 2003 was KM 840,000 and accounts for around 14% of the total cut flowers sales of approximately KM 6 million. This indicates there is ample room for domestic production to expand. It is difficult to compile data on, or even to estimate, total domestic production of annual seasonal plants since there are many unregistered individual producers who do not report their sales to anyone.

The only segments of the flower and decorative plants sector currently active in BiH, to any significant extent, are:

- Cut flowers.
- Seasonal annual plants for gardens, balconies, and parks.
- Some outside ornamental trees and shrubs, but only to a limited degree.

The geographic locations of domestic production concentrations are the municipalities of Mostar, Ljubuski, Capljina, Livno, Sarajevo, Tuzla, Banja Luka, and Lijeve Polje. Until recently, there were only three producers of cut flowers in BiH: Staklenici, Capljina (gerbera and a few roses); Apro-Florami, Buna, near Mostar (roses); and Vrtlarija Saric, Livno (lilies, gladiolus, and chrysanthemums). In 2004 a new company in Sarajevo, MBM doo, began producing gladiolus and dahlias on 1-ha plots; the firm is also an established importer, so it has already penetrated the market.

The activities related to the production of seasonal annual plants for gardens, balconies, and parks are more developed and geographically dispersed than those of cut flowers because such activities require less investment and are less sophisticated. The main registered producers of seasonal garden plants are Nerium, Ljubuski; Mediteranka, Mostar; Lotus, Banja Luka; Bemiko, Sarajevo; and state-owned JKP Park, Sarajevo.

Potted plants are currently not produced in BiH and are 100% imported. They are very difficult to produce, and BiH is unlikely to have much potential in this activity. Ornamental trees and shrubs are mainly produced and planted by government agencies that maintain public parks. There is some potential in this segment, but the market is limited for the time being.

Cut Flowers and Seasonal Annual Plants Subsector

Supply Profile (continued)

SWOT ANALYSIS FOR CUT FLOWERS AND SEASONAL ANNUAL PLANTS

Strengths

- Favorable climate (in the southern part of the country), with long periods of sunny days and limited temperature extremes between day and night.
- Cheap labor compared with large flower-producing countries.
- Transport costs for domestically produced flowers/plants are small compared with those for imports.
- Domestically produced flowers last longer because they are fresh and better acclimated.
- Compared with imported flowers, domestic cut flowers are usually not as good, but seasonal plants are as good or better.
- Stable domestic demand for flowers.

Weaknesses

- Insufficient numbers of well-educated horticulturalists and technical specialists.
- Lack of up-to-date production technologies.
- Very high start-up costs, especially for glasshouse production of cut flowers.
- Lack of access to financial resources.
- No association or cooperative for flower producers.
- Poor cooperation among producers.
- Significant black market and smuggling of flowers.
- Lack of production subsidies, which are common in large flower-producing countries.
- Poorly educated staff at retail flower shops.
- Retail sellers lack proper short-term handling equipment, such as air-conditioning.

Opportunities

- Big opportunities in the domestic market to compete with imports, especially for annual transplants and some cut flowers.
- Good supply of talented and trainable people.
- Potential new markets for exports to countries of the former Yugoslavia, except Slovenia, owing to a favorable climate and central location.
- Organic production.

Threats

- Prevalence and persistence in the black market of many small, unregistered individual producers of annual transplants who sell at very low prices compared with registered producers.
- Strong international competition from Holland, Italy, Germany, and others.
- A limited domestic market that can easily become flooded if domestic production increases without commensurate decreases in imports.

Cut Flowers and Seasonal Annual Plants Subsector

Supply Profile (continued)

Despite a much smaller production compared with prewar levels, total domestic demand for all kinds of flowers substantially exceeds domestic production, and the difference is being filled by imports from Holland, Italy, Germany, and others. Imports started after the war when domestic production was almost nonexistent and have persisted to date, due to the creation of strong import lobbies and a strong black market (evasion of customs and taxes), as has occurred in all other sectors of the economy.

There are three developmental possibilities that might boost BiH's flower production sector. See below.



THREE STEPS TO DEVELOPING A VIABLE SECTOR

- First, the current level of production of cut flowers and seasonal plants, both for the domestic market and for export, could be increased. It would be easy for larger importers to become producers, especially for cut flowers, since they know the market and have capital or access to loans. They are also in a position to directly control imports by reducing their own imports. Some importers have already recognized this opportunity. For example, Nerium, Ljubuski, started production of seasonal plants this year, and MBM, Sarajevo, started outdoor production of cut flowers. There are also opportunities for small, registered individual producers—especially for seasonal annual plants—who could derive their main household income from this activity. They could readily source financing for this activity from the existing micro-credit organizations (MCOs). There is already an example of this, where MCO Partner has financed one plastic house for pelargonias production in Municipality Kale.
- Second, working relationships could be developed with foreign producers to create joint ventures. This would make available their technology, production expertise, and seeds that, combined with the domestic climate, land, labor, and proximity to other markets, might attract interest among foreign producers. The focus of the joint venture could range from bulb or seed production to growing finished product.
- Third, BiH could compete for Dutch projects seeking to establish organic flower production in third countries with clean, unpolluted environments, favorable climates, and acceptable labor costs. The Dutch producers could provide technology, know-how, seeds, and seedlings and arrange for product marketing. The Dutch government actually provides favorable loans to their organic flower producers who would like to expand their production to less-developed countries. The loans are made based on a tender procedure. In 2003, one of the bidding companies, Greenshield, contacted the BiH company ECON involved in the certification of the organic production in BiH, asking for recommendations of areas where organic flower production could be started. ECON recommended a 20-ha field in Blagaj, near Mostar, that has already been certified by KRAV for organic production. Unfortunately, Greenshield did not win the tender, but this remains a future opportunity.

Cut Flowers and Seasonal Annual Plants Subsector

2.0

DEMAND PROFILE

2.1 Summary of Trends

In commercial cut flower production, producers usually concentrate on growing only a few varieties of flowers, such as roses, gerbera, and lilies. With seasonal plants, however, the number of different plants being produced is quite large. The selected varieties are then esthetically and physiologically perfected in order to meet all market demands and increase their commercial value (flower durability, stem resistance, cut flower endurance).

Producers must base their production quality and quantity on market requirements. These requirements normally relate to price, color, timing of market entry, durability, and resistance to disease, as well as the flowering period. Commercial flower production aims to reduce the vegetative period in order to decrease production costs and bring the plants to flower in the shortest period possible. Holland is the world's top flower producer.

Flowers can be grown in open fields and/or in enclosed protected spaces. This enables the certain growth phases or the entire growth to take place in an artificially created micro-climate even during the colder parts of the vegetative cycle. Glasshouses, together with some modern plastic houses, are the ideal enclosed spaces in which all of the growth factors can be achieved and controlled within optimal limits, thus enabling the most favorable output. To have continual production throughout the year, the glasshouse needs to be heated, ventilated, and irrigated, and have shadowing systems, additional lighting devices, and CO₂ injection mechanisms. Not surprisingly, the cost of a properly equipped glasshouse is quite high.

Cut Flowers

Before the war, the state-owned company Hepok, with headquarters in Mostar, was among the largest producers of flowers in the former Yugoslavia, growing roses, carnations, gerbera, and other flowers. The company had 26 ha of glasshouses and 15 ha for field production. Its annual output was 30 million cut flowers, of which 60% were carnations, 15% roses, 10% gerberas, and 15% other flowers; it also had 100,000 potted flowers. The company had a distribution network of 57 flower shops in all large cities of the former Yugoslavia. At the time, production was primarily carnations, for which the technology was very modern. Mother plants were used to obtain meristematic tissue for laboratory cloning of virus-free production plants. Unfortunately, most of Hepok's facilities were destroyed during the war (1992–1995) and the plants were lost. Since 1992, production technologies have advanced rapidly, and the methods used by prewar Hepok are now obsolete.

The part of Hepok concerned with flower production was privatized in 2003, and the glasshouse facilities in Capljina and Buna are now owned by two separate companies: Staklenici dd, Capljina, and Apro-Florami dd, Buna. Both companies have invested significant funds in revitalizing the prewar production capacities, but both are now more focused on vegetable production than flowers. Currently, these two companies grow cut flowers on 3.1 ha, or 28%, of their combined glasshouse space, but this generates more than 50% of their total revenues. They have combined employment of around 30 people in cut flower production, working on

Cut Flowers and Seasonal Annual Plants Subsector

Cut Flowers (continued)

growing, harvesting, and sorting/packaging. Despite the substantial investments in rebuilding the glasshouse structures, these two companies have not invested enough in the development of new technologies, and their production methods remain obsolete. They are also plagued by heating and cooling problems. They are heating the glasshouses only minimally during the winter—only enough to keep the plants alive—because their heating systems were designed to be fired with diesel, whose cost is too high to be economical with respect to winter market prices for vegetables or flowers. If they were able to switch to a less costly fuel source, such as bunker oil, they could sell flowers and/or vegetables during the winter period and become more profitable.

Last year Vrtlarija Saric, Livno, began producing lilies, gladiolus, and chrysanthemums of very good quality, but only during the summer season. They have three cooling chambers for storing cut flowers. Their production is conducted in open fields only. The company also imports many kinds of flowers from other countries, and imports constitute around 85% of their total sales, although their highest profit margin is from their own, local production.

Seasonal Annual Flowers (Transplants)

There are several companies and a number of individual producers in BiH that are producing seasonal annual transplants, especially pelargonias, begonias, petunias, and sulfinias. The most significant producers are Nerium, Ljubuski; Mediteranka, Mostar; and Lotus, Banja Luka.

The production of annual plants is more widespread than cut flowers because it requires less investment and they can also be grown in plastic houses rather than more expensive glasshouses. The production techniques are also less sophisticated than for cut flowers.

The biggest economic problem with seasonal plants is the large number of unregistered individual producers who produce and market their flowers chaotically. They use low-quality seeds and operate in the black market with poor quality and low prices. Unfortunately, since flowers are a luxury and price is still a more important factor than quality, this activity has a serious impact on the legitimately registered producers.

2.2 Statistics

Although cut flowers are considered a luxury, there is strong demand for them, especially around traditional dates or events. The demand peaks around religious holidays (Christmas, Bajram, and All Saints Day), Valentine's Day, and International Women's Day. Other events include births, weddings, and funerals (see Table 1). For example, there were over 30,000 deaths in BiH in 2002, and about as many funerals. Basically, our lives begin and end with flowers.

Table 1. Number of Births, Deaths, and Weddings in BiH, 2000–2002

Year	Births	Deaths	Weddings	Natural Increase (%)
2000	39,563	30,482	21,897	2.4
2001	37,717	30,325	20,302	1.9
2002	35,587	30,155	20,122	1.4

Source: FBiH Institute of Statistics.

Cut Flowers and Seasonal Annual Plants Subsector

2.2 Statistics (continued)

There is no possibility for the market in cut flowers or seasonal annual plants to expand significantly in the current economic situation. It is already saturated. The number of citizens is fixed (the natural increase is even declining). So, the only near-term opportunity for entrepreneurs in this sector lies in substituting imports with domestic production.

As mentioned above, cut flowers are sold throughout the year, with peaks on certain dates. On the other hand, transplants (e.g., summer seasonal plants for balconies) are sold almost exclusively from March through June. As for indoor potted plants, they are sold year-round. Large outdoor plants, such as trees and woody shrubs, are sold mainly in spring and autumn, when they are planted as well. Thus, one can see that this industry is highly seasonal, with prices and sales fluctuating throughout the year. The price for transplants is highest in March and lowest in June.

There are 148 municipalities in BiH—84 in the FBiH and 64 in the RS—and none without at least one flower shop and some with 15 or more (like Novo Sarajevo). Therefore, the number of retail flower shops is quite large. Moreover, local retail green markets frequently sell cut flowers and potted plants.

Another activity in this sector is outdoor property landscaping and interior plant arrangements for business facilities, especially insurance companies, banks, large distributional centers, shopping centers, and a certain number of wealthier houses. For example, Velprom recently paid KM 60,000 just for site landscaping and interior plants at a new facility.

The sale of potted plants has been declining in recent years. It was much larger immediately after the war as people returned to their prewar homes and started rebuilding. But, since these plants live for years, demand has been declining every year. As for outdoor trees and shrubs—another category of plants that live for many years—no significant increase in sales is expected in the near future. However, these plants need maintenance, and many companies producing and/or selling them provide this service to customers. This activity has been slowly increasing over the years. The demand for annual plants (transplants) has been stable and increasing slowly as more and more people resume the tradition of growing flowers on their balconies or in gardens, a task that must be repeated every year.

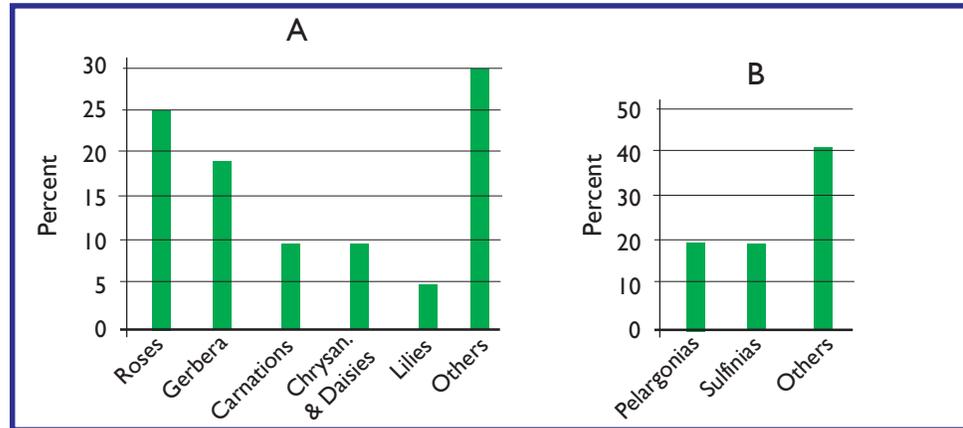
As for individual plant varieties, the number-one seller in cut flowers is roses, followed by gerbera, carnations, chrysanthemums, daisies, and lilies. In seasonal transplants, the top sellers are pelargonias, sulphinias, petunias, and begonias. Flower producers in BiH have genuine opportunities for good business in these two segments. (See Graphs 1a and 1b.)

In retail sales of cut flowers, approximately 70% of consumers are mainly interested in the price, whereas the remaining 30% consider quality an important factor as well. Buyers who are part of the 70% majority usually leave it up to the flower shops to choose flowers and arrangements that can fit into their predetermined budgets. Since many flower purchases are for funerals, durability is a secondary factor for consumers.

Cut Flowers and Seasonal Annual Plants Subsector

Graph Ia. Sales of Different Kinds of Cut Flowers

Graph Ib. Sales of Different Kinds of Seasonal Annual Plants



Domestically produced seasonal flowers are good quality. They sometimes cost more than imported ones because importers frequently buy low-quality transplants so as to sell them at competitive prices. Consumers are attracted by low prices, despite the fact that imported plants are prone to faster deterioration.

Key Finding

Even with the problem described above, the most serious issue facing domestic seasonal plant producers is the large number of unregistered individual producers. These operators grow plants from low-quality seeds, sell at very low prices because they do not pay taxes, and thereby depress prices in the market below levels that reward serious, long-term investments. The low-quality flowers of unregistered producers damage the reputation of all domestically produced flowers. Registered domestic producers would like to see this issue dealt with more than any other issue.

Few producers have their own delivery vehicles, relying instead on buyers coming to them or shipment by bus. This decreases their competitiveness with importers and the black market. Unregistered producers often go from shop to shop in a delivery van to sell flowers.

Most retail flower shops do not have air-conditioning to keep flowers cool and fresh. Therefore, they cannot keep the plants very long and suffer high losses. This may explain why their selling prices are higher than one would normally expect.

2.3 Imports

As Table 2 shows, most flower imports in BiH are potted plants, ornamental trees, and grafts. Although the purchasing power of BiH consumers is considered to be low, significant resources are spent on flower imports.

Beside the items in Table 2, all other raw materials are imported, like seeds, mineral fertilizers, potting soil, pesticides, plastic pots, and packaging. There is one company producing cardboard packages for gerbera in Citluk and one company producing sponges for dry flower arrangements (Iris, Uskoplje).

Cut Flowers and Seasonal Annual Plants Subsector

2.3 Imports (continued)

Table 2. Flower Imports to BiH, 2003

Type	Quantity (ea)	Value (KM)	Total (%)	Custom Duty
Bulbs, seasonal annual transplants, other	143,736	695,496	4	None
Potted plants, ornamental trees, grafts*	8,803,830	10,423,821	63	None
Cut flowers	1,078,684	4,579,688	28	10%
Cut greenery and grass	161,742	732,500	4	None
Total	10,187,992	16,431,505	100	—

*This also includes fruit nurseries, but it was not possible to get separate data so as to exclude this item from total figures. Source: the Chamber of Foreign Trade of BiH.

Owing to the recent bilateral FTAs between Croatia and BiH, and Serbia–Montenegro and BiH, the only customs duty required for commodities originating in Croatia is a 1% customs registration fee. Therefore, the number of daily imports from Split for the purchase of Croatian and third-country flowers has recently increased substantially. It is also worth noting that two of the largest producers and importers—Nerium, Ljubuski and Vrtlarija Saric, Livno—have affiliated import companies and production facilities in Croatia. Because of this arrangement, they are able to import flowers to BiH with only a 1% customs registration fee.

BiH is importing mostly from Holland, Italy, Germany, Croatia, and Serbia–Montenegro. The transportation share in the wholesale price of imported cut flowers from Holland and Italy is 15%, plus 10% for customs duties and a 1% customs registration fee. However, for cut flowers that “originate” in Croatia, the transportation and customs duties with the customs registration fee constitute only 16% of price, for a 10% savings. With seasonal annual transplants, the transportation share is 50–60% due to their size and special transportation requirements. One truck load (48 pallets) from Holland costs KM 7,500, whereas the same size load from Italy costs KM 1,200. The trucks must be refrigerated and carry special permits, which is why the trucking is done directly by foreign suppliers or special transport companies.

A modern set of phytopathological regulations is available for use by customs agents at the border posts. However, inspections are rarely conducted. Permits are regularly purchased and issued on the spot, based exclusively on the stated value of the products.

The major importers in BiH are Ajax, Posusje; Min Kaktus, Mostar (potted plants and cut flowers); Mate Komerc, Ljubuski; Kaktus, Sarajevo (cut flowers and the only company in Sarajevo with cooling chambers); Vrt, Ljubuski; Vrtlarija Saric, Livno; Vrtlarija Dragicevic, Ljubuski; Nerium, Ljubuski; and MBM, Sarajevo.

Because of poor phytopathological control in BiH, quality classification standards are not used. Consumers usually do not know what quality they are buying or the country of origin. The same is often true for the contents or ingredients of other imported agricultural raw materials.

Cut Flowers and Seasonal Annual Plants Subsector

2.4 Exports

Export is not as important as the replacement of imports by domestic production. Table 3 shows data for the export of flowers from BiH in 2003; various price data are shown in Tables 4 and 5. Table 4 shows the prices for four types of cut flowers and three varieties of seasonal annual plants, as of June 2004. Table 5 displays seasonal prices for the same cut flowers presented in Table 4.

Table 3. Flower Exports from BiH, 2003

Type	Quantity (ea)	Value (KM)	Total (%)
Bulbs, seasonal annual transplants, other	1,967	53,175	6
Potted plants, ornamental trees, grafts*	114,351	287,389	32
Cut flowers	21,273	87,426	10
Cut greenery and sod	195,365	471,166	52
Total	332,956	899,156	100

*This also includes fruit nurseries, but it was not possible to get separate data so as to exclude this item from total figures. Source: the Chamber of Foreign Trade of BiH.

Table 4. Current Prices (KM), June 2004

Cut Flowers	Retail	Wholesale	Seasonal Annual Plants	Retail	Wholesale
Roses	1.5–3.0	0.5–1.5	Sulfinia	1.5–2.0	1.00–1.50
Gerbera	1.0–2.0	0.3–0.5	Pelargonias	1.5–4.0	1.00–2.90
Carnations	0.8–1.0	0.2–0.3	Begonias	0.7–3.0	0.55–1.50
Lilies	3.0–4.0	1.5			

Source: Nerium doo.

Table 5. Fluctuations in Seasonal Prices (KM), 2003

Flower	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
Roses	1.3	1.1	1.2	1.1	1.2	1.1	1.2	1.2	1.2	1.1	1.3	1.2
Gerberas	1.1	0.9	1.0	0.3	0.4	0.4	0.9	0.8	0.6	0.9	1.5	0.7
Carnations	0.4	0.4	0.4	0.4	0.4	0.4	0.2	0.2	0.2	0.2	0.5	0.6
Lilies	2.4	0.7	1.9	2.2	1.8	1.3	1.3	1.3	1.3	1.8	1.7	1.9

Source: Nerium doo.

Retail prices are usually two, three, or even four times higher than wholesale prices. Seasonal annual plants reach their highest prices in March as spring begins, and reach their lowest prices in June, although the fluctuations are not extreme. Cut flowers have the highest price in winter and during holidays.

3.0 BASIS OF COMPETITION

Buyers are primarily individual households, although there are significant numbers of institutional buyers. Product characteristics that these buyers prefer are described below.

Cut Flowers and Seasonal Annual Plants Subsector

3.1 Quality Characteristics

The quality of domestically produced plants can be better than imported ones in terms of freshness, durability, and adaptation to local climate conditions if properly produced.

Some retail flower shops prefer domestic cut flowers, not because they are more expensive than the imported ones—sometimes they are cheaper—but because they are fresher and last longer. For example, domestic gerbera is fresher than imported gerbera, but has smaller flowers and the packaging is somewhat less fancy. Prices are still the major determining factors, with quality and freshness next. This is truer for the summer period, when flowers naturally have shorter durability, than in winter, when all flowers lose their freshness more slowly due to lower temperatures. Therefore, the demand is higher for imported flowers during the winter; during summer it is higher for domestic flowers.

The domestically produced seasonal annual plants, if produced properly from mother plants, also last longer because they are grown under prevailing climatic conditions and are acclimated. On the other hand, imported seasonal plants usually experience temperature shock and inevitably lose some of their freshness during the long travel time to BiH. In addition, the importers are buying lower quality seasonal plants to achieve competitive prices, which may attract buyers; consequently, domestic seasonal plants are usually better quality than the imported ones. Some producers, such as Mediteranka, Mostar, and Nerium, Ljubuski, are thinking long term and prefer to produce good quality seasonal annual plants in order to attract and retain buyers in the future.

3.2 Packaging

In this industry, packaging is not as high a priority as in some other sectors of agriculture. Gerbera is usually packaged in cardboard boxes in groups of 25 flowers, roses are packaged in foil in groups of 10 flowers, and transplants usually come in plastic pots with diameters of 10 cm or less. Packaging is important only in retail shops, where floral arrangements are made using decorative foils, ribbons, and other materials.

There is a company in Citluk that produces cardboard boxes for gerbera, and a company in Uskoplje that produces sponges for dry flowers.

3.3 Services

This industry requires glasshouses for growing potted plants and seasonal annual plants (transplants), cooling chambers for maintaining cut flowers, and refrigerator trucks for transportation. Wholesalers are very well equipped in this regard. Retail shops are small and often lack air-conditioning equipment, but most of them work very little during the summer because of high temperatures and vacations.

Currently, no flower producers association exists in BiH. There is only the Farmers Association, with a section for horticulture led by the owner of Mediteranka, Mostar. However, this section is weak and most producers are unaware of it. Most producers interviewed believe that forming a strong association would be quite beneficial, especially as it could help them deal

Cut Flowers and Seasonal Annual Plants Subsector

3.3 Services (continued)

with the problems arising from unregistered producers. There are also no cooperatives organizing or helping producers with technical assistance or marketing.

There is no special faculty or an educational unit in any of the agricultural institutions in BiH that deals specifically with flower production and cultivation. Many of the current domestic producers, such as Nerium, Vrtlarija Saric, and Mediteranka, are self-taught. They have frequently traveled to Holland or Italy to learn from producers there.

3.4 Marketing

Very little attention is given to marketing flowers, either by producers or importers. Some put their logo on the delivery trucks that travel from shop to shop. Buyers mostly learn about producers and importers by word of mouth. The current list of companies selling flowers wholesale is not especially large. Each has a stable customer base, which means they do not feel compelled to undertake any special marketing activities.

3.5. Market Movement

Flower producers do not usually have forward contracts with retail flower shops or individuals, although forward contracts are not uncommon for sales to big market companies like OBI, Merkator, Velprom, and others.

State-owned companies are very active in the production and maintenance of ornamental trees and shrubs, mainly in parks. Many of these companies are also retailers, having established flower shops long before the war in attractive locations in the major BiH cities. These companies are obliged, according to law, to publish a bidding procedure for their supply of flowers. After the best bidder is chosen, a purchase contract is made.

Most retail shops normally visit producers and importers and make spot-market purchases. However, they may require the seller to deliver the flowers. Verbal advance orders, commonly known as *bookings*, are not used.

Importers are often obligated, as a condition of purchase, to buy a mix of flowers and transplants from foreign sellers. This situation creates unexpected entry and exit from narrow segments of the market and affects prices received by domestic producers of both cut flowers and seasonal transplants.

3 Dairy Production Subsector



1.0 OVERVIEW

Milk production is considered to be strategically important to the agricultural industry and the people of BiH. More than 80% of the territory is suitable for raising livestock; hence milk production. Livestock rearing is the most prevalent form of agricultural production, employing a large percentage of the farming population. Improving conditions for the dairy sector has been a priority of the BiH government since the war, with an aim to provide for domestic consumption, products for export, and overall economic development.

1.1 Prewar Status

In prewar 1991, total annual milk production was estimated at 852 million liters (L). Annual average consumption of fresh milk per capita was estimated to be 110.9 L, 6.3 L of yogurt, 7.4 kg of cheese, 0.6 kg of butter, and 3.6 kg of cream. (See sidebar and Table 1 for other characteristics of prewar milk production in BiH.)



Main Characteristics of Prewar Milk Production

- *Small milk producers dominated.* Most farms had no more than three cows.
- *Low milk production per cow*—about 1,400 L/year (3.8 L/day).
- *Limited organized collection and marketing of milk from small farms (12–16%).* Most milk was for family use and the sale of homemade products in local markets.
- *Genetic potential of native cows for milk production was very low.* Cattle selection and genetic improvement were not developed in the private sector.
- *State farms had higher production per cow.* These farms supplied only a small percentage (30%) of total milk production in relation to public consumption.
- *State farms received government subsidies.* Small private farms were not a development priority and received no assistance.
- *A great part of agricultural resources and production was organized through large agribusiness conglomerates (agrokombinats).* These conglomerates integrated inputs and services with agricultural production, processing, marketing, and exports.

Table 1. Prewar Milk Indicators in BiH

Development Indicators	Amount
Number of cows	623,000
Total annual milk production	875,000 L
Annual milk production per cow	1,410 L
Agrokombinat cows purchased	105,000
Total milk production sold to dairy processor	12%
State farms' share of total milk produced	29%
Farmers' share of total milk produced	71%

Source: FAOSTAT database.

Dairy Production Subsector

I.0 OVERVIEW (continued)

SWOT ANALYSIS FOR DAIRY PRODUCTION

Strengths

- Tradition: long history of dairy production.
- Favorable climate conditions.
- Existing capacities for production and processing.
- Substantial demand for milk in the local market—only 35% of the total demand being met by local producers.
- Currently profitable (one can start business in milk).
- Potential for creating jobs in processing segments.
- Existing government incentives for farm milk production.
- Uses available forage and pasture land.
- Extension services, agri-institutes, and faculties are present and their expertise is available.

Weaknesses

- Tradition: reluctance to change.
- Small farms and segmented land holdings.
- Farmers lack knowledge of improved practices.
- Poor infrastructure (roads).
- Poor quality of raw milk; poor sanitary conditions.
- Low income and hence buying power of general population.
- Low production per cow.
- Obsolete milking technology.
- Under-used processor capacity at current levels of production.
- Processors lack management know-how.
- Insufficient cold-chain capacity.
- Poorly organized milk collection in some areas.
- Low level of product diversification; poor product formulations.
- Expensive milk production (per liter).
- Lack of quality management systems.
- Undetermined legal status of producer/farmers makes it difficult to get loans.
- Late or lack of payment to farmers for milk produced.
- Poor connection between extension services and producers and between agriculture institutions.
- Nonexistent programs to improve cattle breeding and breeding centers and markets for selling cattle with improved genetics.
- Significant quantities of “unofficial” milk imports.
- Lack of ISO-9001/HACCP certification of producers by an officially accredited organization.
- Major disruption of milk production because of the war (see sidebar, page 29).

1.0 OVERVIEW (continued)

Opportunities

- Improve feed production, feeding ingredients, and feed rations.
- Introduce farmers to improved practices and provide better market information.
- Produce regional specialty/organic products.
- Increase production: number of cows and production per cow.
- Organize milk collection in areas without service where there is a surplus.
- Diversify product mix (medium and long shelf life).
- Capture market share in domestic market with better packaging, higher quality, and better marketing (advertisement).
- Increase share of domestic market since demand significantly exceeds supply.
- Improve genetic potential of dairy herds.
- Develop favorable regulations.
- Create an environment for young people to be employed in villages and to have trained human resources.

Threats

- Rural populations migrating to cities.
- Aging farm population.
- Poor infrastructure of rural areas.
- Limited credit possibilities.
- Lack of glass and packaging materials manufacturing in BiH; problem if domestic packaging industry does not develop.
- Animal feed (limited supply in some areas and expensive) may not improve fast enough to support timely improvement in efficient milk production.
- Dependence on imported food ingredients (e.g., fruit) needed for some products such as flavored yogurts.
- Lack of import control/free trade agreements; heavily subsidized and therefore cheap competitive products are imported from nearby countries.
- Illegal imports.
- Competitive equalization price supports for domestic products not likely to develop.
- Institutions for quality control (export-import) and regulatory oversight may not develop fast enough to adequately protect the domestic dairy industry and consumers in the short run.



Impact of War on Milk Production

- *Number of cows reduced by 60%.*
- *Total milk production reduced by more than 60%, in parallel with a decline in milk production per cow.*
- *Number of farmers decreased, as many became refugees.*
- *Dairy sector infrastructure (e.g., barns, feed mills) destroyed, as was more than 80% of farm equipment.*
- *Significant farm holdings not accessible because of land mines.*
- *Four large state farms with 2,100 cows were destroyed.*
- *Milk supply chain (collection stations, milk cooling tanks, vehicles) ruined.*
- *Most of the specialized institutions that supported the dairy sector ceased operation.*

Dairy Production Subsector

1.2 Current Situation

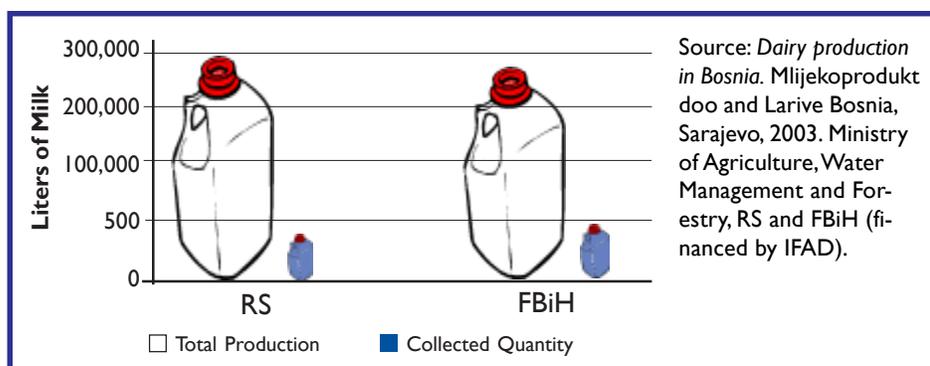
In recent years in the RS, just 12% of the milk produced is collected through official (legal) market channels; in the FBiH, only 17.2%. Reasons for such low collection rates are related to high levels of milk sold locally and calf feeding. The prevalence of subsistence milk production further accentuates this situation. See Table 2 and Graph 1.

Table 2. Quantity of Milk Produced and Processed in the RS and the FBiH, 2002

	No. of Cows	Productivity per Cow (L/yr)	Total Production (L/yr)	Collected Quantity (L/yr)	Collected (%)
RS	143,000	2,000	286,000,000	34,500,000	12.3
FBiH	141,000	1,900	268,000,000	46,100,000	17.2
Total	284,000	1,950	554,000,000	80,600,000	14.5

Source: *Dairy production in Bosnia*. Mlijekoprodukt doo and Larive Bosnia, Sarajevo, 2003. Ministry of Agriculture, Water Management and Forestry, RS and FBiH (financed by IFAD).

Graph 1. Total Milk Produced and Collected in the RS and the FBiH, 2002

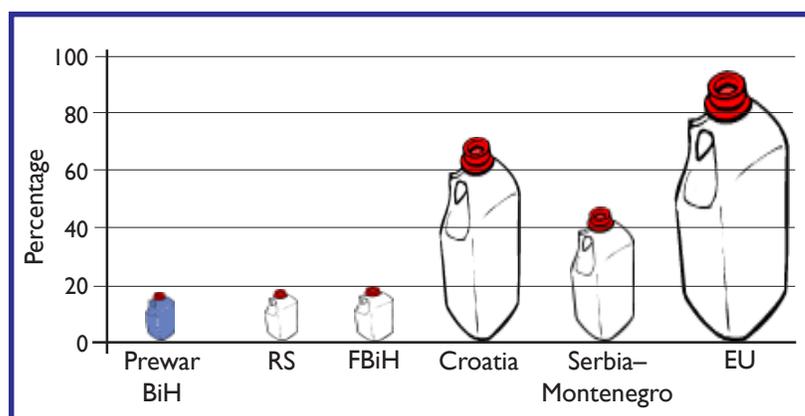


Source: *Dairy production in Bosnia*. Mlijekoprodukt doo and Larive Bosnia, Sarajevo, 2003. Ministry of Agriculture, Water Management and Forestry, RS and FBiH (financed by IFAD).

1.3 The Situation in Neighboring Countries

As Graph 2 shows, a significant percentage of milk in Croatia and Serbia–Montenegro is collected for sale into commercial channels, which is on par with the EU. These countries also have more developed processing industries that collect and process large volumes of raw milk.

Graph 2. Percentage of Raw Milk Collected in 2002 by Entity/Country



Farm gate prices are equivalent in all neighboring countries (see Table 3). However, Croatia and the FBiH have the highest prices: 0.63 and 0.64 KM/L, respectively.

1.3 The Situation in Neighboring Countries
(continued)

Table 3. Farm Gate Prices by Entity/Country

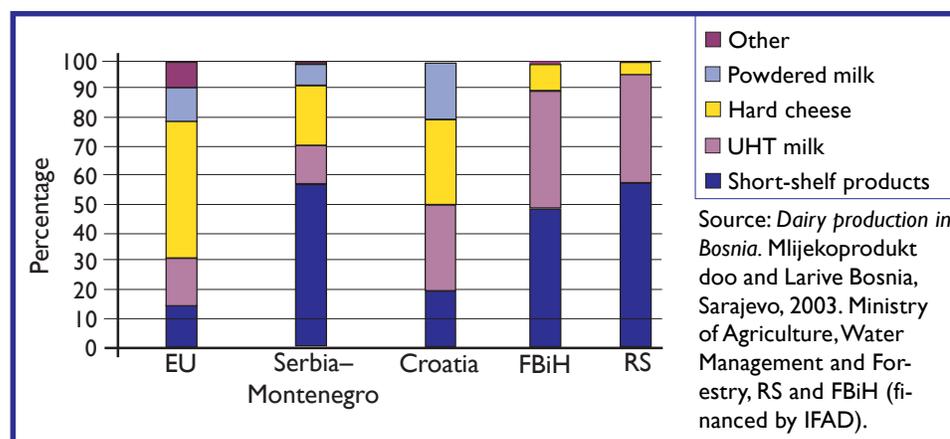
Entity/Country	Cost to Dairy (KM/L)	Price or Support (KM/Fat Unit)	Farm Gate (KM/L)
RS	0.43	0.11	0.54
FBiH	0.50	0.14	0.64
Serbia–Montenegro	0.44	0.13–0.15	0.57–0.59
Croatia	0.48	0.15	0.63
Germany	0.56	—	0.56
Holland	0.54	—	0.54
EU average	—	—	0.59

Source: *Dairy production in Bosnia*. Mlijekoprodukt doo and Larive Bosnia, Sarajevo, 2003. Ministry of Agriculture, Water Management and Forestry, RS and FBiH (financed by IFAD).

1.4 Structure of Dairy Industry Production

In more advanced markets, dairy products typically comprise a mixture of high-volume, fast-turnover, low-margin products like fluid milk and value-added products like aged cheese. In BiH the market structure tends strongly toward lower margin, fast-turnover products. According to informants in the sector, this situation derives from cash flow constraints that prevent most Bosnian dairies from tying up working capital in products with longer-term returns, such as cheese. Consequently, as milk production grows, seasonal imbalances may skew production by causing cyclical surpluses in the spring/early summer season. Graph 3 shows the percentage of dairy products produced by entity/country.

Graph 3. Product Structure of Dairy Industry



2.0 DEMAND PROFILE
2.1. Summary of Trends

The dairy industry is experiencing a severe postwar crisis. Its products cannot compete with subsidized imports, and the industry struggles to regain its prewar productive capacity. With about 35% of domestic demand for dairy products being met by domestic production, there is a window of opportunity for the BiH dairy sector to compete with foreign products by producing quality domestic products at a competitive price. BiH dairies are at a point where strategies to establish and build market share are of paramount importance.

Dairy Production Subsector

2.1. Summary of Trends (continued)

Some positive trends are emerging: most of the dairies have been privatized, dairy farming is currently profitable (when subsidies are taken into account and payments are actually made), and there seems to be general agreement among politicians on the importance of the dairy sector. Under these conditions, milk production is poised to be the “engine” that develops a significant part of the agricultural sector and spur employment for a large number of agricultural households and processors. Assisting this sector would be a strategic investment by the government. Foreign investment in domestic dairies is also helping to stimulate improvements in domestic milk quantity and quality. For example, when Meggle (an international German-owned dairy) bought Bihac Industry of Milk Products, it educated suppliers and invested in lacto-freezers and equipment for the most productive farmers.

2.2 Current Subsidies

The minimum price for cow’s milk in the FBiH is 0.1388 KM/Fat Unit (each 0.1% fat). Thus, milk that contains 3.6% fat has a minimum price of $3.6 \times 0.1388 = 0.50$ KM/L in the FBiH.

There is no minimum price for cow’s milk in the RS, although there is a subsidy paid by the RS Ministry of Agriculture of 0.10 KM/L for milk of 3.2% fat level or higher. The FBiH Ministry of Agriculture pays a subsidy quarterly of 0.14 KM/L of cow’s milk that averaged 3.5% fat during that respective quarter.

The current situation allows for lower milk prices in the RS, which is causing significant industry issues. Thus, dairy processors are finding innovative ways to price milk in a more equitable way between entities and as they wish in their target milk supply areas.

2.3 Domestic Production

There are more than 100 dairies in BiH (74 in the FBiH, 35 in the RS), with a total capacity of 1 million L/day. Only 22% of that capacity is actually being used. The ownership structure of these dairies has changed in recent years. There is now only one state-owned dairy, Zenica. Some of the bigger previously state-owned dairies still have old facilities and equipment, but are investing in modern technology. Four-fifths of the country’s dairies are small, privately owned with a daily capacity of 2,000–10,000 L. Some small dairies are earning money by offering cooling equipment and services to farmers.

Dairies purchase milk directly from farmers or at collection points and then transport it to a production facility. However, farmers do not sell all of their milk to dairies, selling also directly to households and on green markets. Farmers who cannot sell to dairies usually sell fresh milk and processed milk products (e.g., sour cream and cottage cheese) at outdoor markets. (A list of major domestic dairy producers appears on page 42.)

2.3 Domestic Production
(continued)

Current factors in the BiH market that impact domestic dairies:

- *Significant imports of dairy products, especially from neighboring countries.* Imports will likely increase now that the new FTA became effective 1 May 2004, thereby eliminating customs duties with neighboring countries.
- *Many milk products that receive export subsidies are legally being dumped in BiH.* This is especially the case for milk products that have a long shelf life, such as cheese, butter, powdered milk, and UHT milk.
- *Milk products are being imported that do not comply with normal quality standards (e.g., have reached their expiration date) and are significantly cheaper than domestic products.*
- *There is reportedly a large volume of milk that is smuggled into BiH illegally.* The order of magnitude of this trade is unknown, but some business insiders estimate the loss at about KM 18 million of potential customs duty.

Mitigating Measures

To withstand negative influences such as those described above, concerned industry representatives have suggested several mitigating measures:

- Introduce systematic measures (e.g., countervailing duties) by which domestic producers can compete against subsidized imports on a level playing field.
- Allow dairy cattle to be imported with fewer restrictions to increase the quantity and quality of dairy cattle. (Animals must meet certain veterinary and health conditions.)
- Pass supporting legislation and enforce quality standards. The absence of legislation and its enforcement, combined with trading partners' export subsidies, are the main reasons BiH has been inundated with cheap products, often of questionable quality. Semi-hard cheeses, powdered milk, and butter are particularly cheap. With the low buying power of the Bosnian population, this seriously threatens domestic production and may endanger the health of consumers. For instance, products near or past the expiration date have been sold at highly discounted prices. Legal protections are needed in this area to ensure a level playing field and to protect domestic consumers. Moreover, the price of milk in the FBiH is set artificially high by law, thus encouraging the import from cheaper venues, as the processors cannot by law lower the price for domestic FBiH producers. (They can, however, lower the price for RS producers.) This policy virtually ensures imports.
- Improve BiH dairy industry technology and productivity through technology transfer and training in improved practices so that the dairies can catch up.

Dairy Production Subsector

2.4 Imports

According to estimates,¹ 65% of milk and related products are imported. Some key products (among them fresh, condensed, and powdered milk) are being imported at the 10–15% customs regime. New FTA partners can now export milk—often subsidized—into BiH without any tariffs. Through this subsidized milk trade, these trading partners have captured substantial market share in BiH. Some BiH processors are importing these subsidized products and then reconstituting this milk for in-country sale.

Croatia and Slovenia supply the largest share of imported dairy products, which account for over 60% of all imports, bringing in primarily yogurt and fluid milk. Germany supplies most of the imported cheese. Imports from other countries account for the remaining 25%. See Table 4.

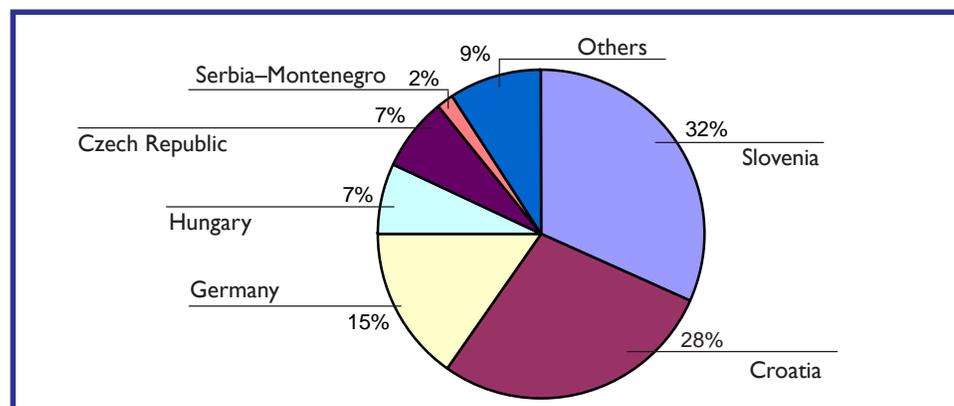
Table 4. Countries Exporting Dairy Products to BiH, 2002

Country	Import Value (thousands of KM)	Share (%)
Slovenia	36,049	31.6
Croatia	32,053	28.3
Germany	17,565	15.2
Hungary	7,873	6.9
Czech Republic	8,047	7.0
Serbia–Montenegro	2,182	1.9
Other	10,328	9.1
Total	114,097	100

Dairy production in Bosnia. Mlijekoprodukt doo and Larive Bosnia, Sarajevo, 2003. Ministry of Agriculture, Water Management and Forestry, RS and FBiH (financed by IFAD).

Officially, only about 70,000 MT of dairy products were imported in 2001 and the value of imports was \$55 million. The export value of dairy products in 2001 was approximately \$4 million. However, the figures do not correspond to the actual production and consumption figures. Most likely a significant quantity of dairy products are smuggled into the country. Smuggled products are sold at much lower prices in the outdoor (informal) markets. Dairy products from the EU often benefit from an export subsidy; raw milk and milk powder imports from the EU are minor. Graph 4 shows the market share of dairy imports to BiH by country of origin.

Graph 4. BiH Dairy Import Market Share by Country of Origin



¹*Dairy production in Bosnia.* Mlijekoprodukt doo and Larive Bosnia, Sarajevo, 2003. Ministry of Agriculture, Water Management and Forestry, RS and FBiH (financed by IFAD).

2.4 Imports (continued)

Most of the foreign companies have established a representative office locally for marketing (e.g., for Croatia, Lura/Dukat Zagreb–Lura Sarajevo) or have a distributor (e.g., for Slovenia, Ljubljanske Mlekarne–Alpiko Sarajevo; for Germany, Meggle–Megamix Sarajevo). Also, some foreign investors have established their own in-country operations (e.g., Meggle, Bihac; Ljubljanske Mlekarne, Tuzla; Lura, Livno).

Dairy products are usually retailed together with other food products, and there are only a few specialized retail stores (e.g., the Slovenian dairy products' distributor Alpiko has a few specialized stores).

Tariff Rates

There are no quantitative restrictions on imports of dairy products for key trading partners (Croatia, Serbia–Montenegro). Tariff rates for dairy products are shown in Table 5.

Table 5. BiH Tariff Rates for Dairy Products

Tariff No.	Product	Tariff
0401	Milk and cream	Butterfat up to 1%, vol. up to 2 L = 10% + 0.15 KM/L Other = 10% Up to and including 3% butterfat = 10% + 0.15 KM/L Over 3% butterfat and up to and including 6% butterfat = 10% + 0.25 KM/L Over 6% butterfat in 2-L packaging = 10% + 0.40 KM/L Other = 10%
0402	Powdered milk	Butterfat up to 27% = 10% + 0.60 KM/kg Butterfat over 27% = 10%
0403	Yogurt, sour milk	10% = 0.30 KM/kg
0405	Butter	10% = 1.00 KM/kg
0406	Cheese (fresh) and cream cheese	10% = 0.30 KM/kg 10% = 0.80 KM/kg

For Croatia, Serbia–Montenegro, and Macedonia, tariffs are generally lower or eliminated because of the FTA signed between these countries. Croatian imports were charged 40% of normal customs duties in 2003 and 0% as of April 1, 2004. Serbia–Montenegro was charged 40% of normal import duties during 2003 and 0% as of April 1, 2004. Customs duties for Macedonian products were reduced to 50% of normal duties as of January 1, 2003, 40% as of January 1, 2004, and 0% beginning January 1, 2005. Another FTA, signed recently with Moldova, has not been put into force. BiH is not a member of the World Trade Organization.

2.5 Exports

Export opportunities are very limited in the dairy sector for the following reasons:

- Insufficient production to meet domestic demand.
- Lack of a veterinary certification system that is capable of monitoring and enforcing product safety.

Dairy Production Subsector

2.5 Exports (continued)

- Hygiene and sanitary conditions inside milk processing facilities.
- Outdated and/or obsolete equipment and processes.
- Lack of modern packaging equipment and machinery.
- Poor financial condition of companies, coupled with weak business acumen.

This situation is unlikely to change in the near future, given the time required to correct the deficiencies enumerated above and the slow privatization process that delayed earlier investments and improvements. Table 6 shows export data for milk and milk production for 2002.

Table 6. Exports of Milk and Milk Products from BiH, 2002

Country	(thousands of KM)	%	(thousands of L)	%
Croatia	2,866.8	84.8	1,023.6	61.8
Serbia–Montenegro	404.1	11.9	601.8	36.3
Other	111.3	3.3	30.2	1.8
Total	3,382.2	100	1,656.6	100

Source: Customs Administration office of FBiH and RS.

2.6 Demand

The domestic, regional, and EU markets are the most likely sources of demand for BiH dairy products. Demand in these markets is discussed briefly below.

Domestic Demand

Per-capita annual consumption of dairy products for the BiH population of 3.7 million is approximately 120 L of milk (on a fluid basis). Of that, approximately 100 L are consumed as fresh milk. The dairy sector has not yet recovered from the livestock lost in the 1992–1995 war, which decimated numbers. There are approximately 284,000 dairy cows and average yield is low: about 1,900–2,000 L per lactation. Table 7 shows that, in 2002 approximately 467,000 MT of milk and milk products were produced in a market that consumes 526,000 MT/year (i.e., about 12% is imported).²

Table 7. Dairy Sector Market Indicators (thousands of MT)

Milk and Milk Products (excluding butter)	Year						Growth (%)
	1997	1998	1999	2000	2001	2002	
Total BiH production	436.1	254.6	577.0	547.1	507.0	467.0	
Average annual production growth		-41.6	126.6	-5.2	-7.3	-7.9	12.92
Total imports	102.3	73.2	82.9	81.6	116.8	59.7	
Average annual import growth		-28.4	13.3	-1.6	43.1	-48.9	-4.50
Total exports	2.6	1.0	4.0	2.0	0.6	0.8	
Average annual export growth		-61.5	300.0	-50.0	-70.0	33.3	30.36
Total domestic production + imports	538.4	327.8	659.9	628.7	623.8	526.7	
Average annual market growth		-39.1	101.3	-4.7	-0.8	-15.6	8.22

Source: FAOSTAT database.

²These data include milk that is produced by households for their own consumption. Of commercially sold milk and other dairy products, it is estimated that BiH imports about 65% of what it consumes.

Dairy Production Subsector

Domestic Demand (continued)

At the same time, the quantity of milk purchased and processed by local dairies was only about 80 million L. A significant portion of domestic dairy consumption is imported, including fluid milk. Most local dairies produce pasteurized milk, yogurt, and fresh/cottage cheese. Production of hard aged cheese is low because of its lower profitability, compared with fluid milk and yogurt. Products with a long shelf life account for 34% of total dairy production; cheese accounts for 8%. Production of cream, spreads, flavored milk drinks, butter, and flavored yogurts is almost nonexistent.

Regional Demand

In general, BiH is unlikely to ever be a significant exporter of most dairy products. Currently, domestically produced quantities are small and cannot even satisfy local demand. Until now, BiH products have rarely been available in regional markets. At present, however, Livno and Trapista hard cheese varieties stand out as possible exceptions. These two varieties have at least some brand recognition regionally and in the former Yugoslav Federation countries. Lura Dairy in Livno recently reported sales of 284 MT of Livno cheese in the three-month period of May–July 2004. Of this, 70% was exported to Croatia and 30% consumed in BiH. Trapist cheese can be found in some shops in Croatia as well.

A major issue for both of these “brands” is controlling the production and quality. Lura recently identified cheese in the market that was not produced by them with false labeling imitating their own labels. The LAMP Team understands that, some years ago the Trapist monastery “licensed” the cheese formula/process it had developed to selected dairy processors. Now it appears to be produced by many dairy processors with varying degrees of quality and taste. Nonetheless, these two names are well known by consumers domestically and in the region, which seems to provide an opportunity if their use could be properly controlled.

Regional trade disadvantages include difficult transportation conditions through mountainous geographies and the lasting political problems and conflicts in southeast Europe. There is also strong competition from Italian and German products in the Croatian and Slovenian markets (especially for milk and cheese products). It would seem the best opportunity for future dairy product exports would be to supply niche products for specialized markets. Goat’s milk and cheeses made from goat and sheep’s milk would be examples of such products.

EU Demand

BiH does not export to the EU because it is not registered as a third country. BiH does not have registered processing facilities, nor can it demonstrate that required disease control mechanisms are in place. For the export of animal products, a certifying body at the state level and slaughterhouses certified to EU standards are needed.

Dairy Production Subsector

3.0 BASIS OF COMPETITION

Key competitiveness factors of milk products include their packaging, quality, ancillary services, marketing, and supply chain management.

3.1 Packaging (size, types, graphics)

Three out of the four large private dairies sell UHT milk in Tetra pack packaging and in fat contents of 1.5%, 2.8%, and 3.2%. About 70% of fluid milk is sold in the form of UHT products. Tetra pack packaging is imported from Slovenia, Serbia–Montenegro, or Sweden. Several national companies specialize in the production of plastic bottles and polyethylene tetrofталat (PET). Another 30% of fluid milk is sold in pasteurized form in white PET bags, PET bottles, and, to a small degree, in glass bottles. Small, private dairies and most of the state-owned dairies are producing fluid milk as pasteurized milk in PET bags, cartons, and some glass bottles. PVC cups are produced in the FBiH (Sarajevo); their quality is very good and they are sold at prices competitive with imports. As Table 8 shows, prices for different packaging materials vary.

Table 8. Cost of Different Packaging Materials

Material	Prices
Glass	0.27 KM/1-L bottle (0.30 KM/720-g glass)
Tetra pack	0.25–0.30 KM/1-L package
PET, transparent	0.15–0.16 KM/1-L bottle
PET, white for milk	0.17–0.18 KM/1-L bottle

Packaging design and advertising material are often developed with the support of local packaging suppliers and commercial artists. Production is outsourced to local marketing companies, graphic designers and printing enterprises, or, in some cases, to Serbian and Croatian companies. One trend in packaging has been the increased demand for more variation in packaging sizes, particularly smaller sizes (e.g., 0.5-L milk).

Other types of packaging used include:

- Carton box, Pure-Pak 0.5 and 1 L.
- Carton box, Brik-Pak 0.5 and 1 L (UHT milk).
- Plastic bottle, 0.3, 0.5, and 1 L.
- Ecolean–pl. bag for liquid milk products.
- PET and other plastic folio.
- PVC plastic cups, 180–500 mL.
- Plastic boxes and canisters, 3–20 kg.

The law on Quality Control of Imported and Exported Goods states that a label must clearly indicate the name of the product; the manufacturer's complete address; name and address of the importer; and important information such as net weight in metric units, ingredients, instructions for use (if necessary) and storage, and any important information and warnings. If an original label is in English (e.g., standard U.S. label) or any other language, the seller must prepare translated stick-on labels for the imported products. The importer is responsible for sticking these translated labels onto their products prior to retail distribution. There are no specific packaging requirements. Table 9 shows the type of packaging used for most dairy products.

3.1 Packaging (size, types, graphics) (continued)

Table 9. Commonly Used Packaging

Item	Package
Milk, 2.8–3.2% fat	PET folio, 1 L; carton box, 1 L
Yogurt, 2.8–3.6% fat	Carton box and plastic bottles, 0.5 and 1 L; PVC cups, 180–200 mL; PET, folio 1 L
Sour milk, 3.2–3.6% fat	PVC cups, 180–200 mL, 400–500 mL
Fruit yogurt	PVC cups, 159–200 mL
AB yogurt	Carton box, 0.5 L; PVC glass, 180–200 mL
Kefir, 3.2% fat	Carton box, 0.5 and 1 L; plastic bottle, 0.5 L; and PVC cups, 180 mL
UHT–sterilized milk, 1.5–3.2% fat	Carton box, 1 L
Sour cream, 12–20% fat	PVC cups, 180–200 mL and 400–500 mL
Fresh cheese and “kriška” sir	PVC cups, 0.5 kg; PET vacuum folio, 0.5 and 1 kg; plastic canisters, 10–20 kg
Hard and semi-hard types of cheese: Edamer, Kackavalj, Trapist	N/A
Cream cheese	PVC cups, 70–100 g
Kajmak	PVC cups, 70–250 g
Butter	Alufolio, 250 g

Source: Dairies in RS.

3.2 Quality (grading, quality control/quality assurance)

Governmental Quality Control Oversight

Quality in BiH is largely unregulated and is the responsibility of the dairy processors. More specifically, there has been no central policy for food safety control, and there is still no decision from the Council of Ministries on the proposed law on Food.

The present law on Food Safety Control, including the quality of milk and dairy products, is regulated by ordinances inherited from the former Yugoslavia. In addition, the entities’ Ministries of Agriculture issue specific requirements, which are in accord with the Office International des Epizooties (OIE) requirements (e.g., imported products must originate from areas free of contagious diseases that must be reported to the OIE).

Food products must be tested for microbes. The ordinance on “Microbiological Wholesomeness of Food” stipulates maximum content of different micro-organisms in food products. The Public Health Institute at the state level is authorized to control food safety. Furthermore, there are some similar institutes in both entities and in the cantons in the FBiH. Since not all of these institutes have sufficient laboratory capabilities, other laboratories can be contracted for testing. The exporter/importer covers all expenses of product testing. The Veterinary Inspection Service is responsible for microbiological testing. Lab analysis is done in the veterinary labs. Currently, these institutions do not coordinate their activities, nor are they funded adequately to carry out these responsibilities.

The law on Sanitary Correctness of Food and Goods of General Use regulates labeling requirements for food. According to the law, a label must be present on both retail and bulk-packaged foods and must indicate the following: expiration date; type and content of food additives; and type and content of vitamins, minerals, and other ingredients added to enrich the product’s nutritional value. Concerning additives, pesticides, and other

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Governmental Quality Control Oversight (continued)

contaminants, food additives are regulated by the ordinance on Quality of Foods Additives. The ordinance on Pesticides and Other Contaminants in Food states that hormones and antibiotics are generally not allowed in food products.

Given the quality control issues discussed above, there is considerable confusion over which laws apply in what ways, in which locations, and what agencies have jurisdiction over them and how they are enforced.

Quality Assurance Measures

Privately owned dairies, left largely to establish their own quality assurance measures, have used this freedom as an opportunity for competitive market positioning. For instance, some dairies have gone to extraordinary lengths to introduce EU standards into their value chains and improve their suppliers' practices; other dairies have sought to compete on cost, with minimum attention to quality assurance.

Quality assurance starts with the condition of the cows from which the milk comes. Dairies that are seeking to establish a reputation for quality have arranged for third-party verification of animal health through the use of the veterinary services of the local agricultural institutes and/or municipalities. Producers and buyers accept these veterinarians' determinations.

Besides third-party verification, buyers conduct acidity tests on site. Their agents use acidity tests to detect adulteration and low milk fat. By law, the dairies are allowed to reject milk that contains less than 3.2% fat. Dairies report that problems are usually with the smallest producers who have just one or two cows. Such testing ensures that the milk meets basic processor requirements. A few dairies are testing milk for protein content. This procedure requires more sophisticated laboratory capabilities and is currently beyond the means of many dairies.

A third qualitative factor is farmers' adoption of the dairies' preferred practices. Many dairies prefer that their suppliers follow feeding, cleaning, and other practices that will reliably yield a certain standard of milk. The sanctity of contracts in BiH is not ensured, which makes it difficult for processors to enforce standards. However, in lieu of contracts, some dairies are increasingly active in establishing supply agreements with farmers that specify buying conditions (e.g., quality, price, payment schedules, and purchase quantities).

A final competitiveness concern for producers is that some buyers require that farmers make their roads accessible to the dairies' milk trucks. This is particularly an issue in winter.

3.3 Services

At present, services provided for and by the food chain in general are quite limited. For example, professional market integrators such as advertising and marketing agencies are generally not available for the small- to medium-sized dairies. Refrigerated warehousing, product tracking, qualified independent laboratories, and trade associations are all lacking or, at best, provide very limited services.

Dairy processors themselves are only now beginning to recognize the need for upstream support to their farmers and downstream services to wholesalers and retailers.

3.4 Marketing

The new regulations (in the RS) coming into effect regarding labeling requirements will require some additional processor investment. For those processors who are responsive to consumer/market-driven demands, the investment will be well rewarded. The labeling requirements are standard in any developed market and are only a first step in effectively marketing any food product.

The more daunting tasks will be those related to identifying the appropriate target audience for the dairy processors' product lines and/or adapting their product line to their target audience.

3.5 Market Movement

Overall, the BiH demand for food has decreased and its structure has changed. The drop in demand is due to a decrease in population by approximately 15% and a decrease in purchasing power by about 40%. The average per-capita income of the 3.7 million inhabitants is about 1,800 KM/year. Despite this decline, domestic production still does not satisfy domestic demand (i.e., the internal market continues to present opportunities for locally supplied production). But domestic production must also meet the requirements of consumers, processors, traders, and supermarkets regarding consistency, stability, quality, food safety, labeling, packaging, and regular supply. In this regard, BiH still lags behind competitors such as Slovenia, Croatia, and Hungary.

The domestic consumption of milk is estimated at 526,000 MT/year. Consumers in BiH have demonstrated significant demand for aseptically packed UHT milk and for stable fermented products. Increased demand is also observed for fruit yogurts, sour cream, soft cheese, and milk in 0.5-L packaging. The main competitors are coming from Croatia, Slovenia, Germany, and Hungary.

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SUPPLEMENTAL MATERIAL

Major BiH Domestic Dairy Processors

No.	Dairy Name & Location	Existing Capacity 2003 (thousands of L/yr)	Processed Milk 2002 (thousands of L)	Capacity Utilization (%)	Product Line Assortment
1	Mlijekoprodukt* Kozarska Dubica	73,000	40,150	55	UHT milk Short shelf-life products Cottage cheese type Whey
2	Mljekarska Industrija* Banja Luka	32,000	8,030	25	UHT milk Short shelf-life products Cottage cheese type Hard and semi-hard cheese Cream cheese Thin block cheese Butter
3	Natura Vita Teslic	6,600	670	10	UHT milk Short shelf-life products Cottage cheese type
4	DTD Snjegotina* Teslic	9,125	3,650	40	UHT milk Short shelf-life products Cottage cheese type Semi-hard cheese Cream cheese Thin block cheese Sheep and goat cheese
5	Bjanka Zvornik	2,300	1,050	46	UHT milk Short shelf-life products Cottage cheese type
6	Mljekara Sipovo Sipovo	2,000	1,400	70	UHT milk Short shelf-life products Cottage cheese type
7	Sokolac doo Sokolac	1,650	270	16	UHT milk Yogurt Cottage cheese type
8	Bio-hem doo Bjeljina	1,650	161	10	UHT milk Yogurt Cottage cheese type
9	Stolac doo Visegrad	Just opened	N/A	N/A	Semi-hard cheese
10	Dule Dragaljevac	825	615	74	UHT milk Short shelf-life products Cottage cheese type
11	Sanmilk Prijeedor	730	510	68	UHT milk Cream cheese Cottage cheese type Yogurt

*The utilizations for these dairy processors are projected figures for 2004 based on current utilization information.

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No.	Dairy Name & Location	Existing Capacity 2003 (thousands of L/yr)	Processed Milk 2002 (thousands of L)	Capacity Utilization (%)	Product Line Assortment
12	Padjeni Bileca	660	540	81	UHT milk Yogurt
13	Vitmark* Kotor Varos	1,095	438	40	UHT milk Short shelf-life products Cheese "Kajamak"
14	Rudanka Doboj	560	170	34	UHT milk Yogurt Cottage cheese type
15	Perfetto plus Nevesinje	500	170	34	UHT milk Short shelf-life products Cottage cheese type "Kajmak"
16	Dragulj Kojcinovac	500	225	36	UHT milk Yogurt Cottage cheese type
17	Gaj-Gradina Gacko	330	135	42	Yogurt
18	Maja-Miholjace Gacko	330	220	66	UHT milk Yogurt
19	Dramon doo Mokro	330	220	66	UHT milk Yogurt Cottage cheese type
20	Matic Bjeljina	330	181	55	UHT milk Yogurt Cottage cheese type
21	Ekomlijeko Bjeljina	330	267	89	UHT milk Yogurt
22	Cetkovic Mokronozi	200	160	80	UHT milk Yogurt
23	Meggle* Bihac	66,000	30,295	46	UHT milk Short shelf-life products Butter
24	Sappit Posusje	50,000	14,000	28.3	UHT milk Short shelf-life products Butter
25	PPM* Tuzla	52,000	26,645	51	UHT milk Short shelf-life products Butter Powdered milk

*The utilizations for these dairy processors are projected figures for 2004 based on current utilization information.

Continued on next page

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No.	Dairy Name & Location	Existing Capacity 2003 (thousands of L/yr)	Processed Milk 2002 (thousands of L)	Capacity Utilization (%)	Product Line Assortment
26	Milkos Sarajevo	23,000	172	0.7	Short shelf-life products Cottage cheese type Ice cream
27	Lura* Livno	17,000	8,760	52	Hard and semi-hard cheese Butter
28	Vlasic Milk Karaula–Travnik	13,000	30		Short shelf-life products Cottage cheese type
29	ZIM Zenica	11,500	4,401	38.1	Short shelf-life products Cottage cheese type
30	Movita Mostar	10,000	689	7.0	Short shelf-life products Cottage cheese type
31	Jezerka Jezerski	6,600	1,220	18.5	Short shelf-life products Cottage cheese type Sliced cheese
32	Mlijekoprodukt V. Kladusa	6,600	761	11.5	Short shelf-life products Cottage cheese type Semi-hard cheese
33	Inmer Gradacac	5,000	3,540	89	Short shelf-life products Cottage cheese type
34	Saraj milk Maglaj	3,600	2,400	73	Short shelf-life products Cottage cheese type
35	Milch product Celic	3,300	820	25	Short shelf-life products Cottage cheese type Sliced cheese
36	Vita–Vi Capljina	2,400	761	30.7	Short shelf-life products Cottage cheese type Semi-hard cheese
37	Sirko Gracanica	2,000	1,047	53	Short shelf-life products Cottage cheese type Semi-hard cheese
38	Agrocentar Gornji Vakuf	1,800	800	44	Short shelf-life products Cottage cheese type
39	Eko Milk Begov Han	1,800	307	17	Short shelf-life products Cottage cheese type Semi-hard cheese
40	Milgor Gorazde	1,800	481	26	Short shelf-life products Cottage cheese type Semi-hard cheese
41	Milko–San Sanski Most	1,650	1,090	66	Short shelf-life products Cottage cheese type Semi-hard cheese

*The utilizations for this dairy processor are projected figures for 2004 based on current utilization information.

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No.	Dairy Name & Location	Existing Capacity 2003 (thousands of L/yr)	Processed Milk 2002 (thousands of L)	Capacity Utilization (%)	Product Line Assortment
42	Sirela Teocak	1,300	184		Short shelf-life products Cottage cheese type
43	Mljekara Kupres	1,000			Short shelf-life products Cottage cheese type Sliced cheese
44	Pudja Livno				Semi-hard cheese
45	Borghi Tesanj	700	620	88	Short shelf-life products Cottage cheese type
46	MB-Milk Kakanj	700	8		Short shelf-life products Cottage cheese type
47	Braco komerce Bjelimici	660	371	56	Short shelf-life products Cottage cheese type
48	Agroplod Odzak	600	325	54	Short shelf-life products Cottage cheese type
49	Ad-Tipo Olovo	660	150	23	Short shelf-life products Cottage cheese type
50	Geso Rostovo	500	8		Cottage cheese type Sliced cheese
51	Ex-Prom Ilijas	500	150	30	Short shelf-life products
52	Susa Livno	500	238	72.1	Semi-hard cheese
53	Ruja-compani Hrasnica	330	49	15	Sliced cheese
54	Mljekara Sabici Trnovo	300			Sliced cheese
55	Mljekara Scite Prozor	300			Semi-hard cheese
56	Anni Gradacac	165	119	72	Sliced cheese

Note: Processed milk in the dairies was calculated on the basis of standard whole milk with 3.6% fat.

Source: Statistical Bureau of RS and FBiH.

4

Honey Subsector



1.0 OVERVIEW

Supply Profile

BiH's geographic position, diversity of terrain, and geological past give its flora special and unique characteristics. Here we have two large floral areas that meet and entwine: Euro-Siberian and Mediterranean. At the same time, elements of a third floral area protrude into the mix: Iranian-Turkish. Owing to all these factors, BiH flora are characterized by the myriad and high diversity of floral elements: BiH has 3,700 flower plant varieties. Although these are not the total number of existing varieties, the reported number of varieties of flower plants significantly exceeds half of the total known to exist on the Balkan peninsula.

The climate and diversity of vegetation, and its late or early maturation, make it possible to have mobile bee feeding and to improve the quality and quantity of the final apicultural product—honey. Furthermore, BiH has a clean natural environment and is rich in river flows and various forest types. These factors are very good preconditions for the development of apiculture in BiH and at a much larger scale than is now the case.

The main apiculture products are honey and beeswax, although there are some others of minor importance such as propolis, used in paints and varnishes. Honey contains sugars—predominantly glucose and fructose, which dissolve in water—and trace amounts of vitamins and minerals. Honey's flavor and aroma vary according to geography, vegetation, and bee species origin, as well as beekeeping practices. The predominate honeybee species in BiH is *Apis mellifera* of the race *Apis mellifera carnica*, well known in Europe as a gentle and highly productive bee.

As elsewhere in Europe, the honeybee population has been contaminated by the invader Asian honeybee mites (*Varroa*). The *Varroa* mites have killed the wild honeybee population; the surviving honeybee population is being maintained by beekeepers. *Varroa* has seriously affected beekeeping in BiH, where, in 2000 in Ljubuski, the disease killed 50% of the colonies, and in 2001 in Banja Luka, it killed 40% of the colonies. There is no uniform strategy to control the disease. Honeybees are also susceptible to other bacterial and parasitic pathogens, and beekeepers need assistance with strategies for their identification and control.

2.0 DEMAND PROFILE

Raw honey production has been gradually increasing worldwide over the past decade, and prices have been declining due to large quantities of cheap honey flooding the market. Production peaked in 2000, with 104 million kg and a value of KM 226 million (at August 2004 currency conversion rates). As recently as 2002, production dipped to 78 million kg, and the value

Honey Subsector

2.0 DEMAND PROFILE (continued)

SWOT ANALYSIS FOR HONEY

Strengths

- Excellent climate and vegetation; relatively unpolluted habitats.
- High-quality, mono-floral honey that is produced could attract good prices.
- Opportunity for organic certification in some regions.
- Beekeeping is a well-established economic activity and can be done at low investment cost.
- Strong returns are possible if proper practices are followed.

Weaknesses

- Limited control of honeybee diseases and vectors; *Varroa* mite has killed the indigenous population of honeybees.
- Inadequate beekeeper education in improved practices.
- Sectoral association representing members is nonexistent.
- Legislative obstacles relating to BiH governance structures.
- Inappropriate legislation concerning beekeeper registration.
- Insufficient laboratory capacity to do residue analysis for antibiotics and pesticides.
- Unregulated entry of medicines and pesticides.
- Poor market access.
- Lack of transportation means.

Opportunities

- Bee pollination improves the quality and quantity of crop yields; in many countries, pollination services are a paid business and hives are transported to orchards and other sites that depend on pollination.
- Financial benefits from crop pollination is typically greater than the value of beekeeping products.
- Productivity improvements that would increase returns to beekeepers are realizable with minimal investment in training.
- Considerable scope for increasing product diversity through mono-clonal and other floral varieties as well as through more varied packaging.
- Prices in BiH are very high, yet BiH honey is not sold in supermarkets.
- Honey export opportunities have not been explored much.

Threats

- Lack of technical knowledge and support, especially regarding honeybee disease control and marketing skills and standards.
- Lack of available credit for small-scale beekeepers (majority) to scale up their production and for larger beekeepers to increase their commercial productivity.
- Highly fragmented markets that present a challenge to product aggregators.
- Producers are competing with companies by selling door-to-door at prices that companies have so far not been willing to match, making raw material unavailable to processors.

2.0 DEMAND PROFILE (continued)

exceeded KM 356 million. Some of this market shift can be attributed to trade restriction and stronger tariffs placed on some honey imports; widespread drought also has decreased production.

The four biggest honey producers are China, the United States, Argentina, and Ukraine. Major exporters include China, Argentina, and Mexico. Australia, Canada, Mexico, Hungary, and Czech Republic are some of the smaller exporters. During the 1990s, honey output in the Commonwealth of Independent States region declined substantially.



Beekeeping and BiH: A Good Place to Be

The herb-covered mountains of BiH produce aromatic mono-floral honeys that could earn a market premium in Europe. Many crops, including

fruit, oil seeds, maize, vegetables, pulses, and spices, all provide useful forage for bees. Many of these crops benefit from honeybee pollination, contributing to higher quality and quantity of fruits and seeds.

Beekeeping is an accepted economic activity throughout BiH, which can be done by those who have no productive land but keep colonies on wasteland areas (see sidebar). Many beekeepers have excellent practical skills, producing their own equipment, managing bees effectively, rearing queen bees, and harvesting and processing products. However, keeping pace with current methods to control *Varroa* mites and having access to means to control their spread have been impossible. If BiH beekeepers were able to establish pollination

businesses and could transport their bees to newly flowering locations, honey could be harvested eight months out of the year. Farmers' relatively low use of pesticides makes organic certification possible.

Emerging Markets

The honey market comprises a number of emerging segments and services with varying degrees of potential, including:

- **Organic honey**
A small segment of the market currently, the market for organic ingredients is expected to grow substantially in the coming years.
- **Special honey**
BiH produces unusual, "country-special" types of honey (e.g., chestnut and lavender) that may attract consumers in the EU and other markets.
- **Beeswax**
The ratio of honey to beeswax is around 10:1, and BiH beeswax production could be as much as 500 MT/year. Beeswax is a marketable product with a market that is more stable and more valuable than honey. All EU countries import beeswax, and the world market remains steady.
- **Propolis**
Propolis is produced by bees in abundance in BiH, especially where there are large stands of pine trees. Propolis can be collected and sold on the world market.
- **Other hive products**
Although they are small segments, there are markets for pollen, royal jelly, and bee venom that are expected to grow substantially in the coming years.

Honey Subsector

Emerging Markets (continued)

Beekeepers could create returns from their work if they diversify honey sales and make secondary products; few, however, are aware of other products. Other outputs of beekeeping whose values are impossible to quantify include:

- Pollination of indigenous and introduced plants, thereby maintaining biodiversity.
- Financial incentives for people to keep habitats undamaged.
- Stimulate trade among BiH sectors for equipment manufacturers and secondary products.

HACCP Certification

Suppliers who have HACCP in the future will have a major competitive advantage, as these certifications provide international guarantees on quality assurance and food safety. To export honey to the EU and to the United States, a HACCP system is mandatory.

Policy Issues

The Ministry of Agriculture does not have the personnel responsible for monitoring beekeeping in the FBiH or in the RS. Municipalities in both entities have formed beekeepers associations. Recently, an association of beekeepers was created in conjunction with one of the significant farmer associations. There is no national or entity policy specifically concerning the development or promotion of apiculture, nor is there relevant legislation.

Market criteria and some form of national standards and coordination are needed for honey. Such rule-setting mechanisms would need to address the use of drugs and medicines sold to beekeepers and proper monitoring of bee imports. Only Femix doo and Klas doo, both of Sarajevo, are able to sell honey in supermarkets and retail shops. Other honey-producing organizations are not registered, do not regularly check their colonies for pesticides or antibiotics, and consequently do not have the necessary “declaration” from the Institute for Hygienic Food Control. Therefore, they cannot sell in supermarkets and retail shops.

In the FBiH there is archaic legislation concerning beekeeper registration, but it concerns only buildings; none of the beekeepers are currently registered as business enterprises. Nearly all beekeepers belong to their local beekeepers association; for most, however, their annual production is too small to justify the expense, accounting difficulties, and tax consequences of becoming registered as legal entities. Also, another significant policy concern is that the current list of approved antibiotics is empty, having not been updated since 1998. So importers are free to import any medications that they want and their use is not regulated.

Availability of Inputs

All of the equipment for successful beekeeping is available in BiH, with most equipment being imported from Serbia–Montenegro, Slovenia, or Croatia. Almost no equipment or supplies are manufactured in BiH, although some could be made locally. Almost all beekeepers use wooden frame hives, similar in style to those used in other countries producing European honeybees. At the household level, simple equipment is adequate

Availability of Inputs (continued)

for processing honey and beeswax. Glass and plastic jars and lids of reasonable quality for storing honey are all imported from Slovenia and Czech Republic. Labels are printed locally. There is little diversity in packaging materials; most common are 1-L glass jars.

Subsidies

The RS supports the purchase of a new queen bee with 5 KM. The FBiH supports honey production with 1 KM/kg, up to a maximum of 110 MT of honey (production in the FBiH). Additionally, the Una Sana Canton (Bihac) is paying 10 KM/bee hive, up to a maximum of 4,000 beehives (in the whole canton). The Brcko District is also paying 10 KM/bee hive, but beekeepers need to have at least 10 hives. Implementation details of the subsidies are not yet known, but membership in a beekeeper association is a must.

2.1 Summary of Trends

Honey production by individual farmers ranges between 100 kg to 10 MT annually. Small-scale beekeepers typically own 30 colonies, which usually are not mobile. They can be expected to produce about 15 kg of honey per colony per year—that is, a total harvest of 450 kg with a retail value of approximately KM 43,600 (US \$22,210).

Estimates put the total number of beehive colonies in BiH at around 200,000, of which approximately 107,000 are in the FBiH (this tally does not include beekeepers who have fewer than 20 colonies). An average harvest per beehive is 15 kg. Assuming that all of these colonies produce on average 15 kg of honey annually, national production would be approximately 3,000 MT of honey.

Table 1 estimates the extent of beekeeping in BiH, showing that the number of bee colonies and honey volumes are increasing.

Table 1. Beekeeping in BiH

Year	Entity	Number of		Honey Production (MT)	Reference
		Beekeepers	Bee Colonies		
1991	FBiH		69,000	594	FAO
1999	FBiH		69,500	791	FAO
2001	FBiH	6,000–8,000	80,000	1,200	Min. of Agriculture
2003	RS	6,000–8,000	93,000	1,395	Est. of 15 kg/bee hive
2003	FBiH		107,000	1,605	Est. of 15 kg/bee hive

BiH estimates of 15 kg/hive are based on the rate of honey production per hive in other European countries that produce significant amounts of honey:

- Macedonia: 12 kg/bee hive
- Switzerland: 10 kg/bee hive
- Germany: 15–20 kg/bee hive.

Although some beekeepers in BiH report production of as much as 50 kg/bee hive, a more probable average estimate would be closer to 15 kg.

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2.1 Summary of Trends (continued)

Before the war, beekeepers in BiH were able to market their honey without restriction throughout the former Yugoslavia via traders (Medex and PIP) in Ljubljana, Split, and Zagreb. Now, honey marketing is mostly door-to-door. Interestingly, two honey-packaging companies report that they cannot buy as much local honey as they could potentially process and sell, yet beekeepers complain that they are unable to sell their honey. Interviews suggest that beekeepers actually get a better price when they sell their honey in small quantities door-to-door, rather than selling in bulk quantities to companies.

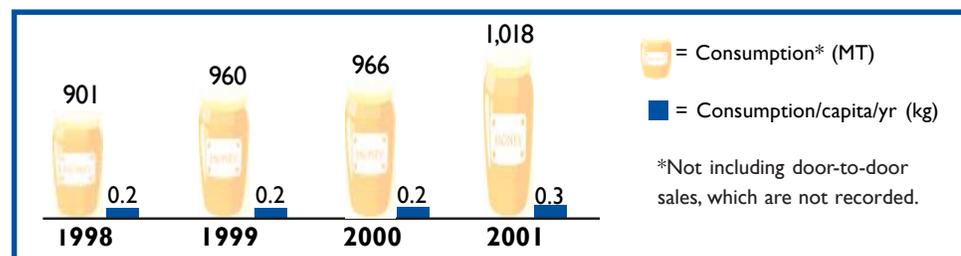
Although insect pollination contributes to optimal quality and quantity of many crop yields, *Varroa* mite has killed the indigenous population of honeybees, making it essential to maintain beekeepers' honeybee populations to ensure pollination of fruit and other crops. Farmers generally are unaware of the importance of bee pollination of their crops. The financial benefit of adequately pollinated crops—though difficult to quantify—is greater than the value of bee products.

Local BiH honey bulk prices and retail prices are well above the world's lowest. Therefore, the best opportunity is in the domestic market by competing against imports (in 2000, the FBiH imported 385 MT) before considering export. Much could be done to increase sales of local honey, such as improving and diversifying packaging, especially packaging in small volumes and individual serving sizes. Other luxury goods are offered in small quantities, yet the smallest unit available of locally produced honey is usually 1 kg (hotels use 20-g honey packets, imported mostly from Croatia or Slovenia). Honey consumption increases with living standards, and people buy honey when it is well presented and when they have confidence in the product's quality.

2.2 Statistics

FAO data on honey consumption (see Graph 1) indicate healthy growth of over 10% from 1998 to 2001. This quantity, though, is not significant in terms of per-capita consumption. It would seem that Bosnians do not consume large quantities of honey, which is a relatively high-priced product in an overall basket of food goods, but consumption has been increasing gradually each year.

Graph 1. BiH Domestic Honey Consumption



This consumption per-capita figure seems quite low, given that Germans consume on average 1.4 kg of honey per year and BiH households are estimated to consume comparable amounts.

2.2 Statistics (continued)

Wholesale and retail prices in various destinations indicate that the beekeeper's price and the wholesaler's price differ very slightly, confirming the savvy of beekeepers' preference for door-to-door sales. Table 2 shows representative retail prices by selected areas in BiH.

Table 2. Retail Prices (KM/kg) in Selected Locations

Area	Price	KM/kg to Beekeeper	US \$/kg*
Mostar	10–12	10–12	6.5
Konjic	9–14	10	6.1
Jablanica	9–14	10	6.1
Sarajevo	9–10	9–10	6.0
Stolac	8	8	4.9
Ljubuski	6.5–7.5	6.5–7.5	4.2
Ljubinje [†]	9–10	9–10	6.0
Banja Luka	5–6	5–6	3.1

*US \$1.00 = KM 1.60 (as of August 2004); [†]wholesale price.

2.3 Imports

As Table 3 shows, honey imports into BiH have declined slightly on average since 1998, but the annual variability of these imports suggests that the market is volatile. Likewise, the value of honey imports has been declining overall, but in 2002 the growth in the value of honey jumped significantly, making data interpretation difficult.

Table 3. BiH Honey Imports

Imports	Year					Avg. Annual Growth
	1998	1999	2000	2001	2002	
Quantity (MT)	110	130	90	60	234	
% Growth Quantity		15.38	-44.44	-50.00	74.36	-1.18
Value (\$1,000)	360	310	160	130	693	
% Growth Value		-16.13	-93.75	-23.08	81.24	-12.93

Source: FAOSTAT database.

2.4 Exports

Beekeepers in BiH have been contacted by buyers from France, Germany, Italy, and Switzerland, but they are unable to provide the certifications necessary to export. For honey to be exported competitively from BiH, exporters will need a product that can capture a price premium such as specialty mono-floral honeys—for example, lavender (*Salvia officinalis*), sage, thyme, and heather. Certified organic honey is another product that is within reach of BiH producers. Although EU organic certification is increasingly bureaucratic—and the recurrent cost of annual certification may be prohibitive for some sellers—the market can be highly lucrative. There are several certification agencies in the country that are EU accredited.

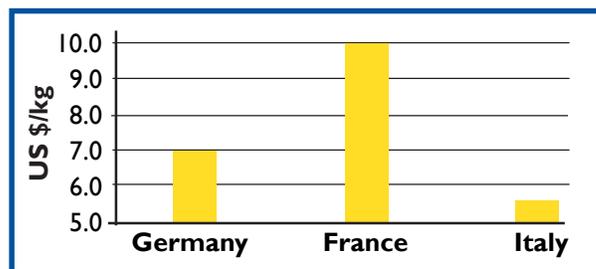
BiH will not be able to export honey to EU countries, though, if significant traces of antibiotics and other drug residues are found in samples. The EU requires that countries exporting honey to Europe have procedures in place to test for these residues. This is one reason why beekeepers must receive technical training to control bee disease without resorting to these drugs.

Honey Subsector

2.4 Exports (continued)

Graph 2. Average Retail Prices for Honey in the EU, 1998–2000

Graph 2 illustrates average retail prices in leading EU markets during 1998–2000.



3.0 BASIS OF COMPETITION

BiH honey producers have not taken advantage of opportunities to diversify their products in response to consumer demand. Mono-floral honey that is sold in different-sized jars is imported from Croatia, for instance, and sold in local stores. BiH producers have been slow to respond to such competition from importers. The natural habitat of BiH provides excellent forage for honeybees. If beekeepers were able to transport their bees from one area to another as different vegetation comes into flower, honey could be harvested during eight months of the year.

3.1 Quality Characteristics

The herb-covered mountains of BiH produce aromatic mono-floral honeys. Relatively low use of pesticides helps toward possibilities for organic certification. If production of honey is regulated effectively on the use of antibiotics for disease control, the honey produced could have exceptional export value. Many BiH household consumers seem to be satisfied with the product as sold by producers: door-to-door in jars that do not vary in size. Village farmers' markets also provide undifferentiated supplies.

Among the key characteristics of store-sold honey are varieties that include floral, lavender, rosemary, and sage. There are additional honey varieties reportedly produced in BiH, including walnut, plum, and apple blossom. Purportedly, lavender and sage are the most popular varieties. Honey ranges in color from dark to light and by degrees of sweetness. These latter characteristics are highly dependent on individual preference.

3.2 Packaging

There is little diversity in packaging materials. Glass and plastic jars and lids of reasonable quality are all imported from Slovenia and Czech Republic. Labels are printed locally and usually contain only the information about the producer. Honey is offered in hotels in small, jelly-packet type containers (20 g) and sold in stores in 450- and 900-g sizes. A few BiH companies are beginning to diversify their packaging to include a range of sizes, but this practice is in the early stage.

3.3 Services

Beekeepers commonly deliver their honey directly to households. A few companies are selling directly to stores and tend to sell their product with price lists that the store purchaser can use to select an order. The honey companies transport and deliver their product to their customers directly.

3.4 Marketing

Producers, associations, and companies in the honey sector do not actively market their products. As stated above, locally produced honey is usually sold door-to-door to friends and neighbors, who usually buy certain quantities from the same producer every year. In general, improving marketing will require considerable training and education of honey producers and processors.

3.5. Market Movement

Currently, honey products are sold domestically, with very little export (359 kg). Although beekeepers could potentially produce honey for as long as eight months out of the year, they are not doing so now. Mobile hives that provide pollination services are a rarity, and most pollination happens near the hives' locality. Honey inventory is not an issue, as producers—like processors—seem to be able to sell all of their supplies. In fact, for the processors, raw material is relatively scarce and they must import honey to help them meet their requirements. In question is what their capacity is, but it is certain that they could process more honey than they do now.

5

Mushrooms Subsector



Evolution and Supply Profile Wild Mushrooms

1.0 OVERVIEW

There are numerous types of wild mushrooms, both edible and poisonous, but most Balkan mushrooms are still uncatalogued. It is estimated that there are around 1.5 million types of wild mushrooms, but only 5% (around 70,000) have been traced and described.³ Although BiH has landscapes and ecosystems rich in many edible wild mushrooms, it lacks a tradition of collection, mostly because of fear of poisoning (and now land mines). Wild mushrooms have specific characteristics that must be well known by collectors, which is not an easy task even with all the available literature. Mushrooms can be found in different locations and various substrata adaptable to certain ecological niches in BiH. Prior to the war, BiH was exporting several million Euros' worth of wild mushrooms to western Europe. Current figures are not available.

In recent years, interest in the collection of wild mushrooms has been growing as processors and traders have begun to recognize the lucrative export opportunities. Traders and processors have begun to educate and organize collectors throughout BiH. However, the collection of wild mushrooms is a very complex task, not only because of possible mushroom poisoning, but because of the need to protect wild mushrooms in nature as an important part of the ecosystems. It is crucial to the ecosystems that wild mushrooms not be exterminated or over-harvested. Hence, collection must be properly organized and managed to ensure continuous mushroom regeneration and sustainability. In general, the collection of wild mushrooms in BiH is not well organized and managed.

Traders and processors are becoming aware of the need for proper collection practices and are beginning to make efforts to protect this valuable natural resource. Organic certification of wild mushrooms, done by international certification bodies such as IMO, KRAV, and BioSwiss, provides a good tool for better collection and protection, as such certification requires sustainable collection techniques.

Wild mushrooms in BiH are mainly collected in the fall, although some varieties, such as morels, are collected in the spring and summer. Most wild mushrooms are collected in beech and oak forests; some are found in alpine meadows. Truffles, the most esteemed and valuable wild mushrooms, grow underground in the forests in some Balkan countries but not in BiH.

³Alexopoulos, 1996; Midhat Uscuplic, *World of Mushrooms*, Sarajevo, Academy of Science and Arts, 2004.

Mushrooms Subsector

Evolution and Supply Profile (continued)

SWOT ANALYSIS FOR MUSHROOMS

Strengths

- Availability of a wide variety of wild mushrooms.
- Continuous opportunity to generate income for a large number of collectors.
- Labor-intensive collection.
- Profitable activity due to good selling prices for the collected mushrooms and low-cost input.
- Collectors receive a high percentage of the sales price.
- Large export market available for wild mushrooms.
- Good geographic and environmental conditions for wild mushrooms.
- Local market is not saturated with cultivated mushrooms (champignons).
- Cultivated mushrooms are relatively easy to produce.

Weaknesses

- Not a strong tradition of wild mushroom collection.
- Very much dependent on climatic conditions.
- Presence of land mines in wild mushroom growing areas.
- Preservation of biodiversity is not possible without sustainable and controlled wild harvesting, regulated and enforced by an appropriate legal and institutional framework.
- Purchase of wild mushrooms from collectors is not well organized.
- Proper education needs to be provided to collectors in order to avoid poisoning and mines and ensure sustainability.
- The subsector is poorly organized; there are no mushroom associations.
- Shortage of working capital constrains expansion of processing and trading capacity.
- There is not enough compost produced domestically, inviting a large market for imports.
- Only two mushroom varieties are cultivated in BiH.
- Existence of a gray market.

Opportunities

- Large international and growing local markets for both wild and cultivated mushrooms.
- Processing opportunities for the domestic market.
- Develop strong and well-organized mushrooms subsector associations or an umbrella organization to coordinate producers and processors.
- Improved access to bank and MCO loans for investment capital, such as the investment required for processing and production capacities.

Threats

- Lack of people interested in this activity; fear of land mines and poisoning; and immigration and urbanism, which are rapidly depleting the rural population.
- Lack of educated collectors can result in poisoning and unsustainable harvesting.
- Endangered biodiversity if not managed/controlled properly.

Evolution and Supply Profile
(continued)

The most popular wild mushrooms in BiH are Caesar’s (*Amanita caesarea*), beech cane (*Pleurotus ostreatus*), blueweed (*Cantharellus cibarius*), chanterelles, and morels (*Morchella rotunda*, *Morchella vulgaris*, and *Morchella conica*). All three varieties are very similar and fall into the category of the most edible mushroom used for food seasoning, boletus mushroom (*Boletus edulis*), (*Lepiota procera*), (*Psalliota silvatica*), and (*Laktarius deliciosus*).



Fall Classic Means Rising Values

The *boletus* is one of the most interesting and the most profitable wild mushroom for collection in BiH. It has a strong international market and has two collection seasons (May–July and September–October), the latter producing the most desirable mushrooms. *Boletus* mushrooms collected in the fall are of higher quality, less perishable, and 30–50% more valuable on the international market than those collected in the spring. The spring harvest is sold primarily on the domestic market, whereas the fall harvest is primarily exported.

There are no precise data available regarding the total number of persons involved in collecting/gathering wild mushrooms in BiH, but we know that it is very large. For example, the Mushroom Company of Celinac employs 500

gatherers, and *Boletus* (named after the variety) in Sarajevo employs 400. Most of the approximately 250,000 persons who collect medicinal and aromatic plants (MAPs) also collect wild mushrooms. Most collectors are organized by agricultural cooperatives and trading companies that sell directly to processors/exporters. Many of these entities also trade in MAPs, wild berries, and other non-timber forest products (NTFP).

In BiH, approximately 15 cooperatives and small to medium enterprises (SMEs) are involved in processing and marketing wild mushrooms. They normally have processing plants that dry and/or freeze the mushrooms for export. Some of the major firms are *Boletus-Sarajevo*, *Smrcak-Zvornik*, *Gljiva Komerc*, *Verici-Prijedor*, and *Mushroom-Celinac*. The total quantity of wild mushrooms collected in BiH is estimated at around 6,000 MT—that is, less than 40% of wild mushrooms available for sustainable collection. Most wild mushrooms are exported fresh, with smaller quantities dried or frozen. Gray market activities dominate the market, with only around 30% of the businesses legally registered.

Cultivated Mushrooms

There are not nearly enough wild mushrooms with edible and/or healing characteristics to satisfy world market demand. Wild mushrooms grow under very complex ecosystem conditions, and only a very few varieties have been successfully adapted to cultivation. These are primarily champignon (*Agaricus bisporus*) and, to a much smaller extent, beech cane and shitake (*Lentinula edodes*). The technology involved in artificially cultivating mushrooms is quite simple; little technical background or education is required for prospective farmers. Since the growing medium and climate are controlled in the growing facilities, it is possible to cultivate mushrooms throughout BiH year-round.

Only champignon mushrooms are currently produced in BiH, but in fall 2004, Euroes-Pazaric plans to begin experimental production of shitake mushrooms and champignons.

Mushrooms Subsector

Evolution and Supply Profile (continued)

Raw material for mushroom production is compost, with mycelium or pleurotus for champignons. Compost is produced from straw, chicken waste, and plaster in special fermentation and pasteurization tunnels. Compost is mostly imported, although there is one compost producer in BiH. Since 1999 Naturprodukt-Gradacac has been producing compost with an annual capacity of 3,900 MT. This company plans to double its capacity in the near future.

The mushroom-growing cycle is two months, and a producer can harvest mushrooms from the same compost 6–12 times a month over a period of 12–24 months.

The cultivated mushroom subsector in BiH consists of six large companies (at least three growing chambers with 400–1,000 bags of substrate capacity per chamber), such as Euroes-Pazaric (with a Dutch private investment), Sampinjon-Breza, and Mostar-Express, along with a large number of small producers with one to two growing chambers with capacities of 100–150 bags per chamber. The latter group comprises normally seasonal producers who avoid production in hot summer and cold winter months. The LAMP Team estimates that there are several hundred of these small, seasonal producers in BiH.

A major issue identified in this subsector relates to illegal/nonregistered producers and illegal imports of compost and mushrooms.

Currently, the entity forestry laws mention NTFP, but neither the FBiH nor the RS has NTFP regulations. The FBiH Ministry of Agriculture has recently drafted a proposal on NTFP and the MAP Association made its comments, but the proposal is not yet adopted.

There has not been much direct donor activity in the mushroom subsector in BiH. However, several agricultural cooperatives and companies benefited from donor assistance through grant support or loans provided. Other donor activity includes a joint effort by GTZ/SIPPO/IMO beginning in 2001 to provide organic certification for MAP producers and processors, including those from the mushroom subsector. The Swedish International Development Agency funded, through its local partner ECON, a project to promote organic agriculture in BiH. The local certification agency is Organska Kontrola, which provides local inspection; certification is done by internationally recognized certifiers, mainly KRAV of Sweden.

The overall market for fresh and dried mushrooms in the EU is huge and growing. Eastern European and Asian countries satisfy most import demand, excluding internal trade between EU member states.

2.0 DEMAND PROFILE

2.1 Summary of Trends

The global mushroom market is worth billions of dollars annually. Mushrooms have high protein value, contain 20–35% protein, and are a rich source of vitamin B complex and folic acid. The nutrient value of mushrooms used as a food additive is equal to the important vegetables used for the same purpose. In the past, wild edible mushrooms were used not only as a source

2.1 Summary of Trends (continued)

of food but also for their medicinal properties. In general, wild mushrooms have better value than artificially produced/cultivated mushrooms, mainly because of the ingredients that are not based on nitrogen.

For example, 1 kg of *boletus* mushroom has the same nutrient value as ¼ kg of meat. Also, edible mushrooms have gained importance in modern medicine for their pharmacological values. In BiH most wild mushrooms are edible and very nutritious. Despite these advantages, collection of wild mushrooms in BiH is insignificant compared with its potential.

Collection and processing of wild mushrooms in BiH are profitable. More than 95% of collected wild mushrooms are exported; the remainder is sold fresh in local green markets.

The classification of edible and nonedible mushrooms paved the way for commercial cultivation of edible mushrooms. The many remarkable ecological advantages of edible mushrooms cultivation include the efficient reintegration of agricultural plant residues (e.g., chicken manure, cereal straw). The process of mushroom cultivation can be divided into five steps.⁴

1. Preservation of fungal cultures and production of inoculum (spawn).
2. Substrate pretreatment and inoculation.
3. Substrate colonization—mycelial growth.
4. Initiation and formation of fruit bodies.
5. Harvest and post-harvest management.

Mushrooms are cultivated directly or indirectly on agricultural waste products or compost. This is one of the most hygienic processes for recycling animal waste products. The positive effect of such cultivation outweighs the environmental negatives, such as increased ammonia production and bad odor.

The mushroom industry offers the potential to generate a tremendous number of jobs through collection, processing, and cultivation.

2.2 Market Data

Table 1 shows the seasonal nature of selected varieties of mushrooms.

Table 1. Calendar for Wild Mushroom Collection in BiH

Variety	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.
<i>Morchella (Morels)</i>	✓							
<i>Pleurotus sapidus</i>	✓							
<i>Agaricus</i>		✓	✓					
<i>Boletus edulis</i>			✓	✓	✓	✓	✓	
<i>Lactarius deliciosus</i>			✓	✓	✓	✓	✓	✓
<i>Amanita caesarea</i>				✓	✓			
<i>Amanita rubescens</i>				✓	✓	✓	✓	
<i>Lepiota</i>					✓	✓	✓	✓

⁴Mushroom biotechnology report.

Mushrooms Subsector

2.2 Market Data

(continued)

Mushrooms commonly found in BiH are shown in Table 2.

Table 2. List of Some Commonly Cultivated Mushrooms

Species	Common Name
<i>Agaricus bisporus</i>	Button mushroom
<i>Auricularia spp</i>	Black ear mushroom
<i>Lentinus edodes</i>	Shiitake or Oak mushroom
<i>Volvariella volvacea</i>	Straw mushroom or Chinese mushroom
<i>Pleurotus spp</i>	Oyster mushroom
<i>Flammulina velutipes</i>	Winter mushroom
<i>Tremella fuciformis</i>	White jelly fungus or Silver ear
<i>Pholiota nameko</i>	Nameko or Viscid mushroom
<i>Hericium erinaceus</i>	Monkey head mushroom or Hedgehog fungus
<i>Hypsizygyus marmoreus</i>	Shimeji
<i>Grifola frondosus</i>	Sitting hen mushroom or Limuo, Maitaka

Source: Mushroom biotechnology report.

Table 3 shows EU trade in mushrooms for 2002.

Table 3. EU Mushroom Trade, 2002

Mushrooms	2002
Imports: Quantity (MT)	225,340
Imports: Value (thousands of \$)	530,123
Exports: Quantity (MT)	173,523
Exports: Value (thousands of \$)	368,425

Source: FAOSTAT database.

2.3 Domestic Production

It is estimated that the mushroom subsector employs thousands of collecting families in BiH, the vast majority being low-income rural families. The structure of the collectors has changed due to war and resulting migrations. Collection of wild mushrooms is seasonal work that takes place from April until November. The collected wild mushrooms are normally sold for cash to processors or traders. Collection is highly dependent on weather conditions, so collectors' prices change daily, being highest at the start of the season. The four most important wild mushrooms by value in BiH are (1) *boletus edulis*, (2) *morchellas* (morels), (3) *chanterelles cibarius*, and (4) *craterellus cornucopioides*.

Boletus (porcini) is the primary wild mushroom collected in BiH, representing 70–80% of collection and an average selling price of EUR 5/kg. Chanterelles collection is around 15% of collection, with an average selling price of EUR 4–6/kg. At the beginning of the season, chanterelles bring as much as EUR 13/kg, whereas the price is as low as EUR 2/kg at the end of the season.

Morchellas and *craterellus* account for up to 15% of total wild mushrooms collected. The average selling price (EUR/kg) of fresh morels is 50 and 7.5 for *craterellus*. At the beginning of the purchasing season, the price for fresh *morchellas* is 15, and at the end of season it is 7.

2.3 Domestic Production (continued)

Cooperatives and companies that buy wild mushrooms from collectors pay about EUR 3–3.50/kg for fresh *Boletus*—porcini (first class), EUR 1.50/kg for second class, and EUR 0.50/kg for third class. For dried porcini, purchase price is EUR 7.50/kg. Wild mushrooms are graded by class based on size, color, and percent of broken pieces. At the high end, the purchase price for dried morels is EUR 75/kg for first class.

Substantially all of the collected wild mushrooms are now certified as organic as a result of donor support.

Production of cultivated mushrooms is done throughout the country, since growing units are climate controlled. There is a compost producer in BiH with capacity to produce 3,840 MT of compost annually. The current production ranges from 80–100 MT/month. However, most compost is imported due to a lack of insufficient production of domestic product with satisfactory quality. Some of the largest producers of cultivated mushrooms in BiH, such as Champignon, Breza, and Podnovlje, Modrica, produce their own compost.

Mushroom yield is approximately 15–30% of compost weight. It is generally assumed that a good producer can get a yield of 20–25% of the substrate weight in mushrooms (i.e., 1 MT of substrate should yield 200–250 kg of champignons). This can be as high as 35–40% with the use of very high-quality compost. The average producer in BiH produces about 540 MT annually, and it is estimated that the six largest producers account for about 30% of production in BiH.

The retail price of champignons in BiH varies from EUR 2.00–6.00/kg throughout the year.

2.4 Imports

In 2003, BiH imported 731.5 MT of mushrooms, mostly canned and pickled champignons, valued at EUR 705,000.⁵ Before domestic production picked up, BiH imported 250–300 MT of fresh mushrooms (champignons) annually, primarily from Hungary. This demand is now being largely met by domestic producers.

As an input for mushroom cultivation, BiH producers imported 5,717 MT of compost, with a total value of EUR 554,000.⁶ The compost price is about EUR 160/MT. Of course, such data on BiH are unreliable and do not include black market activity.

2.5 Exports

Virtually all wild mushrooms collected in BiH are exported fresh or frozen and/or dried. In 2003, BiH exported 47.4 MT of wild mushrooms valued at EUR 152,200. Most exports are sold to importers and wholesalers in Europe—mainly Italy, France, Germany, Greece, Slovenia, Switzerland, and the Scandinavian countries. One of the most popular mushrooms from BiH is chanterelles, which is marketed as a specialty food. BiH's largest competitors are Romania, Bulgaria, and Poland.

⁵Foreign Trade Chamber, BiH 2003.

⁶Customs official data, BiH.

Mushrooms Subsector

2.5 Exports (continued)

There are indications that demand for wild mushrooms from BiH is increasing. Several BiH companies, such as Mushroom Company of Celinac and Smrcak of Zvornik, possess organic certificates for their products and export mushrooms both as organic and nonorganic.

2.6 Demand

Market demand, domestically, regionally, and in the EU, is discussed in the following sections.

Domestic

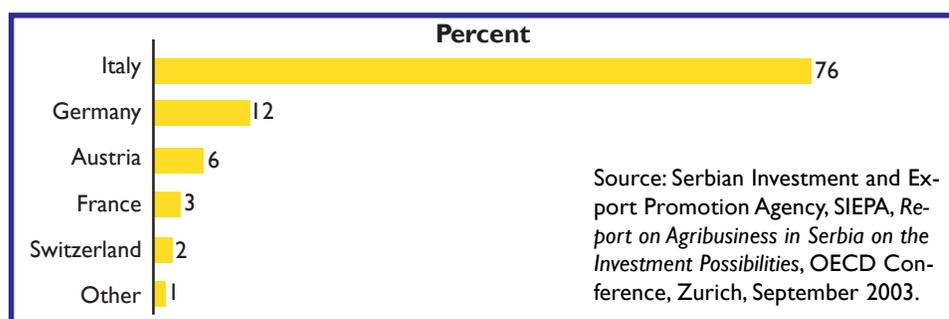
In BiH, annual consumption of mushrooms is quite low: 300–400 g/person. However, for BiH, the wild mushroom subsector represents an opportunity to harvest its forest resources in a profitable and sustainable manner.

Local market demand in BiH exists for cultivated mushrooms, mainly champignons. Market analysis conducted in 2003 by producers from the Sarajevo region concludes that green markets in Sarajevo, including large ones such as HECO or Stup green market, sell 1,500–1,800 kg of fresh mushrooms daily. Domestic demand is lower in the summer, whereas the supply of mushrooms increases during the season (see Table 1). Thus, surplus mushrooms make for an ideal export product.

Regional

Serbia–Montenegro plays an important role in the mushroom trade with the EU. In 2001, fresh mushrooms and truffles were among the top five export products from Serbia–Montenegro to the EU (EUR 6,930,000), representing 20.2% of total agriculture exports (see Graph 1). BiH mushroom exports can compete as well since there are many opportunities to export to neighboring states.

Graph 1. Serbian Mushroom and Truffle Exports by Country, 2001



EU

Commercial mushroom cultivation is strong in the Netherlands, Germany, France, other EU member states, and the United States. For example, in the Netherlands, where the annual per-capita consumption of mushrooms is 12–20 kg, there is large-scale mushroom production and machine harvesting. It would be very difficult for BiH producers to compete against such intensive manufacturing.

EU trade in fresh mushrooms totaled 146,000 MT (EUR 307 million) in 1996, with 27,000 MT (EUR 95 million) supplied by non-EU countries. Germany, Italy, Austria, and France accounted for 98% of total imports from non-EU sources.

EU
(continued)

EU trade in dried mushrooms was under 7,000 MT (EUR 68 million) in 1996, with just under 4,000 MT (EUR 48 million) supplied by non-EU sources.

**3.0 BASIS OF
COMPETITION**

The following text discusses the buyers' criteria for mushrooms, which comprise the basis of competition for mushroom suppliers.

3.1 Packaging

Wild mushrooms are collected; graded according to size, color, and percent of broken parts; cut; dried (12% moisture content); and packed for shipment to export markets. For packing material, processors are using (1) wooden boxes (0.5, 1, and 3 kg) for fresh wild mushrooms and (2) 5- to 10-kg plastic bags in cardboard boxes for dried mushrooms.

Fortuna Komerc, in Podgorac, produces 3-kg wooden boxes locally; 0.5- and 1-kg boxes are imported from Lithuania. Processors report increasing export customer requests for wild mushrooms packed in smaller, retail/foodservice packs of 20, 100, 200, and 500 g.

Cultivated mushrooms (mainly champignons) are sold fresh in two types of packages: (1) 3- to 4-kg bulk packages with stem ends and soil ends removed and (2) 400-g shrink-wrap tray packs with the soil end left on (some believe the mushrooms stay fresher longer this way).

Trays are sourced locally, cellophane is imported. There is no value-added processing of cultivated mushrooms in BiH.

Compost is packed in 20-kg plastic bags by domestic compost producers. Imported compost is packed in 20-kg briquettes; Naturprodukt-Gradancac will soon begin packing its compost in briquettes.

Package design and graphics for wild and cultivated mushrooms are unsophisticated.

3.2 Quality

BiH wild mushrooms are sold both as organically certified and as conventional produce. There is an export opportunity both in niche markets and in mainstream markets worldwide. The world market for organic foods is expanding. To achieve consistent quality requires effective resource management, training, education, and organization of harvesters. To ensure quality, only fresh, whole samples of wild mushrooms should be collected and supplied to prospective buyers. The methods of collection, handling, manipulation after collection, transport, and storage are critically important, since any mishandling is readily detectable. Preservation of mushrooms is crucial: mushrooms are among the most delicate and perishable of agricultural products. Harvesting and post-harvest management are as important as any of the cultivation procedures. There are six methods of mushroom preservation: conservation (the most important), drying, extraction, brining, pickling and pickling in vinegar, and freezing.

The shelf life of mushrooms in general is very short. Air- and freeze-dried mushrooms can be stored for long periods without loss of market value.

Mushrooms Subsector

3.3 Services

To improve market opportunities and conditions for the producers, services within BiH must be improved in both directions (i.e., from seller to buyer and vice versa). In BiH, most private companies, even those newly established, still operate with a socialist management approach and attitude.

3.4 Marketing

The market for wild mushrooms is mainly abroad. Some buyers, from Italy for example, are coming directly to BiH to purchase or to organize purchasing and collection. In general, the marketing efforts of BiH wild mushroom processors are minimal. They have established market linkages to whom they export. Virtually all domestically cultivated mushrooms are sold in local markets without marketing effort.

3.5 Market Movement

The mushroom market is totally unregulated. Smaller producers usually sell on the green market or directly to small shops. Cultivated mushrooms are usually sold fresh in supermarkets and green markets. Every sale is negotiated.

Larger producers sell to three major trader/wholesalers in Banja Luka who are intermediaries. Every sale is negotiated, and producers have to develop their own market contacts to be able to negotiate intelligently.

The export market for wild mushrooms is reached through agricultural cooperatives and SMEs that sell directly to buyers through traders and direct importers.

Owing to strong market demand, all cultivated and wild mushrooms from BiH are sold as they are produced and/or processed. Inventories are not maintained.

6

Processed Vegetables Subsector



1.0

OVERVIEW

Supply Profile

The level of vegetable production in BiH is nowhere near its potential because many fields and irrigation systems have not yet recovered from war devastation. Another, unrelated constraint is that vegetable processors are not yet recognized as a primary demand outlet for fresh vegetables, and many producers are inclined to sell their produce on green markets with uncertain spot market sales. This marketing orientation leads to wasted products from unsold goods and often unfavorable prices.

Vegetable production includes potatoes, cabbages, peppers/chili peppers, mushrooms, onions, tomatoes, carrots, and beans. More than 97% of fruits and vegetables are produced on private farms and orchards. About 55,000 ha of land in the FBiH and 45,000 ha of land in the RS are allocated to such agricultural production.

However, in general the quality of land in the RS is more suitable for such production than in the FBiH. Also, about 50% of the population in the RS are farmers, with each owning an average of 2.5 ha. Average yields, in MT/ha, are still low by Western standards, due partly to the lack of proper irrigation and partly to adverse climatic conditions.

2.0 DEMAND PROFILE

There is idle capacity among vegetable processing companies, thus providing BiH producers with an excellent opportunity to be competitive within this market. Current total market value for vegetables is estimated at 940 million KM/year. Current total market *potential* value is estimated at 1,006 million KM/year.

2.1 Summary of Trends

About 939,000 MT/year of various vegetables, locally produced and having an estimated value of about KM 940 million, satisfy the local market demand. A portion of this quantity, 60,000 MT/year, is exported. As a percentage, a small amount ends up in the processors' hands. Table 1 indicates the general productivity of vegetable production and compares local consumption at the prices prevailing (where data are available) in 2000. Both yields and consumption are low by European standards. Nearly all of the domestically produced raw materials are grown in northern BiH, the Herzegovina region in southern BiH, and the eastern part of the country along the Drina River, from where the highest quality vegetables tend to originate.

Processed Vegetables Subsector

2.1 Summary of Trends

(continued)

SWOT ANALYSIS FOR PROCESSED VEGETABLES

Strengths

- Seven different processors demanding locally produced goods provide a reasonably competitive market.
- There is a cultural preference for eating processed vegetables (e.g., pickled goods) in the winter season.
- Short season production means that cash investments are quickly recovered and prices are generally satisfactory.
- Soil quality and climate are very suitable for growing vegetables.
- History of agricultural production.
- Low-cost labor usually needed, which is readily available in BiH.

Weaknesses

- Lack of cooperation and marketing skills, with weak producer orientation to the market.
- Low vegetable yields on a per-hectare basis, partially due to a lack of appropriate fertilizers and high-yield variety technologies used for production.
- A few of the remaining state-owned vegetable processors have ownership issues, thereby restricting their growth.
- Limited irrigated land available; formerly irrigated land needs rehabilitation.
- Lack of installed capacity of greenhouses and poly-tunnels.
- Highly seasonal/fluctuating domestic supply and lack of effective storage restrict ability of BiH producers to reach the market over an extended duration.
- Lack of technically efficient cooling storage installations.
- Lack of size, appearance, and quality sorting and/or attractive packaging/labeling.
- Highly seasonal character of vegetable production creates surpluses in season and shortages out of season, thereby affecting prices.
- Land ownership problems and small sizes of individual parcels.

Opportunities

- Growing international market demand for bio-organic/bio-ecological food products, which can be sold at relatively high, profitable prices.
- Large-capacity vegetable processing enterprises operate at low-capacity utilization levels.
- Already connected to export markets (though room for expansion exists); good opportunities for import competition.
- Some supplier credit is available for small- and medium-sized growers to expand production.
- Vegetables can be grown year-round if more greenhouses are available.

Threats

- No credit lines specifically tailored to the agricultural sector, and in particular for seasonal requirements.
- Processors are not yet fully recognized as a preferred outlet for vegetables as a market.
- High energy and telecommunications cost.
- Land ownership records, although they exist in BiH, are not always updated.
- Lack of funds for construction or rehabilitation of irrigation networks; also lack of cheap necessary materials (e.g., plastic pipes, fittings).
- Poor quality packing materials exist locally.
- Export certification system is not yet operational.
- Strong regional competition.

2.1 Summary of Trends
(continued)

Table 1. Estimated Vegetable Production and Consumption, 2000

Vegetable	Area (ha)	Avg. Yield (MT/ha)	Avg. Consumption (kg/person)	Est. Retail Price (KM/kg)*
Potatoes	51,000	12	80	0.90
Beans	14,300	2	7	2.50
Cabbages	9,700	14	47	0.70
Onions	5,700	9	30	1.00
Green peppers	4,700	9	30	2.50
Tomatoes	5,200	11	37	1.30
Mushrooms	1	1,250	0.2	5.00

Data primarily from Agricultural Institute, Banja Luka. *As of June 22, 2004.

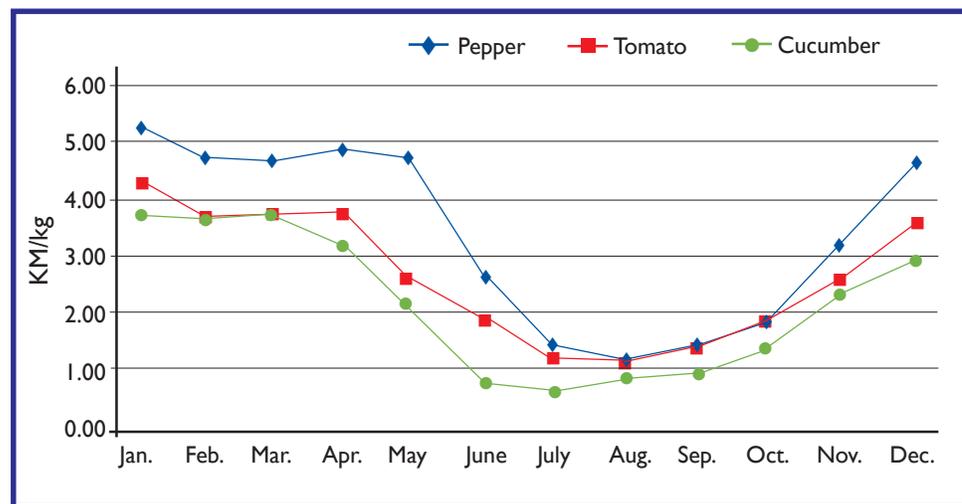
2.2 Prices and Tariffs

Prices are highly seasonal owing to the inherently seasonal production of vegetables. Both the FBiH and the RS have subsidies for vegetable production for the processing industry. Some cantons have subsidy schemes for vegetable production as well. Most vegetables find their way to consumers through either the green market or informal relationships with small retail shops. Processors are considered the market of last resort and tend to offer the lowest prices, although no price database exists for processor prices. An indicative measure is that of retail prices measured on a monthly basis, as seen in Table 2 and Graph 1.

Table 2. Average Retail Vegetable Prices, KM/kg, 2000–2003

Month	Pepper	Tomato	Cucumber
January	5.17	4.29	3.73
February	4.73	3.72	3.68
March	4.71	3.77	3.77
April	4.93	3.78	3.12
May	4.76	2.58	2.14
June	2.56	1.96	0.86
July	1.52	1.31	0.72
August	1.16	1.08	0.77
September	1.49	1.50	0.93
October	1.82	1.84	1.50
November	3.14	2.51	2.31
December	4.52	3.50	3.00

Graph 1. Indicative Seasonality of Vegetable Prices, KM/kg, Monthly (2000–2003)



Processed Vegetables Subsector

2.2 Prices and Tariffs (continued)

Since May 1, there are no import duties on imported vegetables for retail sale, planting, or processing. There are no subsidies for vegetable production in either the FBiH or the RS, but the RS does have subsidies for vegetable seed production. Various cantons have different subsidy mechanisms for vegetable production on an individual-canton basis, but they are too numerous to mention here. Each canton may or may not have subsidies; they vary greatly, may or may not be paid, and thus their estimated impact is negligible.

Freight cost is about 2% with no insurance. Processors roughly estimate that the cost of marketing infrastructure is about 2.5% of the final product cost. Processors generally know who their competitors are; they know their competitors' prices for similar products, including in the specific markets where their own products are sold.

2.3 Statistics

Table 3 shows the seven main vegetable processors and their estimated demand for fresh vegetables in 2004. Vegafruit, the largest of the processors, buys 95% of its products locally, while the other two significant processors indicate that they cannot get enough locally produced vegetables. They estimate that they could buy 30% more than they currently do. At the moment, imports range from 5% for Vegafruit to 30–50% for the other two companies. Given that Vegafruit is BiH's largest and fastest growing vegetable processing company, it appears that sourcing locally is good for the company. It is also active in the niche organic processed vegetables market, for which there is export potential. At present, there are no organic certification organizations in BiH, although the local growing conditions are often appropriate.

Very fresh vegetables are sold on forward contracts at a set price; transactions are established as production contracts, whereby processors take a set amount of production. Companies buy their raw material through several means, including from individual producers, from larger intermediaries and wholesalers, and by working almost entirely with producer groups and cooperatives. Companies in the first category purchase a fair quantity of vegetables on spot markets on an as-needed basis. Increasingly, though, processors are buying ever more produce on contract according to buyer's specifications.

Table 3. Estimated Company Demand for Vegetables in 2004

Company	Processed Vegetables (MT)
Vegafruit	4,440
Vitaminka	3,180
Omerbasic	2,580
Hranaprodukt	1,600
Fana	960
Semberka	Unknown (state-owned), 0
Sava	Bought 2,000 MT in 2003
Total	12,760

Processed Vegetables Subsector

2.3 Statistics (continued)

Table 4 shows the estimated demand, for 2004, of the individual companies and is based on the LAMP Team's estimates determined from interviews with the companies' key informants. Quantities of locally available supplies for the identified products are given in the rightmost column. For all products, there is an abundance of locally available supply; uncertain is whether the supplies are the varieties and qualities that will meet the processors' needs.

Table 4. Processor Demand for Vegetables and Local Supply (MT) in 2004

Vegetable	Demand	Local Supply*
Cucumbers	4,510	N/A
Red peppers	1,820	
Sweet peppers	1,360	
Pepper "tomatoes" for pickling	520	
Cabbages	970	76,119
Red beets	1,035	N/A
Carrots	240	8,474
Onions	55	27,964
Tomatoes (mature)	135	32,696
Tomatoes (immature)	235	
Eggplant	185	N/A
Cauliflower	55	N/A
Hot peppers (hot [†])	135	28,664
Hot peppers (mild)	60	
String beans	250	N/A
Green beans	130	1,800
Potatoes	100	362,641
Subtotal	11,795	

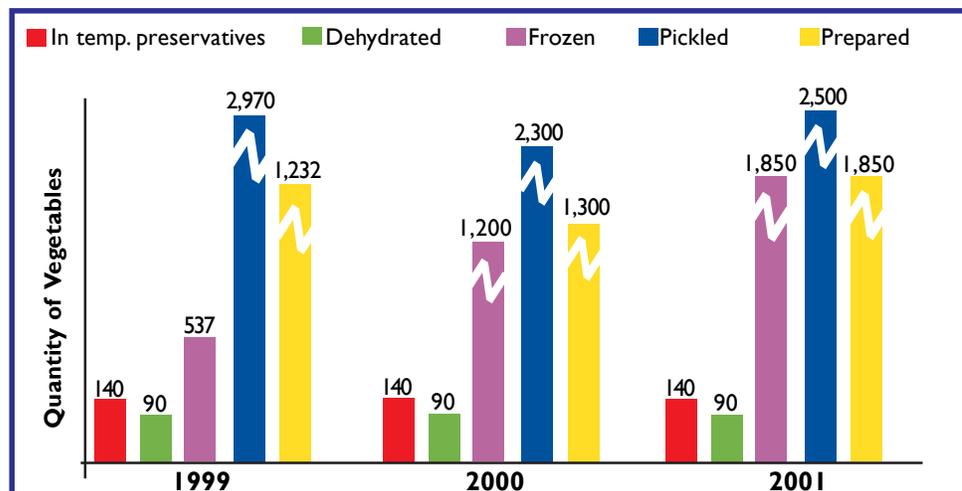
*FAOSTAT database based on three-year moving average.

[†]Includes all peppers.

Consumer demand for processed vegetables, as reflected by import data, shows that BiH processors have considerable room to compete with foreign exporters to BiH (see Graph 2).

Graph 2. BiH Imports of Processed Vegetables (MT)*

*Source: FAOSTAT agricultural database.



Processed Vegetables Subsector

2.4 Trade Data

Table 5 shows trade data on BiH's balance of vegetable imports and exports for 2003, the most recent year that such data are available.

Table 5. Vegetable Imports and Exports for BiH, 2003

Vegetable	Exports		Imports		Net Exports/ Imports (MT)	Net Export Value (KM)
	(MT)	(KM)	(MT)	(KM)		
Fresh tomatoes	3.9	404,848	10,243.4	6,151,449	-9,844.6	-5,746,601
Onions, Garlic	420.1	344,484	11,758.5	3,852,674	-11,338.4	-3,508,190
Cabbages	3,125.6	913,845	1,625.4	672,186	1,500.2	241,659
Lettuce	138.9	271,182	446.7	419,762	-307.7	-148,580
Carrots, Red beets	4.1	2,644	3,169.2	1,284,442	-3,165.0	-1,281,798
Cucumbers	1,486.0	1,130,801	1,526.2	909,613	-40.2	221,188
Beans	7.8	9,868	144.3	136,538	-136.4	-126,671
Other fresh vegetables	450.0	2,621,605	7,508.4	4,894,618	-7,058.4	-2,273,013
Vegetables						
Frozen	529.1	840,821	2,942.9	3,789,032	-2,413.7	-2,948,211
Canned	306.6	2,254,772	131.1	159,156	175.5	2,095,616
Dried	133.2	2,590,360	323.8	1,375,518	-190.6	1,214,842
Pickled	6,120.1	9,737,719	7,447.6	17,181,997	-1,327.5	-7,444,278
Dried beans	230.5	163,718	8,743.7	7,728,349	-8,513.2	-7,564,631
Processed tomatoes	63.1	108,215	1,445.5	2,372,884	-1,382.4	-2,264,670
Mushrooms (pickled)	47.3	304,355	731.5	1,410,009	-684.1	-1,105,653
Potatoes	8,734.6	3,052,640	20,017.5	9,442,158	-11,282.9	-6,389,519
Total	34,271.5	42,070,240	186,680.2	130,788,799	-152,408.7	88,718,559

BiH Customs' data, 2003, as published. Customs' data and FAO data are not consistent.

As Table 5 shows, imports far exceed exports in terms of tonnage and value. The largest percentage of vegetable imports are potatoes, dried beans, onions/garlic, and fresh tomatoes. All of these products are grown in BiH, but not in sufficient quantities or quality to meet local demand. However, the two largest categories (in terms of volume and value) of products grown in BiH are pickled vegetables and potatoes. Thus, there is ample opportunity for competing with imports in vegetable production.

Anecdotal evidence from a wide range of reliable sources indicates that most domestic vegetable production is somehow finding its way to domestic consumption and that crops are not being dumped or left unharvested. Evidence also confirms that production is increasing, although it is far below prewar levels. This increase is occurring through the cultivation of previously idle lands, the reconstruction of irrigation systems, and the rapid proliferation of greenhouses (including poly-tunnels, plastic houses, and glasshouses).

Therefore, detailed insights and analyses into the dynamic vegetable market are difficult because data under such conditions are highly unreliable. However, the LAMP Project will provide ongoing monitoring of this important sector.

**3.0
BASIS OF
COMPETITION**

Basis of competition information was gathered through interviews with processors and market integrators. Their collective responses are reported below. Interestingly—and of concern—is that none of the processors interviewed are aware of how their products are ultimately being used after they pass the factory gate. In other words, processors have little comprehension of consumer demographics, tastes, and preferences. They say that they know to whom they sell and roughly where the final buyers/end-users are, but know relatively little about them. Generally, consumers are most concerned about price; quality is a secondary concern. Buyers of processed vegetables, though, add a third basis of competition factor that was not mentioned by the processors: packaging. To the retailers who buy from the processors, packaging is becoming an increasingly important factor in consumer choice of product that processors may be overlooking.

**3.1 Quality
Characteristics**

Because there are several companies processing vegetables, it is difficult to apply one quality/service number to the entire industry. Several of the companies are well managed; market oriented; and sell locally, regionally, and internationally. Others are or have been recently privatized and are not so market oriented. They are at a low level of capacity and/or stuck in bankruptcy or with unclear ownership issues.

Retailers are actively communicating their needs to processors concerning their desired product characteristics, which are conveyed through consumer research, contracts, and other means.

3.2 Services

Between one and two transactions take place between the farm gate and the processor. There is an estimated 10–20% value-added services between the two points (e.g., mostly cleaning, sorting, and transportation). The key market integrators/business service providers who supply processors provide a mix of fuel, insurance, electrical power, jars, and polyethylene pack/foil. Only the polyethylene pack/foil and electricity are produced locally; the rest of the services originate from second countries via imports. On the other hand, several transactions are likely to take place between the processor and the final consumer, and 15–30% value is added, mostly from processing. Retailers prefer to receive deliveries in lot sizes of 5–20 MT for locally produced products and 20 MT for imports. Many transactions are with repeat buyers, although order size varies among buyers.

3.3 Packaging

Most processed vegetables are canned. All of the glass jars are imported, mostly from Slovenia, but some of the plastic containers for sauces such as ketchup are produced locally. The products range from simple cucumbers, mixed vegetables, carrots, and beets to more complicated stuffed/pickled peppers. Many of the products are sold locally, but are also exported to 12 different countries, including many EU countries, Canada, and the United States for the more labor-intensive stuffed peppers. Although the packaging is adequate, the labeling is not as attractive as it could be.

Processed Vegetables Subsector

3.4 Marketing

In general, Vegafruit and Vitaminka are doing well, sell their products in a professional manner, pay their suppliers on time (relatively), and are growing. Hranaprodukt has business issues and is struggling; as of August 2004, Omerbasic is well into bankruptcy proceedings. The remaining companies on the list are not considered serious players.

All of the processors listed in Table 2 are members of the Fruit and Vegetable Processors Association, but the power behind the association is held by the two strongest players, Vitaminka and Vegafruit, which are growing. The industry appears to be consolidating somewhat: one of the competitors has been purchased by Vegafruit, and it is rumored that two other processors will be purchased by international companies.

Processors have tried a number of tactics to improve marketing and sales through a variety of initiatives (e.g., trade-fair presentations, advertising, using smaller delivery vehicles, increasing product availability, distributing product samples, and market testing) and by directly educating buyers about their products.

3.5 Market Movement

The leading BiH processors solicit buyers' feedback on the most desired characteristics, and they are aware of which products are perceived to be the finest quality and which are the worst. They also follow recent product innovations or market trends. Processors are divided on the question of trends in the larger market; some say they are aware of these trends, others that they are not, and some report that they do not know.

BiH is a net importer of almost all vegetables. According to the 2003 customs' data, BiH is a net exporter of cabbage and canned vegetables only, of which the majority are peppers and cucumbers. There is a surprising amount of imported potatoes, dried beans, and other fresh vegetables. This indicates that there is opportunity for import substitution.

7 Sheep Subsector



1.0 OVERVIEW

Supply Profile

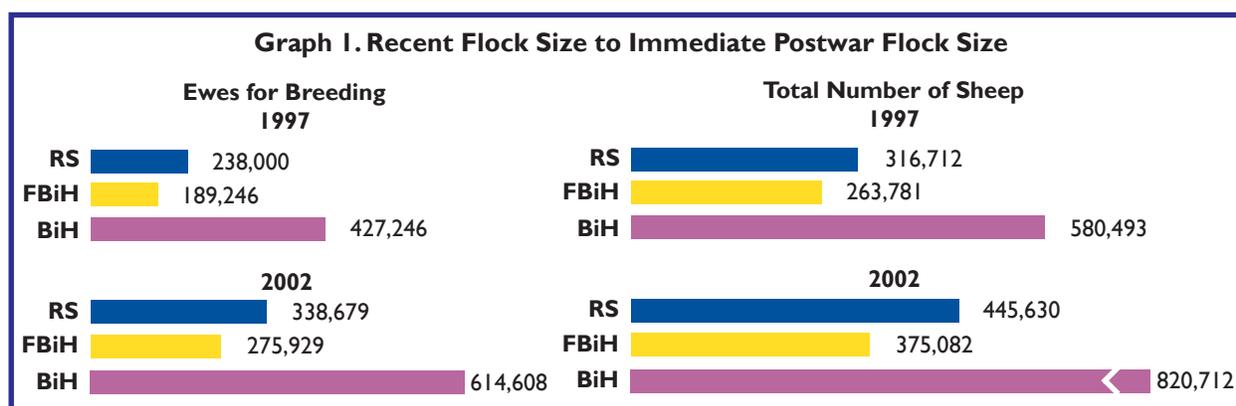
Under a 1998 survey conducted by the RS Ministry of Agriculture, Forestry and Water Management, the entity suffered major livestock losses as compared with the prewar situation (as of 1991). Sheep numbers were 54% of their prewar population, a decline of 167,652 animals. Specifically, the number of sheep in BiH (not just in the RS) in 1991 before the war was estimated to be 1,317,000 animals, of which 971,000 were breeding ewes. By 2001 sheep were down to 49% of the prewar population (640,000) and breeding ewes down to 467,200 animals.

In 1991, 99% of sheep were in private hands and just 1% was managed by agrokombinats (see Table 1). In the same year, the average milk and wool yield of ewes were 30 L and 1.3 kg per animal per year, respectively, and the reproduction rate was 102%. Postwar production of mutton is 51% of its level in 1991.

Table 1. Number of Sheep by Category and Ownership (in thousands of head) in BiH, 1991

Sheep	Total Number	Ownership (%)	
		Private	State controlled
Ewes	971	99.0	1.0
Other	346	99.1	0.9
Total	1,317	99.0	1.0

State research and extension services have long been absent (80 years) from providing support to the subsector, which has undoubtedly contributed to the current low level of private farm productivity. A recent accounting (Graph 1) of the domestic sheep population in relation to the immediate postwar period shows that numbers have picked up substantially.



Sheep Subsector

Supply Profile (continued)

SWOT ANALYSIS FOR SHEEP

Strengths

- Substantial idle land (meadows and pastures) that could be used for grazing.
- Meat and processed meat products hold a significant portion of food preferences among the population of BiH.
- Meat is a highly priced product, generating significant cash flows.
- Small nucleus exists of private slaughtering/meat processing capacity with modern equipment and high-quality standards; able to expand if sufficient livestock input is ensured.
- Constant market for lamb.
- Increase of sales and sky-rocketing prices during religious holidays (e.g., Bajram).

Weaknesses

- Meat moves through a long supply chain, each stage of which faces serious problems and raises retail prices to levels expensive for the average local consumer.
- Locally produced raw materials are insufficient to supply animal feed needs.
- Poor feed quality, especially in winter.
- Resistance to new types and methods of rearing.
- Genetic potential of domestic sheep.
- Endemic animal diseases.
- No system to identify and monitor animals professionally.
- Quality of wool questionable, with only two wool processing firms in BiH.
- Lack of quality assurance systems, HACCP, ISO 9002.
- Poor access to farm credits from banks or other sources for sheep rearing.

Opportunities

- Ensure that holding facilities for sheep should be located away from populated areas. Animals should be routinely tested for antibodies to *C. burnetii*, and measures should be implemented to prevent airflow to other occupied areas.
- Improve quality of pastures and hay and use of silage through better range management.
- Increase production results per head by improving breed, feed, and animal husbandry practices.
- Export possibilities of sheep products (livanjski/vlasicki cheese).

Threats

- Subsidized and sometimes illegal beef imports sold at low prices or at prices below BiH production costs.
- Impossible to export animal products to most markets.
- Insufficient fodder crops (alfalfa, clover, vetch, beets, grass and cereal legume, maize) owing to small land holdings, lack of mechanization (equipment for harvesting, packing, and drying), and of proper storage, which together hinder local production of good quality and low-cost animal feed and in turn force the majority of small livestock growers to depend only on hay and silage for animal feed during winter. Such a practice has a devastating influence on fattening rates, milk production, support of pregnancy, and eventually on livestock numbers in BiH.
- Danger of importing infectious diseases.
- An inefficient veterinary system and veterinary inspection.
- Advent of diseases and ability to control them.

Supply Profile (continued)

The local Pramenka breed accounts for 80% of the sheep flock, supplemented by Pramenka-Merino cross-breeds and the small Humnjacka sheep of southern Herzegovina. Most (95%) production takes place on small private farms, and low-input management systems predominate. According to the study done by the Federal Republic of Germany Central Market and Price Recording Agency (2002), 93% of prewar farms had flocks of fewer than 20 sheep and less than 1% had flocks of more than 100. Most sheep income is derived from meat (80%) and high-quality cheese (15%), for which there is a strong demand on local markets and long-term export potential. The coarse Pramenka wool is typically heavily cotted due to poor (winter) animal nutrition, and consequently is of little value.

Sheep production has long been falling in BiH. Total sheep numbers fell from 4 million in 1939 to 1.3 million in 1990, as the marginal hill and mountain areas, which were the traditional domain of sheep production, were steadily abandoned. There was also little concomitant improvement in the historically low levels of animal performance. War then accelerated this decline: sheep numbers in what is now the RS fell from 667,000 in 1990 to 317,000 in 1997; in what is now the FBiH, they fell from 650,000 in 1990 to 236,000 in 1996. Because profitability is low, sheep production is unlikely to recover to even prewar levels unless performance and returns improve significantly. This will only come through major changes to production systems and better marketing of meat, cheese, and wool.

In 2000 and 2004, outbreaks of Q fever and Brucellosis threatened the sheep population of BiH. Q fever is caused by *Coxiella burnetii*, the only common rickettsia to be usually transmitted through the air rather than through contact. Worldwide, it is primarily found in cattle, sheep, and goats, but humans may also be infected. Prevention measures should include adequate disinfection and disposal of animal products of conception and strict hygienic measures in cattle, sheep, and goat farms; plants processing products of these animals; boiling or pasteurization of milk at 62.8°C for 30 minutes or at 71.7°C for 15 seconds; and vaccination.

Brucellosis is an infectious disease caused by the bacteria of the genus *Brucella*. These bacteria are primarily passed among animals, and they cause disease in many different vertebrates. Various *Brucella* species affect sheep, goats, cattle, deer, elk, pigs, dogs, and several other animals. Prevention measures are to avoid consuming unpasteurized milk, cheese, or ice cream in areas known to be infected. There is no vaccine available for humans.

While both of these diseases are endemic and nearly impossible to eradicate, of larger concern with the advent of these two outbreaks is that they are a symptom of an underlying problem. The complicated, multilayered structure of government set up under the Dayton Agreement leaves BiH's veterinary system divided into entities and state levels that are difficult to coordinate and ensure that no loopholes to let diseases slip through. Lines of responsibility are unclear, and there is no financing to redevelop the system.

Serious outbreaks of Q fever in the RS, and Brucellosis in the FBiH, are indicative of the poor controls in animal health in BiH. The failure of BiH's authorities to harmonize the veterinary system is not only threatening public health, but the outbreak of disease, and this only highlights the need to improve control measures in order to stop it spreading.

—The Principle Deputy High Representative, Donald Hays, OHR website (24 May 2004)

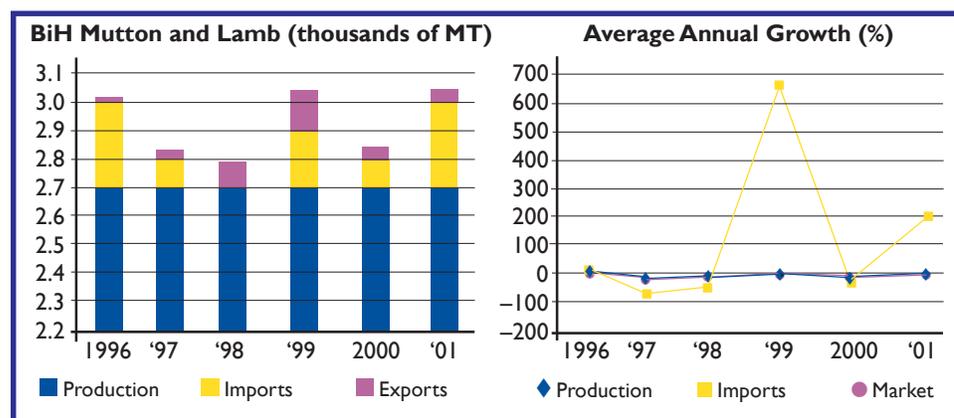
Sheep Subsector

2.0 DEMAND PROFILE

Markets directly determine the trend and scope of sheep production, although often sheep are the only assets of people living in mountainous areas. The market for lamb (meat) and cheese is very active, thus it is an incentive to small ruminant production (see Graph 2). For example, Livno and Travnik cheese production is growing rapidly because of their perceived high quality and sustained high prices. Since these products are unique to BiH, there is reason to suggest that the ancestral sheep breeds that yield this cheese need to be genetically protected and strengthened.

A program that would seek to rehabilitate domestic sheep supplies should include research and extension efforts to rehabilitate the domestic breeds such as Humnjacka and Pramenka.

Graph 2. BiH Market for Mutton and Lamb, 1996–2001



2.1 Summary of Trends

Sheep production could be restored at least to prewar levels. Large areas of mountainous pastures—many currently idle—can be used for sheep rearing. The lamb market for roasting on spits is stable and is being successfully marketed to charter bus tourists.

The development of a sheep market is not constrained by demand, nor is imported mutton competitive with other domestic meat. Sheep rearing plays an important role in sustaining the natural resources base—through managing pasture grounds—in higher mountain regions. As such, it is an important activity that covers much of the geography of BiH.

As Table 2 shows, supplies of the main sheep products seem to have held steady, although unrecorded trade is widely reported to occur.

Table 2. Production of Sheep Products, 1998–2003

Production (MT)	Year					
	1998	1999	2000	2001	2002	2003
Mutton and lamb	2,700	2,700	2,700	2,700	2,700	2,700
Sheep milk	8,000	7,600	7,100	7,000	7,000	7,000
Sheepskins, fresh	518	518	518	518	518	518

Source: FAOSTAT database.

2.1 Summary of Trends
(continued)

Some data from two locations (Travnik and Livno) are available. The Travnik area in 1991 had 49,000 sheep, but the number of sheep has now decreased to 22,000 (breed Pramenka, Vlasic). The average number of sheep in a flock is 60 head (22–150). Farmers have about 1.5 ha of land (average) on Vlasic Mountain. In the summer, sheep feed on the Vlasic grassland. During winter (November–April), farmers go to north BiH (areas of Tuzla, Brcko, Bihac).

The Livno area in 1991 had 20,000 head of sheep before declining to today’s 5,000. Ten individual farms have about 200 head; other farmers have an average 10–20 head. Summer feeding of sheep is on the mountain Cincar, near Livno (10 km). During the winter, farmers come back to villages of the Livno area. Farmers in Livno have an average 4.0 ha of land.⁷

2.2 Statistics

The consumption of mutton, while at one time preferred, is lagging behind the consumption of other types of meat.

In the former Yugoslavia, the consumption of meat was extremely high, at 100 kg/person. In 1990, the meat consumption in BiH stood at 70 kg/person. After the war, the demand for meat dropped to 30–40 kg/person due to decreased purchasing power (USAID 2000). The Federal Republic of Germany Central Market and Price Recording Agency report in 2002 estimated total meat consumption at 65,000 MT slaughter weight in 1998. According to other information sources, total meat consumption (including poultry) could amount to more than 90,000 kg slaughter weight at present. The BSE Disease and Foot-and-Mouth Disease crises in 2000/2001 and the current outbreak of endemic diseases have contributed to changes in consumer demand for mutton.

Although disaggregated figures for sheep are unavailable, most BiH consumers eat mutton and other sheep products. Data for the years 1998–2001 (see Table 3) show that consumption grew by 4.3%, with production nearly balancing consumption of meat throughout the period. These data, though not very reliable, do suggest that consumption balances commercial production within the same order of magnitude. A considerable amount of mutton is consumed by households without reaching the market.

Table 3. BiH Consumption of Mutton and Goat, 1998–2001

	Year				Avg. Growth
	1998	1999	2000	2001	
Consumption (MT)	2,580	2,704	2,750	2,950	
Annual growth		4.6	1.7	6.8	4.3

Source: FAOSTAT database.

In the Greek and Italian markets, 80–90% of spring lamb appears to be sold over a 6- to 8-day period prior to Easter Sunday and near the Christmas holiday. There are major – and ever increasing – supply shortages each year. Retail prices also dramatically peak at this time (e.g., Greek lamb can hit a high of EUR 9.50+/kg).⁸

⁷Reported prices at selected locations are shown on page 83.

⁸This and subsequent information on the Greek market in particular derives from interviews with buyers in these markets.

Sheep Subsector

2.2 Statistics (continued)

The Greek chilled lamb carcasses mark-up structures are broadly reported as:

- Meat wholesale mark-up margins lie between 8% and 10% delivered into a wholesaler's facility. Wholesale market prices for Greek lamb are reported to be around EUR 5.00/kg for Greek chilled lamb carcasses.
- On the basis of noted retail meat markets' selling prices, these would appear to average out at EUR 9.00/kg. This equates to a margin mark-up between wholesale to retail of 80%.

Key dynamics that relate to the availability of Greek-produced spring lambs or imported within the Greek market encompass issues such as:

- Declining Greek spring lamb production (where it was stated very young "live" spring lambs were imported from Romania or Bulgaria to be fattened, then slaughtered/sold as Greek spring lambs).
- Declining and/or fluctuating imports of spring lamb shipments from the likes of Macedonia, Bulgaria, and Romania (in part, the result of decreased lamb production in these countries).
- Increasing Greek population demand for spring lamb.
- Balkan spring lamb is often favored in the Greek market: more than 90% of those handlers of spring lamb in the marketing/distribution chain all stated it was distinctly superior in quality to Bulgarian and Romanian spring lambs.

2.3 Import Trends

With production of mutton and lamb reported to be around 7,200 MT/year (commercial plus home raised), imports have declined to almost nill. A bit more wool is being imported than was formerly the case, but this amount is insignificant. See Table 4 below.

Table 4. Imports of Sheep Products, 1998–2002

Quantity (MT)	Year				
	1998	1999	2000	2001	2002
Mutton and lamb	20	150	100	300	3
Offals of sheep (edible)	0	50	50	50	50
Wool (greasy)	155	155	155	10	43
Wool (scoured)	0	0	0	0	35

Source: FAOSTAT database.

Besides importing lower volumes, the value of the sheep products being imported has also declined to a point where none of the sheep imports can be considered significant. See Table 5.

2.3 Import Trends

(continued)

Table 5. Value of Sheep Product Imports, 1998–2002

Value (thousands of \$)	Year				
	1998	1999	2000	2001	2002
Mutton and lamb	35	300	200	550	30
Offals of sheep (edible)	0	120	120	120	120
Wool (greasy)	530	530	530	45	41
Wool (scoured)	0	0	0	0	124
Total	565	950	850	715	315

Source: FAOSTAT database.

Tariffs on sheep products, at about 10% for all but breeding stock, are not substantial import barriers, considering the import status of other meats (Table 6). These tariffs do not apply to the new FTA partners.

Table 6. Tariff Structure

Commodity	Import Tariff
Breeding sheep	0%
All other live sheep	10% + 0.50 KM/kg
Meat (fresh, chilled, and frozen) tariffs	10% + 1.20–2.50 KM/kg, depending on origin and cuts
Finished meat products	10% + 3.00–3.50 KM/kg

Essentially, BiH producers have the market for sheep products to themselves—at least for now. Yet, at the same time, they are not doing anything to notably secure their market position and in fact seem to be intent on seriously damaging their position through neglect and mismanagement.

2.4 Exports

Mutton and lamb exports have been relatively small and declining: in 1998 BiH exported 140 MT/year of mutton and lamb. By 2000 this had fallen to 50 MT/year, where it has remained since. Similarly, the value of BiH mutton and lamb exports has declined over the same period—from \$730,000 to \$300,000 annually.

3.0 BASIS OF COMPETITION

Mutton and lamb are consumed by the Muslim and non-Muslim populations of BiH. Consumers buy their mutton in butcher shops and green markets more often than in hypermarkets or supermarkets. Mutton is a product that is bought and sold within villages, usually at the weekly green markets. Most commonly, sheep are raised and consumed by households.

As with other livestock, sheep are not bought and sold scientifically—unlike other animals, most transactions seem to be between villagers for consumption within villages. There are some sheep that are raised for sales through processor value chains, but this number is small compared with the total number of sheep that are consumed. Sales for commercial chains are sold on the basis of the seller's reputation and relationship to the buyer, and on price.

Sheep Subsector

3.1 Quality Characteristics

BiH consumers are highly price sensitive because of the country's continuing economic situation. As with other meats, those buyers that process sheep for forward sale are focusing on the fresh meat segment of the market so as not to compete head-to-head with opportunistic buyers who adulterate their products with other cut-price meats.

There is no accepted system for categorizing the quality of animals (e.g., *select, choice, prime*, etc.). In the former Yugoslavia, there were such systems that were developed and enforced by municipalities. This regulatory function no longer exists in BiH.

Key Finding

There is clearly an opportunity for industry participants to take the lead on this issue and introduce their own classification system. This action could strengthen consumer confidence of the quality of meat that they are buying and discourage opportunistic companies. It would be even better if one of the criteria of categorization of meat quality is compliance with HACCP plans. The most effective action would be for the BiH sheep industry to adopt EU production standards, perhaps introducing improved practices in stages over some years.

3.2 Packaging

Live sheep are mostly slaughtered in villages by the buyers for their own consumption, perhaps employing butchers to perform this service. This is a microenterprise-level business structure with little growth opportunity; it is, however, an outlet for employment. Sheep destined for forward markets are slaughtered at the slaughterhouse or on the butchers' premises. In supermarkets, meat cuts are typically wrapped in plastic wrap so that consumers are able to observe the meat's quality. BiH consumers are very discriminating in needing to see for themselves a product's quality, so transparent packaging is a must. This consumer preference gives a premium to those mutton producers who have the best rearing practices and can raise the leanest meat that will have the choicest cuts.

3.3 Services

As is the case with the beef and veal, dairy production, and swine subsectors, farmers in BiH tend to be of two types: those dedicated to farming as their principal source of income and those engaged in it as supplemental income. The *commercial* sheep market is dominated by the latter type of farmer, which makes it difficult for processors and butchers to manage both quality and volume. If they are in the quality meat segment, there are not many sheep farmers who rely on the high-quality mutton and lamb production for their primary source of income. The volume segment of the market is very fragmented across thousands of villages throughout BiH. As with other meats, buyers who are in the market segment for quality commercial mutton and lamb arrange their transactions in advance over the phone rather than traveling from village market to village market in search of good sheep. An ability to operate through such arrangements indicates the reputability of both parties to the transaction.

3.4 Marketing

Most sheep producers are small, having fewer than 10 animals. The small number of commercial sheep producers has established relationships with buyers and supplies them with sheep on a regular basis.

3.5 Market Movement

The market for sheep is fragmented; thus, there are opportunities for consolidation. Sheep, though easy to rear, are susceptible to frequent diseases. Sheep stocks could be decimated in the coming months as Q-fever takes hold. The outbreak already has signs of being severe, and it could be that whole herds are wiped out. Until this nemesis is brought under control, it will be difficult to manage demand and supply. Buyers would be best advised to store as much meat as possible in cold storage to maintain an inventory that could easily increase significantly in value in the coming months.

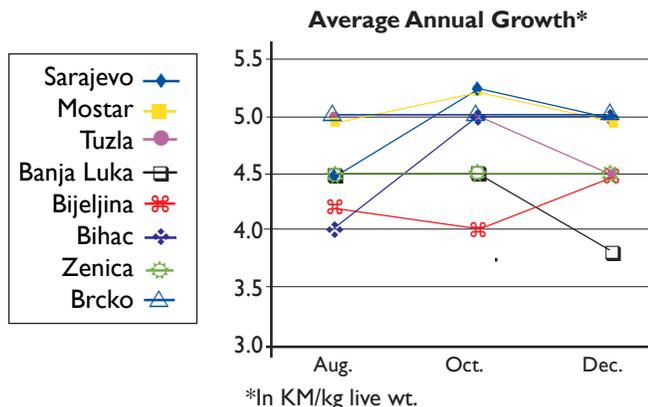
Major export market buyers such as supermarkets and large, quality importers of chilled food products have stayed away from dealing in spring lambs in the Balkans. In Greece, for example, they have just recently started to face shortfalls of Greek-produced spring lamb as production declines and demand for this product continues to increase. There has been a distinct lack of desire by other key entities, which could buy/distribute significant volumes of Balkans spring lamb, to test the market's suppliers, owing to the chaotic, confused, and unreliable manner in which the region's spring lamb suppliers have operated for many years. Major internationally linked supermarkets buy against strict traceability and EU-recognized slaughterhouse standards, which are lacking in BiH.

REPORTED PRICES

Price of Lamb (2003)*

Location	Aug.	Oct.	Dec.
Sarajevo	4.50	5.25	5.00
Mostar	4.90	5.20	4.90
Tuzla	5.00	5.00	4.50
Banja Luka	4.50	4.50	3.75
Bijeljina	4.25	4.00	4.50
Bihac	4.00	5.00	5.00
Zenica	4.50	4.50	4.50
Brcko	5.00	5.00	5.00

*In KM/kg live wt.



8

Snails Subsector



Supply Profile

1.0

OVERVIEW

Production statistics for live, fresh, frozen, and preserved snails in BiH are virtually unavailable. Before the war, the former Yugoslavia was a significant supplier of wild and farmed snails to the EU, which were usually sold live. This section will analyze two kinds of production in BiH: (1) collection and processing of wild snails and (2) snail farms.

SWOT ANALYSIS FOR SNAILS

Strengths

- Extremely good environmental conditions both for collecting wild snails and raising snails.
- Good microclimate conditions for achieving good snail meat quality and weight.
- Abundance of cheap working force for this labor-intensive operation.
- Existence of processing capacities.
- Small nucleus of snail farming exists.
- Export market nearby.
- Relatively small investment for high profit, both in primary production and in processing capacity.
- 100% export-oriented production.

Weaknesses

- Lack of information on snail farming and processing available to collectors and farmers.
- Resistance to new types and methods of production.
- Disorganized collection and distribution.
- Reduced export prices owing to a lack of certifying bodies for snail meat export documentation.
- BiH veterinary authorities cannot issue export certificates for the EU market.

Opportunities

- Increased interest in snail collection along the Drina River, especially within returnee population that seeks additional source of income.
- Increased interest for snail farming on joint-venture basis.
- EU market imports more than 70% of snails; BiH snails already have small market share in EU and are recognized for good quality meat.
- Snails collected from the Drina, Sava, and Danube rivers area are well known to EU consumers; snail meat is highly appreciated.
- Competitive prices due to the cheap labor and close proximity to the consumers' markets.

Threats

- Impossible to export frozen snail meat without the intermediate companies, which significantly reduces export prices.
- Insufficient knowledge at local veterinarian institutions about snail population.
- Danger of infectious diseases.
- Extremely high seasonal dependence (weather conditions).

Snails Subsector

2.0 DEMAND PROFILE

Snail growers and snail meat processors in BiH have a reasonably reliable market for their production because 100% of sales are sold to customers in the EU. Currently, the combined demand of these customers exceeds the production capacity. Owing to growing interest of buyers, snail growers/processors are able to pre-sell their entire production. Therefore, the snail subsector's sales are increasingly stable and are likely to remain so in the near future. By keeping costs low and prices competitive, these companies expect to continue to sell to their existing customers and attract new ones.

According to trade sources, the EU market for snails has increased by 3–4% per year (in terms of volume/consumption) over the last decade. Imports from non-EU countries have stabilized due to the increased offers of snails bred within the EU. Various domestic species of snails are protected by major EU consuming countries' national regulations, so the EU market for snails remains heavily dependent on imported products from non-EU countries. Therefore, new suppliers can still find their market "niche" by offering a high-quality product, regular supply, and efficient service.

Helix Exporte, located in Bratunac, is the only known processing plant for wild snails, and its in-country competition is limited by places where the snails can be found. Vitaminka, located in Banja Luka, is also involved in snail collection, but they operate mostly in the western part of the RS. Vitaminka is not interested in expanding its operation in the eastern part of the RS, where Helix is operating. Vitaminka is exporting its production to Greece, where buyers require less processing. Recently, Helix started its own snail farm, so it now has its own raw material base and it collects wild snails. The company Vin Puz Helix Pomatia, located in Modrica, has organized 35 snail farms and has signed a joint-venture agreement with the Italian Institute for Heliciculture.

2.1 Supply Profile

This section profiles local market supply conditions for wild snails and farmed snails.

Wild Snails

The area along the Drina, Sava, and Danube rivers is known for an abundance of wild snails, which thrive because of microclimate conditions. The season along the Drina River is earlier than along other rivers. These river basins are the biggest natural sources of snails in the former Yugoslavia. After the war, some of the prewar companies and/or their former employees returned to the business of organizing collection of wild snails and establishing small-capacity processing plants. Processing equipment usually consists of snail meat-extracting equipment, meat preparation (boiling) dishes, sorting, drying by centrifuge, freezing chambers, and packaging equipment. In BiH one of the few processing plants for snail meat is located in Bratunac, an area known for a white and gray snail unique to the Drina, Sava, and Danube rivers.

2.1 Supply Profile (continued)



Processing Wild Snails: Short Season, Long Hours

Wild snails are collected or picked by individuals, who bring them to collection centers (usually cooperatives) or directly to the processing plant. Given the seasonal nature of the business, the bulk of snail processing is done between April and August. Snails are processed by removing the snail meat from the shell, separating the guts from the meat, cooking, packing, and freezing. This activity is labor intensive, and is a business in which an experienced work force is important.

Quality control, by visual inspection along the processing lines, is critical: one bad snail can spoil the whole lot. Helix Exporte processes 300 MT of snails per year, which generates 60 MT of snail meat and 30 MT of shells, with sales of EUR 285,000 (KM 557,000). Usually 100 kg of wild snails generate 20 kg of snail meat and 10 kg of shells (wild snail meat weighs 3–7 g). After the snail meat is cooked, it is manually packed in 10-kg plastic bags and frozen. Snail meat is sold together with cleaned snail shells as a semi-finished product to Italy, France, Greece, and Germany. The processors in the EU then place the meat back into the shells with a special combination of spices. It is sold in supermarkets and served as an appetizer by the dozen (or even half a dozen) in restaurants.

The wild snail processor employs 20 full-time workers who slaughter and clean the snail meat. There are additionally 100–120 seasonal workers who collect not only snails but also berries and mushrooms, so they are gathering the appropriate product at the time of its availability. The cultivated snail market integrator buys from 35 farmers and has three employees who mostly pack the snails into boxes for live transport/export.

Table 1 shows the cost of production for semiprocessed wild snails.

Table 1. Wild Snail Costs and Revenues*

Product	Quantity (kg)	Purchase Price (KM)/Unit (kg)	Total Purchase Price (KM)
Snails with shell	1,000	1.20	1,200.00
Salt	10	0.26	2.60
Soda	5	0.25	1.25
Total material costs			1,203.85
Direct labor			200.00
Total costs			1,403.85
Snail meat	200	6.84	1,369.00
Snail shells	100	4.89	489.00
Total			1,858.00
Gross profit			454.15
Gross profit (%)			24

*Based on 1,000 kg of live snails. Source: Helix Exporte.

Helix Exporte processes an average of 300 MT of snails collected locally from cooperatives and subcontractors. The company pays a farm purchase price of between KM 1/kg (EUR 0.51) and KM 1.3/kg (EUR 0.66) for live snails. For the collectors, there is a high percentage of gross profit, as the snails can be found in large quantities in the spring when it is rainy and the collector's only costs are fuel, transportation, and labor.

Snails Subsector

2.1 Supply Profile (continued)

Helix processes the wild snails by extracting the snail from the shell, removing the entrails, and boiling the meat two times in order to get the average slaughter weight of 3–7 g. From 1,000 kg of live snails, Helix gets 200 kg of snail meat (5 kg of live snails yields 1 kg of meat) and 100 kg of snail shells, which are also sold together with snails after they are washed with soda and dried. Price of frozen snail meat is EUR 3.5/kg and for empty shells EUR 2.5/kg, FOB-BiH. After the snails are delivered to Italy or France, specialized snail processors return snails to the shell and seal it with a special combination of spices. This meat may be further processed and canned or packed in glass jars. This appetizer is expensive; the price is determined by piece and sold by the kilogram. Helix exports to its customers in the EU through an intermediate company because it does not have the veterinarian certification needed to export directly to the EU.

Snail Farms

Large-scale snail farming requires a considerable investment in time, equipment, and resources. Prospective snail farmers should carefully consider these factors, especially if their goal is to supply large quantities to commercial businesses.⁹ *Helix pomatia* measures about 45 mm across the shell and is larger than wild snails. It is also called the “apple snail” or “Burgundy snail.” Successful snail production requires the correct equipment and supplies, including snail pens or enclosures; devices for measuring the humidity (hygrometer), temperature (thermometer), soil moisture, and light; a weight scale; and an instrument to measure the snail size. Snail farms in BiH are outdoors, and the size of the farm for commercially viable business has to be at least 2,000 m². The farms should be at mid-climate, with high humidity (although snails need damp, not wet environments). Snail farms are usually long and thin (rectangular) instead of square. Feeding season for these snails is April–October, with a “rest period” during the summer. Farm snails have a higher weight gain than wild snails, eat specially designed snail food, and have higher quality meat.

Farming snails, although not a new subsector in BiH, almost stopped after the war. There are now several cooperatives that deal exclusively with unregistered snail collection, selling to Serbia–Montenegro for cash with no records of export. Snail farming is a growing industry in the last two years, mainly through the efforts of two to three companies that concluded joint-venture contracts with Italian breeders. Farmed snails are usually exported live in specialized refrigerator trucks to Italy.

2.2 Statistics

According to trade sources, out of 45,500 MT of snails (live, fresh, frozen, prepared, or preserved) consumed in the EU in 2002, only 30% were produced there. Graph 1 shows the quantity and value of import and export of snails within the EU in 2002.

⁹The supplemental period at the end of this report presents a snail farm investment analysis based on actual experience.

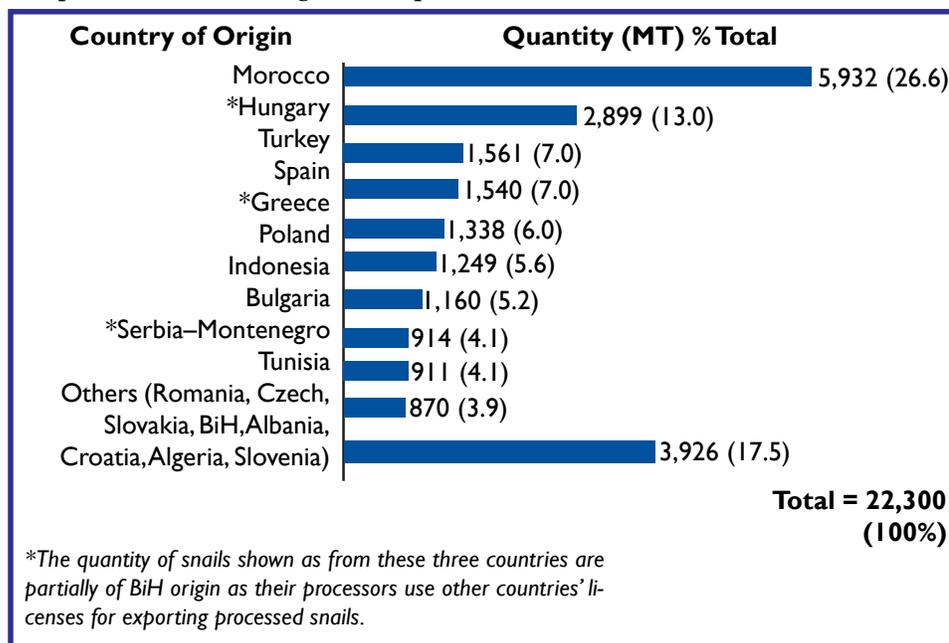
2.2 Statistics (continued)

Graph 1. Imports and Exports of Snails within the EU, 2002



Graph 2 shows the origin of imports into the EU.

Graph 2. Origin of Imports into the EU, 2002



According to data gathered from the U.S. Department of Agriculture's website, the United States imports an average of 180 MT of fresh or frozen snails and 680 MT of processed snails, mainly through UK or Netherlands overseas trading companies for live snails and from France and Greece for processed snails.

With an estimated consumption of 18,000 MT of snail meat a year, France is the world's largest consumer. Canned snail flesh and frozen prepared snails, which are readily available throughout the year in French supermarkets, make up approximately 90% of the retail market. French consumers prefer to eat snails in the shell. There is an important market for empty shells to be filled with snail flesh, either canned or frozen. The share of frozen prepared products (ready for cooking) is rapidly increasing. The *Helix pomatia* variety (the species bred in BiH snail farms) is by far the most popular—especially because of their size and meat quality.

Italy is the second largest consumer of snails in the EU. It has a very developed snail-farming sector that uses the world's most advanced techniques of biological breeding of snails. There are approximately 6,000 snail

Snails Subsector

2.2 Statistics (continued)

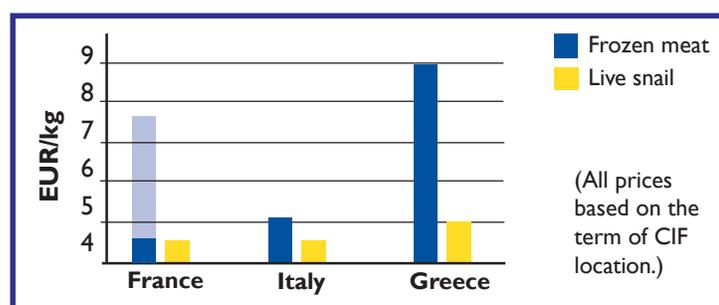
farms in Italy whose annual production amounted approximately to 2,000 MT of snails. Three large snail farms, located in central Italy, account for nearly one half of the national production. In the last decade the consumption of snails in Italy has tripled to approximately 9,300 MT of snail meat a year. Despite the rapid expansion of the Italian snail farming sector, the market continues to rely heavily on imports (nearly 70% of domestic consumption) and the demand for this product is expected to grow. Given high labor costs of domestic production, there are good prospects for joint ventures with various Italian snail importers and breeders.

The third largest consumer of snail meat in the EU is Greece, whose domestic consumer demand has evolved considerably in recent years. The food processing industry accounts for the largest share of imported snails and deals directly with the foreign suppliers. Four major snail processors dominate this sector. Specialized importers distribute the product directly to retailers and to the catering sector. Greek snail processors depend heavily on foreign suppliers to offer good quality snails at competitive prices. Prospects are also favorable for those exporters offering snails and snail products for immediate consumption.

2.3 Prices

Prices (reported here in EUR/kg) for collecting wild snails that BiH processors and distributors pay for live wild snail ranges from 0.51 to 0.66; export prices in BiH for processed wild snails range from 3 to 3.5. Prices for cleaned shells are 2.5. Export prices for live farmed snails range from 3 to 3.5. Graph 3 shows how much French, Italian, and Greek companies currently pay for imported snail meat and live snails.

Graph 3. Import Price Comparison



BiH snail meat processing companies cannot get a permit for direct export to the EU, so must use intermediate companies from Serbia–

Montenegro and Hungary to reach EU markets. Consequently, they sell their products very cheaply. This situation was, and still is, a long-term policy issue for all snail producers in BiH. Until this issue is resolved, BiH processing companies will need to continue to export through intermediaries, which effectively pushes down margins an average of EUR 1.5/kg less than if they did not use third-party companies that provide proper papers.

As for the snail growers in BiH, their selling prices are close to the purchase prices in importing countries because they usually have some joint-venture deals with qualified companies.

3.0 BASIS OF COMPETITION

The LAMP Team interviewed two snail farmer/collector/processors to gather basis-of-competition information. Their collective responses, reported below, have a surprisingly high correlation. Wild snails are mostly found along the basins of the Drina and Sava rivers, which is a well-known microclimate for wild snails. Snail farms are distributed throughout northern BiH, but are concentrated in the Modrica and northeastern BiH regions. Because the BiH industry is so small (actually, the European market is not that big either), the processors know their competitors by name and their prices, as well as the final price of their own products.

The BiH processors are aware of the use of the final product, as well as who the final buyers and users are and where they are located. The product tends to originate with the farmers (for cultivated snails) and collectors (for wild snails) and goes through organized cooperatives or private traders to the processors. They purchase all that they can acquire and have no problems selling the final product. The only bottleneck is that there is insufficient working capital to purchase snails, as they tend to come to the market at the same time (highly seasonal). In fact, this factor can determine how much they can buy, as they may find themselves restricted by available capital.

Helix Exporte, from Bratunac, and Vin Puz Helix Pomatia, which focuses on cultivated snails from Modrica RS, sell approximately 80 MT (EUR 280,000) of live snails grown on snail farms, 60 MT (EUR 210,000) of semi-processed snail meat, and 30 MT (EUR 75,000) of snail shells.

3.1 Quality Characteristics

The wild snails are removed from the shells, their entrails removed, and the meat is boiled twice with salt. The snails are then packed in 10–15-kg bags, sealed, and deep frozen. Shells are cleaned with sodium bicarbonate in a centrifugal machine in a separate processing line. The only true quality characteristic is the quality of the slaughtering process, but this does not seem to be an issue.

Vin Puz Helix Pomatia focuses on cultivated snails. It does not do any processing in BiH, but exports the entire snail live in a refrigerated truck.

3.2 Packaging

The final buyer looks at products from a packaging standpoint, but this part of the processing function is completed in the destination country. For instance, the foreign buyers will purchase both snail meat and shells, often adding spices to the snail meat, and then will clean the shell before putting the meat back in the shell for the final consumer.

3.3 Services

There are one to two transactions between the farm gate and the processor, with a reported 5% increase in value added at each stage. There are two to three transactions between the processor and the final consumer in Italy or France. The estimated amount that is value added is 120%. Both processors sell their products FOB-factory, with the transport, insurance, and other similar costs borne by the buyer. These costs range from 4% to 15%, depending on location of buyer, freight forwarder used, and so forth.

Snails Subsector

3.3 Services (continued)

The only other services used in the preparation and export of the products are electrical power, wooden boxes, and locally produced jute bags.

3.4 Marketing

The two most important characteristics that buyers look for in a product are price and quality. The processors stay in close communication with the needs of the final consumer and try to match these needs accordingly. They conduct strict grading (by BiH standards), sorting, cleaning, and processing in order to provide the final buyer with the ordered product.

The minimum order is 2.5 MT, although snail meat is most commonly traded in 15-MT lots (i.e., a truckload). This reduces transportation costs on a per-ton basis. All products are sold by contract with all price and quality characteristics outlined in the contract in advance.

The buyers are almost always repeat buyers, although order size varies from time to time and between buyers. The only effort done to improve marketing and sales is to provide better education to the farmers on what is expected of them.

SUPPLEMENTAL PERIOD: Snail Farm Investment Analysis

The following analysis is based on experience of Vin Puz Helix Pomatia (from Modrica RS), which concluded a sales contract with the Institute for Heliciculture from Italy for production and purchase of the snail variety, *Helix pomatia Linneo*, also known as “vineyard snails.” In a very short time, the company attracted 35 small producers to invest in snail farming to increase their total raw material exports. The surface of these farms is 7.2 ha. Farmers seeking to raise snails should expect to experiment until they determine what practices work best for their specific situations.

On the basis of information gathered through the company, the investment costs for a 2,000-m² snail farm are shown in the table below.

Investment Costs/Revenue for the Two Production Cycles

Investment Costs	Units	KM/Unit	Total (KM)
Land preparation			516
Planting of feeding material			499
Fertilizers			767
Fence construction			3,929
Parent flock	14,000	0.19	2,660
First-year total investment costs			8,371
*Minimum revenue (15 months)	130,200 X 17 g = 2,213.40 kg	6.80	15,051.10
Gross profit after 1 cycle (15 months)			6,680.10
†Sales revenue, second cycle	156,288 X 17 g = 2,657 kg	6.80	18,068
Second-year costs			579
Gross profit in the second cycle			17,489

*Calculation of minimum sales revenue is based on parent flock consisting of 14,000, reduced by 7%, which is the average mortality rate in the first cycle. Each unit gives a minimum of 10 new snails, which totals 130,200 units in the first cycle.

†Calculation of sales revenues in the second cycle is based on a minimum of 14,000 units, reduced by 7%. But in this cycle, each unit gives a minimum of 12 new snails, which totals 156,288 in the second cycle.

9

Swine Subsector



1.0 OVERVIEW

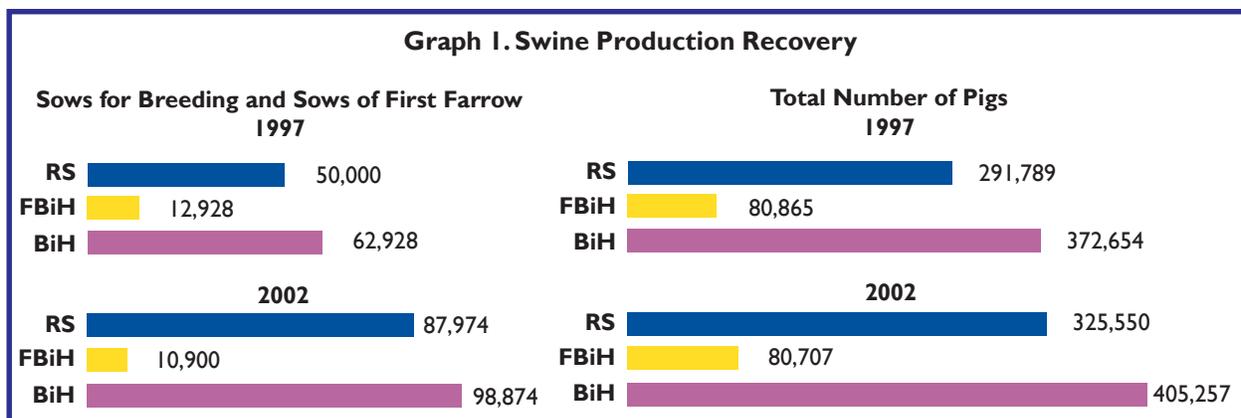
Supply Profile

NB: This report relies on the “best” information and statistical estimates available on the swine sector in BiH to the LAMP Team as of June 2004. There is inconsistency between the “official” reports published by the entities and their agencies. The tables and estimates are included as received without attempts to reconcile them.

The BiH swine count in 1991 consisted of 616,000 total animals, of which 116,000 were sows, including pregnant sows. In comparison with 2001, the following conclusions can be drawn: the number of pigs was reduced to 53% of the prewar number (330,000) and the number of sows and pregnant sows was likewise reduced to 53% of the prewar number (62,700).

Four large state farms accounted for 20% of prewar pig production, with production levels said to be comparable to those obtained in western Europe. This is possible, but note that there was very little or no regard given to the cost of production under the central command economy. Among the small-scale farmers, some 50,000 households owned pigs before the war, typically with two sows producing 10–15 weaners/sow/year.

Under a survey conducted by the RS Ministry of Agriculture, Forestry and Water Management in 1998 (no comparable survey was found for the FBiH), statistics show major losses of livestock when compared with the 1991 prewar situation by major types of the livestock: beef 43% (–154,671), horses 31% (–12,130), sheep 54% (–167,652), pigs 36% (–167,652), and cattle 22% (–579,697). The losses during the war were actually greater, since the data were gathered after some recovery had taken place. Comparing pre- and postwar sales of animal products (milk, meat, wool, and hides) is complicated by the loss of capacity during the war; actual existing capacities of these facilities are not now known. The private sector is filling the vacuum at a slow though uneven pace, which currently is not competitive with less expensive, imported goods. Graph 1 shows swine recovery for 1997 and 2002.



Swine Subsector

Supply Profile (continued)

Most of this swine production occurred on small-scale private farms where productivity was low—typically with two to three sows producing 10–15 weaners/sow/year. The few state farms were primarily involved in swine production.

SWOT ANALYSIS FOR SWINE

Strengths

- Pork is a staple of BiH's Catholic and Orthodox populations.
- Pork is a high-priced product in the RS, generating significant cash flows.
- A small nucleus of private slaughterhouses/meat processors exists with modern equipment and improved practices, which industry could expand rapidly if they have access to sufficient raw material.
- Tradition in the production of regional meat specialties.

Weaknesses

- Inadequate facilities for swine production.
- Lack of sufficient operating funds for swine producers and poor access to farm credits.
- Resistance to new pig breeds and methods of growing.
- Lack of proper training, high-quality swine semen, veterinarian support, and methods for artificial insemination.
- Owing to poor nutrition, the domestic swine population is insufficient to supply local slaughtering facilities.
- Low-reproductive efficiency slows increase in swine numbers.
- Traditional animal diseases.
- Absence of system of identification and professional animal monitoring (just starting in 2004).
- Lack of quality assurance systems, HACCP, ISO 9002.

Opportunities

- Changing swine breeds can increase production results per head when accompanied by improved feeding and animal husbandry practices.
- Only about 38% (on average) of local market demand for meat products is satisfied by domestic production, of which swine is one market segment.
- Increasing swine numbers in traditional swine-producing areas.
- Establishment of large farms in the regions where corn is produced, which could improve feed.
- More domestic further-processing of pork.

Threats

- Continued illegal meat imports of products supported by other countries' export subsidies.
- Impossibility of exporting swine products unless supporting infrastructure develops.
- Long supply chain for meat and meat products; local meat production depends, in turn, on the development of all segments of the supply chain.
- Danger of importing infectious diseases because of inadequate border controls.
- An inefficient veterinary system and veterinary inspection.

Supply Profile (continued)

Before the war, there were more than 200 slaughterhouses, of which about 60% were privately owned. Larger meat processing companies, usually with slaughterhouse capacity, were mostly owned by the state. Some slaughterhouses suffered extensive damage during the war and were closed, while other slaughterhouses continued to operate.

Some 20 new slaughterhouses and/or meat processing enterprises were established during or after the war. Today, there are about 30 medium or large slaughterhouses, plus a large number of smaller enterprises. Some of these slaughterhouses operate according to high-quality standards but not at full capacity—presumably because some of the smaller slaughterhouses are not as tightly supervised, which enables them to sell at lower costs and often lower quality.

There are now about 20 meat processing companies in BiH. Their major products are sausages, salami, ham, and smoked meat; however, the product range is not wide. The company Lijanovici dominates the domestic market (according to their own estimates, they serve 60% of the market) and also exports high-quality ham to other southeast European countries. Export to the EU is not possible, as there is no state authority for meat certification and none of the slaughterhouses holds EU certification.

There is ongoing tension between producers and the processors. Producers assert that domestic production is sufficient to meet the processing industry's needs, but processors buy cheaper, imported frozen meat. The LAMP Team's observation is that, at least for pork and pork by-products, slaughterhouses and processors are buying as many animals locally as they can and still cannot meet demand.

There is also a dispute between the Ministry of Foreign Trade and Economic Relations and the meat industry over import tariffs for live animals for processing and for raw meat. Processors believe that high tariffs on meat imports, coupled with FTAs with neighboring countries (e.g., Croatia), put them at a disadvantage and lead to imported processed meats being cheaper than those produced domestically.

2.0 DEMAND PROFILE

A recent study¹⁰ of the pig-fattening sector in BiH estimated that 90% of all fresh meat was sold through local butcheries and that 80% of small stores sold further-processed and vacuum-packed meat products. At the same time, it was estimated that 50% of all frozen meat products went through retail stores and only 10% through butcheries. This is an expensive distribution system for fresh meat, and until a much higher percentage is retailed through large hypermarkets with their own in-house butcheries, distribution costs will add significantly to the retail price of domestically produced fresh meat.

¹⁰FAO statistical database (FAOSTAT at www.faostat.org).

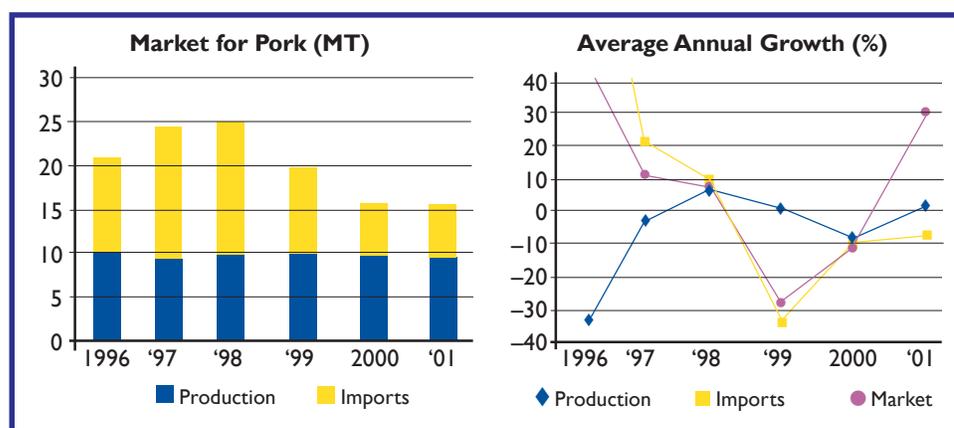
Swine Subsector

2.0

DEMAND PROFILE (continued)

Despite the dramatic decline in per-capita income in BiH since 1991, the demand for pork products has remained relatively constant (see Graph 2). With only half of that demand being met with domestic production currently, there seems to be an opportunity for efficient swine producers to prosper in the near term. This assumes that they adapt new breeding, feeding, and health management technologies and that the supporting infrastructure develops soon enough to allow producers to capture this opportunity.

Graph 2. BiH Market for Pork Products and Average Annual Growth



2.1 Summary of Trends

Intensive production can be organized in the lower plains areas of BiH (i.e., where corn is produced). In recent years this type of production has developed thanks to cheap concentrates, but it needs better protection from subsidized foreign competitors or illegal imports. Simply because of its physical limitations, BiH is unlikely to become a significant producer of corn, wheat, or soybeans. Therefore, the swine industry (and the cattle- and poultry-fattening industries) will have to rely on imported concentrates to become a significant factor in domestic meat production.

Slaughterhouses and butchers compete with high-quality pork products entering the country from northern and eastern Europe and with low- (often very-low) quality products that are imported at rock-bottom prices or smuggled into the country. Such low-quality products are destined for the poorest consumer segment. Pork products are not destined for this segment of the population, although processors complain that their products must still compete, which drags down prices. This claim seems dubious.

The LAMP Team interviewed slaughterhouses, processors, and producers. All stated that their most serious problem is the price volatility of meat that disrupts cash flow and makes it very difficult to forecast or set prices. Smuggling, unpredictable enforcement of laws, and fluctuating policy all contribute to this volatility. Particularly affected is the market for processed meat, since honest sausage processors, for instance, must compete with processors who adulterate their pork with other, lower quality meats. The trend is for reputable companies to concentrate on the market for fresh pork products, where they will not be penalized by opportunistic behavior.

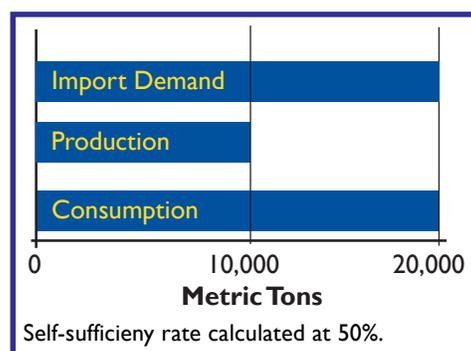
2.1 Summary of Trends
(continued)

Meat slaughterhouses and processors use a number of strategies to source their animals from village markets. Some of these buyers originate their animals opportunistically by sending their agents to the village on market days; for instance, Mondays and Tuesdays are market days in north-eastern RS. The buyers' agents travel to village markets on designated days to buy animals. Certain localities have a reputation as being good sources for pork, such as Bijeljina and Brcko District. Trucks can generally transport up to 60 pigs at a time, and the objective is to return with a full load.

2.2 Statistics

Graph 3.
Consumption and Production of Pork in BiH, 1998–1999

Graph 3 illustrates that domestic production met only 50% of domestic demand for pork in 1998–1999. While these figures may not be totally accurate and are now dated, current industry wisdom would indicate that a significant gap still exists. This situation is exacerbated by the FTA with neighboring countries and the processors' desire to use cheaper imported frozen pork.

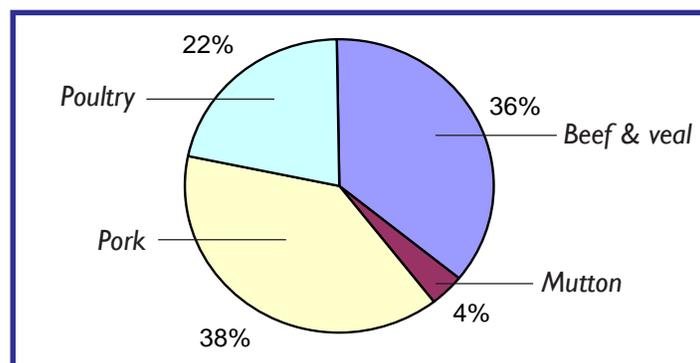


rate and are now dated, current industry wisdom would indicate that a significant gap still exists. This situation is exacerbated by the FTA with neighboring countries and the processors' desire to use cheaper imported frozen pork.

In the former Yugoslavia, the consumption of meat was extremely high at 100 kg/person. In 1990, the meat consumption in BiH stood at 70 kg/person. After the war, the demand for meat dropped to 30–40 kg/person due to decreased purchasing power (USAID 2000). The Federal Republic of Germany Central Market and Price Recording Agency (2002) estimates total meat consumption at 65,000-MT slaughter weight in 1998. According to other information, the total meat consumption (including poultry) could amount to more than 90,000-MT slaughter weight. The structure of meat consumption has changed, resulting in less demand for expensive beef and lamb, while the consumption of relatively cheap poultry has increased by 50%. The BSE Disease and Foot-and-Mouth Disease crises in 2000/2001 further accentuated this trend.

As Graph 4 shows, in 2001 BiH pork was consumed more than any other meat, followed closely by beef and veal, then poultry. Mutton was consumed the least.

Graph 4. Meat Consumption (MT) in BiH, 2001



Swine Subsector

2.3 Imports

Table 1 shows BiH import tariffs on pigs, except for FTA partners.

Table 1. Import Tariffs for Live Animals

Commodity	Tariff
Breeding sows	0%
All other live pigs	10% + 0.50 KM/kg
Meat (fresh, chilled, and frozen)	10% + 1.20–2.50 KM, depending on origin and cuts
Finished meat products	10% + 3.00–3.50 KM

As indicated in Table 2, BiH imports of various categories of pork product have trended slightly downward since 1998, although the country still imports significant quantities. There is significant potential for BiH farmers to compete with imported pork products.

Table 2. Imports of Pork Products

Product	Year				
	1998	1999	2000	2001	2002
Pig meat	4,050	2,830	3,400	3,000	2,836
Pork	0	0	0	2,000	1,957
Bacon, ham	670	570	500	1,200	795
Sausage	12,000	7,400	5,200	9,000	7,100
Total	16,720	10,800	9,100	15,200	12,690

Source: FAOSTAT database.

2.4 Exports

Despite shortfalls of domestic swine for consumption, according to FAO data BiH has been exporting small amounts of pork meat. For example, exports of pork from BiH have declined from 585 MT in 1998 to 190 MT in 2002. There is no evidence that exports have increased from this 2002 figure. Producers in the RS currently see increasing opportunities to export to Serbia–Montenegro now that Hungary and other Central European countries have joined the EU. BiH producers anticipate that prices of Hungarian pork will now increase, as was the case of Slovenia before.

3.0 BASIS OF COMPETITION

Pork is consumed by the non-Muslim populations of BiH, mainly in the RS. Consumers buy their pork in hypermarkets, supermarkets, and from butchers; meat in general is no longer sold in local green markets.

Selecting the animals to buy is not done scientifically—the animals are not all weighed nor are they measured with any precision. The pigs are checked for good health, often hand inspected, and observed to estimate fat ratios. Sales for the highest end of the market are made as much on reputation and relationship as on price; for the lower end of the market, sales are price driven.

3.1 Quality Characteristics

BiH consumers are highly price sensitive because of the country's continuing economic situation. As discussed in Section 2.1, many buyers are focusing on the fresh meat segment of the market so as not to compete head-to-head with opportunistic buyers who adulterate their pork with other cut-price meats.

As in most parts of Europe, BiH consumers now prefer leaner meat with most of the fat trimmed off before purchase. However, this is a recent trend and represents a shift in preference away from meat with more fat. Thus, there is still a segment of the population—older buyers—that continues to prefer meat with higher fat quantities. Consequently, meat vendors need to buy animals and stock a certain amount of meat with higher fat content.

There is no accepted system for categorizing the quality of animals (e.g., *select*, *choice*, *prime*, etc.). In the former Yugoslavia, there were such systems that were developed and enforced by municipalities. This regulatory function no longer exists in BiH.

Key Finding

There is clearly an opportunity for industry participants to take the lead on this issue and introduce their own classification system. This action could strengthen consumer confidence in the quality of meat that they are buying while discouraging opportunistic companies. It would be even better if one of the criteria of such categorization is compliance with HACCP plans. The most effective action would be for the BiH pork industry to adopt EU production standards, perhaps introducing improved practices stepwise over some years.

3.2 Packaging

Live pigs are slaughtered at the slaughterhouse or on the butchers' premises. In hypermarkets, meat cuts are typically wrapped in plastic wrap so that consumers are able to observe the meat's quality. In butcher shops, customers can see meat cut before their eyes. BiH consumers are very discriminating in their need to see for themselves a product's quality, so transparent packaging is a must. This consumer preference gives a premium to those pork producers who have the best rearing practices and can raise the leanest meat that will have the choicest cuts.

3.3 Services

Farmers in BiH are of two types: those dedicated to farming as their principal source of income and those engaged in it as supplemental income. The buyers who were interviewed complained that too many of the farmers are of the latter type and therefore are not serious about their pigs' quality. Typically, buyers will come to the market or the farm. The most efficient buyers arrange their transactions in advance over the phone rather than traveling from village market to village market in search of good pigs. An ability to operate through such arrangements indicates the reputability of both parties to the transaction. In the case of pigs, since pigs are highly susceptible to disease, most buyers come directly to the farm to purchase animals.

Swine Subsector

3.4 Marketing

The most sophisticated pork producers are taking advantage of special occasions as an opportunity for marketing. For instance, Srpska Slava is an ancestral holiday during which families' will arrange to buy a whole pig for roasting on a spit. These producers are making their facilities available for such occasions and promoting their farms. There are some large producers who have established contractual relationships with buyers wherein the sellers will supply a certain number of animals every day. Such relationships are not common, but they seem to be increasing.

10 Wine

Subsector



1.0 OVERVIEW

Supply Profile

Grape growing and wine production in BiH is centered in the Mostar region, especially the municipalities of Citluk, Capljina, Stolac, and Mostar. These areas enjoy a warm Mediterranean climate with well-drained karst soils. The industry is dominated by many very small vineyards, ranging in size from 0.3 to 0.4 ha; very few vineyards exceed 10 ha in a single block. White varieties account for roughly 70% of production, red varieties for about 30%. The two dominant varieties are Zilavka and Blatina: white and red, respectively.

SWOT ANALYSIS FOR WINE

Strengths

- About 70% of commercially produced wine is consumed domestically.
- BiH wines have strong identification in all republics of the former Yugoslavia as a traditional, regional product.
- Climatic and edaphic conditions are well suited for wine production.
- Adequate supplies and scientific services are available for most inputs and areas of expertise.
- Producers are paid on time and prices are favorable, allowing adequate returns on investments.
- Proper vineyard management is labor intensive, so any increases in land area under cultivation will create new jobs.
- A significant amount of production could be certified as organic, which is a rapidly growing segment for the industry internationally.
- The Agricultural Institute in Mostar is in the process of reacquiring export certification status from the EU, but it is uncertain how long this will take.

Weaknesses

- Inexpensive table wine outsells top-quality wine, so a “flight to quality” by wineries will not stimulate consumption or profitability.
- Compared with full-bodied, tannin-rich wines with worldwide demand, local wines are “thin” and thus will have limited appeal outside the region.
- Bottle labeling and packaging have not kept pace with enhancements that have appeared in the European market.
- At many wineries there is a buildup of top-quality wine with no obvious strategy for marketing this surplus.
- Lack of harmonization in labeling and tax laws between the FBiH and the RS virtually prohibits wine movement between the entities.
- The area under cultivation is quite small.
- Many vineyards are very old and need replanting or re-grafting.
- Quantities of high-quality certified rootstock and scion material are inadequate for meeting planting and replanting needs.
- Vineyard installation costs are high, and income is delayed at least three years while vines mature.
- Lack of marketing cooperation between wineries.
- A general lack of marketing skills among wineries.

Continued on next page

Wine Subsector
Supply Profile
(continued)

Opportunities

- About 70% of wine sold at retail establishments in BiH is imported.
- Top-quality wine meets EU standards and is exportable.
- BiH wine production is centered in the same part of the nation with the highest level of tourism, thus offering genuine possibilities for direct sales or agro-tourism.
- BiH wines can find a market niche as a specialty/ethnic food (particularly among émigrés in the United States and Sweden).

Threats

- The global wine market is awash in surplus products.
- A high percentage of domestic production is low-quality product, which is the market segment that is most negatively impacted by free trade.
- The area under vineyard cultivation will not be allowed to expand after BiH accedes to the EU (a long-term threat, as BiH's accession to the EU is years away).
- The BiH banking industry has not created loan products to match the long-term investment needs of farmers wanting to plant large areas of vineyards (or orchards).
- The BiH banking industry does not offer short-term revolving lines of credit for seasonal cultural practices in perennial crops.
- Per-capita consumption of wine is low and is dominated by low-quality and low-price products that can easily be imported.
- The opening of borders to free trade was not first offset by measures to strengthen the wine sector (or any other) of the agricultural economy, so smaller producers may be driven out of business by a flood of cheap imports.
- The Croatian import regime, the largest destination for BiH wine exports, is slow, cumbersome, and costly, and will be alleviated only through bilateral negotiations.
- As is the case with all other agricultural imports, there are no quality or phytosanitary safety checks for imported wine.

At the end of the nineteenth century the region had approximately 10,000 ha of vineyards. Statistics on the current land area under cultivation are unreliable, but best estimates place it at 2,200–3,000 ha—a significant decrease from the prewar area of about 5,000 ha. Approximately 2,500 ha of new plantings are needed to regain prewar production levels.

As a consequence of the war, not only were many vineyards abandoned, but trellis systems were damaged and irrigation systems destroyed. Many vineyards were old prior to the conflict, and productivity today would benefit substantially from regrafting, replanting, and/or retrellising, with the loss of one year of production from the attendant re pruning and retraining of vines. Although costs of production and product prices warrant the investment on a purely economic basis, the extreme level of uncertainty related to government agricultural and foreign trade policies creates a serious, burdensome risk premium on any investment decision.

2.0 DEMAND
PROFILE
2.1 Summary of
Trends

The BiH wine industry is small and concentrated in a relatively small region. However, within this region the wine industry is a significant part of the agricultural economy, and the wine products are well known and well accepted throughout the nation and in the neighboring countries of the former Yugoslavia, thus making a disproportionately large contribution to regional identity.

2.1 Summary of Trends (continued)

Unfortunately, the BiH wine industry is stagnant, sharing common problems with many other BiH agricultural sectors. There is no inventory of the vineyard area under cultivation, nor the age, health status, or varieties being cultivated. Perhaps more critical to the development of strategies for moving forward, little market information has been developed. Consumer preferences have not been investigated or taste-tested, and the demographics of regular consumers are unknown.

The wineries are weakly organized, but can choose between joining two associations or none. One association is for wine producers only, and has attracted the premier wineries, most of which are family enterprises. The other association has members whose wineries are large privatized units of the former state-owned enterprise, Hepok—which had a prewar monopoly on wine production—but this association also has members with distilleries producing gin, vodka, whiskey, and other spirits.

The best opportunity for expansion of the industry is to sell more wine in the domestic market. This challenge is complicated by the fact that top-quality wine is not selling well, and inventories of it are accumulating at the wineries. Although red wine usually improves with age—and white wine does not—this trend is detracting from cash flows and profitability. The wineries have been hoping that export sales to Croatia rebound, especially to tourists on the nearby Dalmatian Coast, but this has not materialized due to resurgence in Croatia’s own wine industry.

The solution in BiH may be for wineries to reduce production of top-quality wines and increase production of good-quality wines. This highlights the need for the industry to identify the attributes of brisk selling, middle-market wine. Of particular and immediate concern is what to do about excess inventories of the top-quality wines. Strategies that could be considered include discount sales, blending top-quality with lower quality wines, or selling it under a different label in alternate markets so as not to “cannibalize” sales under known labels.

2.2 Domestic Production

Total domestic production is estimated at 9–11 million L. However, this includes a very large volume of wine produced informally by small farmers and sold to extended family members and village residents. In fact, it is highly likely that the volume of wine produced informally may exceed production in the formal, business sector. The average yield is estimated at 8 MT/ha.

According to U.S. wine industry statistics, BiH ranks 52nd–55th among nations of the world (depending on the year) in wine production, with about 0.02–0.04% of total world production. It is assumed that these data are based on figures from the formal wine sector.



Vineyards: A Significant Investment from the Ground up

The cost to establish new vineyards is estimated at 30,000–35,000 KM/ha. This includes 4,000–5,000 vines at KM 2.00–2.50 each, plus about KM 15,000 for land preparation and installation of trellising, end posts, drip irrigation, and mainlines for water.

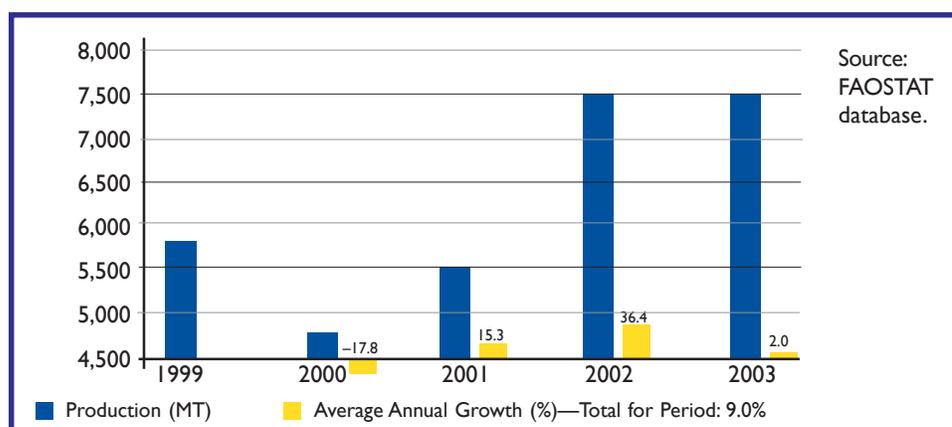
Wine Subsector

2.2 Domestic Production (continued)

The production of wine grapes is not as labor-intensive as greenhouse vegetable production, with a year-round average of 2 jobs created for each hectare versus 20 for the latter, but grapes can be grown in very rocky areas where no other high-value crops can be grown.

FAO estimates of BiH commercial wine production and growth calculations are given in Graph 1, below. Despite the constraints facing the sector, growth has been brisk though volatile.

Graph 1. BiH Wine Production, 1999–2003



2.3 Imports

About 70% of wine purchased at retail establishments, such as stores and restaurants, is imported. Wine imports to the FBiH originate mostly from Croatia and Slovenia, whereas the RS imports 85–90% of its wine sold at retail establishments from Serbia–Montenegro. In 2002 wine imports to BiH totaled about 8.7 million L, an increase of nearly 21% from the 7.2 million L imported in 2001.

Wine imports have grown in volume and in value since 1998, according to FAO data, although annual variations are considerable (Table 1). As stated above, there is clearly an opportunity for BiH producers to compete against these imports.

Table 1. BiH Wine Imports, 1998–2002

Wine	Year					Growth
	1998	1999	2000	2001	2002	
Imports: Quantity (MT)	600	1,770	1,400	7,200	3,152	
Average Annual Growth (%)		195.0	-20.9	414.3	-56.2	133.0
Imports: Value (thousands of \$)	1,400	3,425	2,300	9,400	5,991	
Average Annual Growth (%)		144.6	-32.8	308.7	-36.3	96.1

Source: FAOSTAT database.

2.4 Exports

The U.S. Department of Agriculture/Foreign Agricultural Service office at the U.S. Embassy in Sarajevo estimates that Croatia receives 90% of BiH wine exports. This amounted to KM 13–16 million in 2002. BiH exports to Croatia are 100% bottled and sell for 6–9 KM/750-mL bottle at wholesale.

The export value of BiH wine is unranked, but is estimated to represent only 0.015–0.018% of total world exports by volume.

2.4 Exports (continued)

Serbia–Montenegro, Slovenia, and Austria receive about 9% of BiH wine exports, amounting to KM 1.3–1.5 million in 2002. The remaining 1% is distributed between Germany, Sweden, Canada, and the United States and constitutes a very small, but indeterminate value.

Wine from the FBiH is not sold in the RS because labeling and tax laws are not harmonized, and the resulting cost and double taxation make the products uncompetitive with imports.

BiH wine cannot be exported to the EU, at least at the moment. In October 2003, the only BiH agency authorized by the EU to certify the safety and quality of wine exports, the Agricultural Institute in Mostar, was removed from the official list. Recently, the state Ministry of Foreign Trade and Economic Relations approached the EU and appointed the Agricultural Institute in Mostar as the authority in charge of issuing the quality certificates. Therefore, hopes are that the institute will regain its EU authorization in the near future.

FAO data show that exports have been growing since 1998 (Table 2). Over this period value did not keep up with volume, indicating that exported wines may be low quality.

Table 2. BiH Wine Exports, 1998–2002

Wine	Year					Growth
	1998	1999	2000	2001	2002	
Exports: Quantity (MT)	400	2,200	440	1,900	1,882	
Average Annual Growth (%)		450.0	–80.0	331.8	–0.9	175.2
Exports: Value (thousands of \$)	500	720	300	1,100	1,273	
Average Annual Growth (%)		44.0	–58.3	266.7	15.7	67.0

Source: FAOSTAT database.

2.5 Consumption

Roughly 70–75% of commercially produced wine is sold in the domestic market. Historically, men over 30 years' old consumed more than half of the wine. Today, though, women drink over half and are the fastest growing segment. Young adults continue to prefer beer over wine, but this preference changes as they age. There is a positive correlation between income level and the price of wine purchased, with middle-aged businessmen buying the most expensive wines.

Domestic consumption is estimated to be 4.5–6.0 L/person. Compared with other nations, this is relatively low (see Graph 2).

Wines sales are fairly steady on a year-round basis, but white wines sell best in the summer and red in the winter. Overall, more white wine is sold than red. Summer sales are boosted by former residents of BiH who return here on vacations.

Wine Subsector

2.5 Consumption (continued)

Graph 2. Wine
Consumption



3.0 BASIS OF COMPETITION 3.1 Quality and Packaging

Domestic wine production is divided into four quality categories.

Top-quality wine can only be produced in the Mostar region within specifically named or designated geographic areas. In many parts of the world, this would be called an *appellation*. The wine must be produced from grapes grown within the appellation and bottled at a winery also located there. The wine must be from the first crush only and from vineyards whose yields may not exceed 10 MT/ha. The pressed juice must have a minimum of 91° Brix and 21% sugar. The typical wholesale price range for these wines is 7.00–12.00 KM/750-mL glass bottle sealed with a cork. This category represents about 25–30% of total domestic production.

Top-quality traditional wines from the Herzegovina region are known for their clarity and distinct, simple taste. Although many of these wines are aged in oak barrels, they are unencumbered by tannins and resins familiar to wines from Tuscany, Bordeaux, or coastal California, nor do they have complex bouquets or long-lasting aftertastes. A serious wine connoisseur might categorize them as wine “lite.” However, because wine production from this area dates back about 2,200 years, devoted consumers are found throughout BiH and all areas of the former Yugoslavia.

Good-quality wine represents about 20% of domestic production. It may be from grapes grown in any of BiH’s six appellations and can be bottled at any winery. Yields are allowed up to 15 MT/ha, and the juice must have a minimum of 81° Brix. The sugar level is not specified. Wines meeting these specifications sell in a wholesale range of 4.00–6.00 KM/750-mL glass bottle sealed with a cork.

Table-quality wine is divided into two categories: those from grapes with an appellation and those without. Unfortunately, they both are marketed in the same wholesale price range of 2.00–4.00 KM/L bottle with a metal screw cap. These wines have no limitations on yields, and the crushed juice may have less than 81° Brix.

3.2 Services

Wineries provide few services to their clients. The only consistently discovered service is that wineries deliver their products directly to their supermarket and restaurant clients, rather than the other way around. Orders are made based on winery price lists provided to the buyers. However, as is often the case in the relations between many suppliers and clients, it is critical that the winery can deliver its products promptly year-round.

3.3 Marketing

Public advertising of alcoholic beverages is not allowed in BiH. This increases the necessity for wineries to participate in the economic fairs held annually in Sarajevo, Zagreb, and Mostar. Winning medals at these fairs contributes significantly to brand recognition, at least for educated wholesale buyers and wine connoisseurs.

In a very old tradition to the industry, wineries gain new wholesale customers by visiting their places of business with price lists and product samples in-hand. The price list is as important as the product quality, because supermarkets and restaurants intentionally strive to offer wines across a range of prices and quality.

Wineries rarely engage in any type of promotional efforts, either in or for supermarkets, or in restaurants. Most do not perceive any need to do so. Special marketing efforts originate with individual store or restaurant owners, who then solicit reactions from customers and use the results to alter the selections offered.

Owing to the prevailing, generally poor economic circumstances of the general population, sales of top-quality wine, which is 25–30% of production, have stagnated in the face of increasing production. Several strategies can be proposed to alleviate the immediate problem and solve it in the long term. In the short term, the wine could be sold at heavily discounted prices. However, this would have to be done under new, unknown labels, to prevent cannibalizing sales under known labels. Although revenues would be lower than anticipated when the wine was made, these sales would generate much-needed cash flow and empty bulk tanks that could then be used more productively in future.

A better solution may be to blend the excess top-quality wine with lower quality wines to create new, competitive good-quality wines with new labels. This segment of the market, with wines selling in the range of 5–10 KM/750-mL bottle, is profitable for both wineries and retailers. In the next few years (at least until the national economy revives further), wineries need to focus on this middle price range and avoid overproduction of desirable, but poorly selling, top-quality wine. Production of low-quality and low-priced wine should be avoided, because they require huge economies of scale to be profitable, and local wineries are much too small to compete in that market segment. Those wines face ever-increasing competition from cheap imports.

Wine Subsector

3.4 Market Movement

Most wine is sold at wholesale prices directly by the winery to stores, supermarkets, and retailers. Very little wine is sold by the wineries on their own premises to consumers at retail prices. Few wineries have established public tasting rooms.

Typical retail supermarket wine offerings range from 3 KM for a 1-L bottle to about 30 KM for a 750-mL bottle. The largest volume or movement of wine sells in a price range of less than 5 KM/L. In this cheap or low-end segment of the market, domestic wines sell better than imports. Wines selling in the range of 5–10 KM/750-mL bottle are second in volume movement, and this price segment is more profitable both for the retail shops and the wineries.

Typical restaurant wine prices range from 10–60 KM/750-mL bottle, with domestic wines in the KM 10–20 range selling better than imports.

In the case of supermarkets, orders can vary from a few cases (of 12 bottles) to 10, with orders placed as frequently as weekly for fast-moving wines and as seldom as monthly for slow movers. Wines that decline in popularity are discontinued.