

Mission Report

EU Twinning Project

Project number: BA 05 IB AG 01

Name of Expert:	Dr. Otto Boecking, LAVES IB Celle, Germany	
Activity No.	5.3 “Technical and organisational laboratory training”	Date(s) of visit: 07.04. – 10.04.2008

1. Identification

- **Activities to be undertaken according to the Terms of Reference**

The experts' mission assignment duration was 3,5 working days in Bosnia and Herzegovina (BiH) from 07.April to 10.April 2008. This mission is reported here. The purpose of the activity - within the frame of the EU Twinning project, which aims to support the State Veterinary Office (SVO) - was to assess and evaluate the opportunity to develop a bee institute in Mostar.

- He assessed the presently existing gaps and constrains for apiculture in BiH.
- He discussed with the responsible authorities and some beekeepers about the future required steps towards a sustainable development of apiculture in BiH, the key (critical) issues in achieving this with the organizational structure of a bee institute/centre – in particular with view on the needs for the beekeepers (small and large scale beekeepers = beekeeping industry) in BiH and perspectives for EU harmonisation and possible market access.

- **Persons visited:**

Briefing and debriefing ad the EU Twinning Project office in Sarajevo was provided with the courtesy help of Dr. Karoline B. Schollmeyer (RTA) and Dr.vet.med. Edin Lendo (RTA assistant). Edin Lendo was most helpful during all meetings with translation work and explaining how the Twinning project operates.

- At the **SVO, SARAJEVO**: Mr. Darko Čobanov (Deputy Veterinary Officer for BiH)

- At the **UNIVERSITY OF SARAJEVO, FACULTY OF VETERINARY MEDICINE, INSTITUTE OF EPIZOOTIOLOGY**: Ms Behija Dukić

- At the **UNIVERSITY OF MOSTAR, FACULTY OF AGRICULTURE**: Prof. Dr. sc. Stanko Ivanković (Dean of the Faculty)

- At the **VETERINARY INSTITUTE MOSTAR**, (Reference Laboratory for Bee diseases): Mr. Sc. Milan Andrijanić (Director of the Institute) and Mr. Vidović

- Several beekeepers and one honey backing company in the region of Mostar.

• **Additional resources used:**

- A draft-Report “*Small-scale Commercial Agriculture Development Project (Agriculture II)*” by Nicola Bradbear prepared for the World Bank, October 2002 provided with the courtesy of Nicola Bradbear [a copy of this report is attached].

- A draft-Report “*Small-scale Commercial Agriculture Development Project – the Apicultural Sector (Phase III of the Bulldozer Initiative)*” prepared by Werner Lohr for the Office of the High Representative OHR, Economic Department, December 2004 provided with the courtesy of Werner Lohr.

2. Description of activities during the visit (07. – 10.04.2008)

07.04.2008

Sarajevo, EU Twinning office; briefing with the RTA at the SVO, explanation and agreement about the experts' TORs.

Sarajevo, SVO; meeting with the Deputy Veterinary Officer for BiH.

Discussion about the organizational structures, the responsibilities and tasks of the LAVES Bee Institute in Celle, Germany and aspects of the statutory control measures for notifiable bee diseases in Germany with a special focus on American Foulbrood control (as a model):

- the approval procedure of the pathogen,
- the standstill procedure and the fixing of the prohibited area,
- the principle mandate of the veterinarian order,
- the differentiation of spore infestation levels in food samples and its categorizing after lab analysis with the view on the clinical status in the infested bee colony,
- the need for financial compensation in the case of destruction of bee colonies during the eradication process of AFB outbreaks,
- the organisational structure of the epizootic pay office (“Tierseuchenkasse”) in Germany.

Travelling from Sarajevo to Mostar.

08.04.2008

Mostar, Veterinary Institute (Reference Laboratory for Bee diseases);

meeting with the director of the institute, discussion about the institutional structure, facilities and responsibilities of the Veterinary Institute in Mostar with

view on practical beekeeping and the actual needs of the beekeeping industry in BiH.

Mostar, University of Mostar, Faculty of Agriculture; meeting the dean of the University and discussion about the actual and future plans in the training of beekeepers and agricultural students in the field of apiculture in Mostar.

09.04.2004

Travelling from Mostar to ??,

Meeting with beekeepers at the apiary site and visiting a honey packing company (Medicom in Grude). Meeting with Mr. Željko Mikulić, Director and Owner of Medicom. Discussing the actual problems and needs of the beekeeping industry of BiH.

Travelling from Mostar to Sarajevo.

10.04.2008

Sarajevo, SVO Meeting the Deputy Veterinary Officer for BiH, presentation of the findings and draft recommendations.

EU Twinning office, presentation of the findings and draft recommendations and debriefing with the RTA.

Departure from Sarajevo to Hanover and Celle, Germany

3. Results

3.1 The current situation regarding beekeeping and the production of honey in BiH:

Beekeeping and honey production plays a mayor role in BiH, however its total potential is not explored today in general. Beekeepers in BiH have the potential to increase production and gain more income from beekeeping on all levels – which are the large scale (professionals), medium scale beekeepers and hobbyists. In general botanical and geographical origin of honey is of high economic importance where ever honey is appreciated from local customers. BiH incorporates diverse climatic and ecological conditions resulting in areas with marvelous nectar and pollen resources for the bees. The species of honeybee in BiH is *Apis mellifera*, which is related to *Apis mellifera carnica*, famous among European beekeepers as a gentle and highly productive bee. Natural resources for apiculture in BiH are indeed excellent. The climate, vegetation and relatively unpolluted habitats in some parts of BiH could enable beekeepers to harvest worthwhile crops of honey. Some of these are high-quality, uni-floral honeys that could achieve a good price on the local and world market in principle. Organic certification would add further value. Migratory beekeeping allows exploiting part of the rich natural and cultivated vegetation inclusive some islands of Croatia nearly throughout a whole year period. Pollination

of natural and cultivated plants by the honeybee exceeds several times the economic value of the honey production, highlighting the ecological and national economic value of beekeeping for the country in principle.

The today's local market is not satisfied with local honey and other apicultural products. However, the customers appreciate honey as a special natural nutritious food product with medicinal attributes. There is actually a renaissance in apitherapy in the whole world which will enlarge the market for diverse bee products also in BiH in future.

It should be noted, that beekeeping is on the first hand most necessary and critical for BiH itself in relation to valuable sources of nutritious food, a possibility for money income even for landless people, small- and large scale beekeepers and for the pollination service for cultivated and wild plants (biodiversity).

There is no comparable agricultural subject/field that can alleviate poverty like it is possible by the means of beekeeping. However, apiculture is most significant for strengthening livelihoods also of the rural poor. Cultivated, wild and wasteland areas may all have values for bees. Bees provide bonus harvests in addition to - not instead of - other crops.

► **Constrains**

Because of the unique position facing BiH as the result of the war after-effects references to development opportunities in the field of beekeeping remains difficult. The financial resources and support available for apiculture remain affected also till today. Nevertheless, good skilled beekeepers were able to re-establish part of their beekeeping and many newcomers started with beekeeping. In a country struggling to fight off the spectre of reduced recourses this is not surprising, since beekeeping is a valuable source of nutritious food and a possibility for regular and additional money income even for landless people.

The main factors limiting beekeeping production in BiH are:

- the beekeepers lack of up-to-date technical information and materials,
- the lack of governmental support through training and institutional help,
- the lack of financial support (credits to the beekeepers and the lack of compensation for the statutory destruction policy in notifiable bee disease control),
- technical problems with the control of honeybee diseases,
- the lack of product standards and certification (which will prevent market expansion) and the lack of international/European market access.

Adulteration of honey seems to be an increasing problem in BiH, since honey prices are relative high, prices for sugar and subsidiaries moderate and obviously the borders are not very tight for imports of honey of inferior quality from other proveniences (like from China, Poland or Ukraine). Laws and regulations do not functioning obliging producers and retailers to label honey in order to assure traceability. The private sector somehow aims to fill this gap in a more practical way, but without a real reliable honey quality control standard, since no standard exists.

World trade in honey depends upon honey meeting import criteria, and this requires understanding of all the processes necessary to gain market access. The EU - for example - requires imported honey to be certified that it is free from chemical, antibiotic and other residues and does not allow adulterations. Residues are most likely to be present in honey from BiH due to the use of none authorised medicines to treat honeybee diseases, introduced during some form of honeybee management. It is indeed necessary for the relevant Government departments of BiH to understand and comply with the legislative needs of importing countries. **However, with priority it is to satisfy the local market and to substitute imports before considering export markets.** But establishing this system for the local market already today this will help to help fast access to markets abroad in future. Customers in BiH will more and more ask for food safety aspects, since these subjects are topics in all forms of advertising and information transfer (TV and Internet) with more emotional than rational properties.

BiH has so far no National Beekeepers Association to represent the community on a national and/or international level. This hinders especially potential supporters from abroad, including EU in Brussels and Apimondia. In addition neither a bee-institute nor a bee centre exists for the actual and future needs of the beekeeping industry.

3.2 The current situation regarding the presence, diagnosis and control of bee diseases:

The beekeeping industry in BiH is facing problems with a variety of bee diseases limiting the potential of apiculture in a substantial way. Presently two diseases are most critical.

1. Varroosis, which obviously has today an endemic rather an epidemic disease distribution property like it is in most other countries of the world.
2. American Foulbrood (AFB): *Paenibacillus larvae* causes this brood disease, it infects and ultimately kills the larval stage of honeybees. It is the most serious notifiable bee disease wherever it is found, because it has epidemic distribution properties. Beekeepers worldwide are experiencing the difficulty with beekeeping due to the presence of American Foulbrood. In BiH the situation is exacerbated due to two main factors:

- by the lack of technical knowledge for routine management to enable the beekeepers to maintain good colony health and
- the today's existing official Veterinary Policy on American Foulbrood control.

The today's stamping out/destruction policy [stamping out AFB infested bee colonies and the destruction of all bee equipment] in BiH hinders itself the eradication success, since colonies without clinical symptoms but infested with AFB are not controlled. Since the beekeepers do not receive real financial compensation for the destruction of AFB-infested colonies from the Government and no epizootic pay office ("Tierseuchenkasse" like in Germany) exists, this system must lead to the

general problem that beekeepers will not report AFB outbreaks. Obviously beekeepers in BiH try to solve these problems themselves. Some are using non-authorized antibiotics to control the disease, which is typical for many countries in the world. Since AFB spores can survive antibiotic treatment, the application of antibiotics can only serve to suppress the vegetative stage of the bacterium and the clinical symptoms. The most negative after-effects however are residues of antibiotics in all hive products (especially in honey) and the possible emergence of antibiotic-resistant bacteria. However, the specific problem with AFB explained above can be used as a model for all actual disease problems in BiH.

Detailed information about all control methods and medicinal control measures actually used by the beekeepers in BiH could not be obtained from the resource persons met. However, in the case of Varroa control a large variety of non-authorized chemical drugs are used by the beekeepers.

► **Constrains**

The fact that the beekeepers in BiH have no access to authorized veterinary products, modern apiculture materials, equipment to maintain beekeeping on the level of “Best Beekeeping Practice” and up-to-date information which are essential for modern beekeeping all this still reduces the potential of beekeeping in BiH. Within this “vicious circle” it should be mentioned that the most likely existing presence of residues in honey from wrongly applied medicines will prevent honey from BiH finding export markets in the near future.

Migratory beekeeping is common in BiH and obviously there is no effective system of government-based disease inspection for commercial and hobby apiaries established now. Consequently there is no mechanism to limit the spread of honey bee diseases throughout BiH and into neighbouring countries.

However, the actual existing problems with a variety of bee diseases together with the lack of a reliable help that should be provided by the Government of BiH to the beekeepers is one of the main restriction to the principle potentials of beekeeping in BiH.

3.3 The current situation regarding the competent laboratories and control authorities, methods and equipment used:

At present different lab units - the Veterinary Faculty at the University of Sarajevo, the Veterinary Institute at Mostar (the Reference Laboratory for Bee diseases) and the Veterinary Institute in Banja Luka, can provide bee disease diagnostics in the specialised fields that are the parasitology and bacteriology in principle. It should be mentioned, that only the two labs in Sarajevo and in Mostar were visited. From the survey it remained unclear which lab can help to do the lab analysis in aspects of disease diagnostics needed to reach the real needs of the whole beekeeping industry of BiH and which lab can provide reliable laboratory analysis work on the aspect of

honey quality parameters. However, based on the assessment actually the existing labs are beyond the needs for a functional system. Obviously there is a firm requirement to establish this field on honey quality aspects in the near future with a focus on international excepted quality standards, consumer protection and honey certification.

► **Constrains**

The diagnostic laboratories involved show a very sincere interest in providing help for the beekeepers.

However, first intense training based on the today's standard analysis and routine detection methods is necessary for the lab diagnostics work in BiH for the most relevant bee diseases.

Secondly the technical equipment must be evaluated and upgraded based on the real needs for large scale analysis and diagnostic work for practical beekeeping before steps might be done towards a more academic research level. The Reference Laboratory for Bee diseases in Mostar and the Veterinary Faculty at the University of Sarajevo can provide basic diagnosis on bee diseases, but can not reach the real needs of the whole beekeeping industry of BiH.

Moreover, diagnosis on bee diseases for the help of the beekeepers must be support by extension work to the beekeepers – and this must be emphasized here. This fundamental need is lacking and must be prioritized in future. This is also true for the lacking large field of reliable laboratory analysis work on the aspect of honey quality parameters for the potentially growing honey market in BiH. In principal it is not enough to due the laboratory tests only. It is most necessary to help the beekeepers with extension work to understand what steps and changes are necessary to hinder that problems with bee diseases and quality problems with honey are ongoing problems without changes in the beekeeping practise.

Here it should be mentioned that the European Commission is more and more focusing on the quality control of foodstuffs especially of animal origin. Through this the regulation concerning the quality control of honey has strongly increased in the recent past. The honey market (consumers) is concerned by an increasing number of residue problems. The honey trade is also influenced by negative incidents caused by residues of not permitted substances in animal food (e.g. in the case of Chloramphenicol this has led to a complete ban of imports from China in 2002 until 2004). The EU requires the most stringent criteria that are constantly updated as new contaminants are discovered in honey on the world market meanwhile based on analysis detection levels of Parts Per Million (ppm) and Parts Per Billion (ppb). Honey is regarded as natural and pure. Therefore it should be as free from residues as possible. While this makes the EU the hardest market for potential exporters to access, it also makes it most worthwhile for producers with a potentially high quality product like those that can be harvested in BiH area in principle. None of the labs visited have all the equipment necessary for the range of tests required by the EU (especially relating to antibiotics and sulphonamides). However, in some countries

the private sector (private labs) has filled this gap. Eventually this might also be a future solution for BiH.

4. Conclusion

Despite the various problems the beekeeping sector faces, it is marked by a certain vitality and dynamic, mainly because many new-comers see in beekeeping an alternative for solid money income generation, especially in poorer regions of the country side. The Government should make more advantage of this development in supporting the sector to become independent from honey imports and to play an active role for the near future as a potential exporter for surplus honey to EU markets.

It would be important to intensify beekeeping in BiH, the more so if we take into account the fact that the agricultural sector in BiH is currently producing less than half the food that the domestic population needs, so that presently the main item on the list of imports are foodstuffs, accounting for more than half of the total value of imports. Sustainable apiculture could significantly increase the honey production in future, significantly reduce poverty in BiH, and at the same time preserve the healthy environment and ecosystem as a whole.

The present situation concerning the apicultural production is unsustainable, seen from the point of view of modern organisation of market-oriented and consumer save production. Sustainable development of apiculture means technically feasible, product save and economically efficient development that satisfies the money income in this agricultural sector (small and large scale beekeeping), which at the same time preserves natural resources and conserves unpolluted nature and keeps honey on its highly appreciated quality level – the principle basis for beekeeping.

It is claimed by the beekeepers in BiH, that on cultivated fields of smaller size, unacceptable levels of poisonous chemical substances are being used. The indigenous domestic species of flora and fauna are disappearing and beekeepers lose their colonies due to chemical poisoning. The recently started large-scale production of medicinal and aromatic plants is also endangered by excessive use of protective chemical substances.

Organised systematic education and continuous professional training of beekeepers, applied research and professional involvement in the agricultural production sector are the most critical steps needed for the development of this agricultural field. Organized and professional apicultural advisory extension services, upgrading of professional knowledge of beekeepers, so that they can benefit from developments in the science and modern techniques of beekeeping management, honey production and other measures necessary for speedier development of this agricultural sector

and attaining higher levels of honey production, are the key (critical) steps needed today in BiH.

It should be highlighted that in most other agricultural societies the appreciation for beekeeping is higher compared to that provided by the Government of BiH today. However, the Governmental authorities of BiH are mainly hindered due to the lack of financial resources and war after-effects. Nevertheless, we know that honey can be imported into BiH for marketing and consumption, but we also know, that the pollination services, which is provided from local bees and the help of local beekeepers only, can not be imported.

5. Recommendation and steps needed

Based on the experts' assessment and findings the following prioritized critical fields and needs for the help of the beekeeping industry in BiH are summarized:

- Intensive technical and practical training for modern beekeeping management which includes the control of bee diseases and honey quality standards.
- An individual access for beekeepers to micro credits in order to buy the technical modern equipment for honey harvesting, processing and for hive equipment sanitation (like steam wax melters).
- A reliable help in the struggle against the worst bee disease inclusive the establishment of compensation fund for statutory control measures for notifiable bee diseases.
- A authentication and quality certification of honey from BiH based on internationally accepted standards.

These critical needs can be addressed by:

- the establishment of an bee institute in order to organize and provide technical knowledge transfer and
- the provision of credits and other financial supports for the beekeepers.

Training facilities for practical beekeeping

Such bee institute should first of all be a practically orientated institute/centre for the real needs of the beekeeping industry (small and large scale beekeeping) than an academically orientated one.

Practical orientated training, followed by the two main fields bee disease diagnosis (veterinary field) and honey quality (food safety and certification) can be the principle first focusing columns. Others will follow automatically if these first steps are filled.

A laboratory within such a bee centre for bee disease diagnosis and honey quality (food safety and certification) has to satisfy EU accreditation legislation. Within BiH there is need to substitute imports by providing traders and consumers with confidence in the local products, by having appropriate certification. Moreover, BiH

will not be able to sell honey to the EU until exporters can provide the certification required. It is therefore proposed to provide a laboratory with equipment to undertake honey analysis and with statutory authority to provide certification. However, eventually it is not necessary to establish such new lab facilities as a prioritised action in BiH at the beginning. In order to focus on the most critical aspect mentioned above – which is knowledge transfer about beekeeping management aspects - it might be a model to send the samples to an accredited laboratory for analysis abroad and later establish the required lab facilities. Beekeepers need immediate assistance with information on how to combat AFB disease, integrated methods to control Varroa mites, reliable bee keeping management systems and concerning current standards for honey processing and marketing. In the short-term technical training workshops can be organised with experts brought from outside.

To build up such an institutional structure for the needs of the beekeepers in BiH it is highly recommended to hire a practical orientated International Apiculture Project Coordinator as an external expert who should advise also the government of BiH. Eventually the existing LAVES Bee Institute in Celle, Germany can be a model for its principle structure and future working fields of a bee institute in BiH. Since some initial activities exist in Mostar (in the Agricultural Faculty and the Veterinary Institute in Mostar) and a main production area of beekeeping is nearby it seems to be worthwhile to establish such a bee institute in Mostar. However, it should be noted, that it is not enough to strengthen the existing institutions, because this will not reach the needs of the beekeeping industry of BiH and will be based on somewhat non-flexible structures.

6. Date and Signature of Expert

15.04.2008

Dr. Otto Boecking