Government of Italy FAO

Evaluation

of

Integrated Pest Management for Western Corn Rootworm (WCR) in Central and Eastern Europe

(GTFS/RER/017/ITA)

Final Report of the Evaluation Mission

March 2008

Preface

This report represents the views of the evaluation mission on the performance and achievements of the project Integrated Pest Management for Western Corn Rootworm in Central and Eastern Europe (GTFS/RER/017/ITA). The project started in July 2003 (original planned starting date was April 2003) and will end in April 2008 (original March 2006); the project budget was US$ 2,260,000.

The evaluation was initiated with a view to providing the participating governments, FAO and the donor with an objective assessment of the results of the project, and recommendations on further steps necessary to consolidate and/or expand work. The evaluation started in Rome on 1 October 2007, visited Hungary (2-4 October, 9-13 October), Croatia (4-7 October), Serbia (7-9 October), and Bosnia (13-15 October). The Evaluation Team Leader gave a preliminary debriefing to REUR staff on 16 October[1]; a debriefing at FAO HQ was held by the team on 14 December 2007.

The mission's main views regarding the project are presented in the Executive Summary; these views are then taken up and expanded in the Conclusions and Recommendations section as well as the main body of the report. (Some redundancy is intentional.) The annexes provide information on the mission background as well as statistical data on the project.

The evaluation used the following methods: document analysis; group and individual meetings with National Project Leaders (NPL) and National Training Coordinators (NTC), facilitators, experts, and farmers; brainstorming sessions (modified SWOT analysis) with stakeholders; a questionnaire to NPLs and NTCs, and repeated feedback sessions with the project Regional Coordinator[2]. The mission also benefited greatly from interaction with FAO staff in FAO HQ and the Regional Office in Budapest, staff of the Cooperazione offices in Belgrade and Sarajevo, as well as from meetings with staff of relevant ministries in the countries visited.

However, a caveat applies: while the country visits were useful to give the mission a first-hand impression of the project performance and of stakeholders' views regarding the project, this evaluation does not constitute an in-depth assessment, or a detailed (socio-economic) analysis of the crop management options developed by the project.

The evaluation mission is most appreciative of the support given to the mission by the project's Regional Coordinator, the NPLs and NTCs, the FAO experts in the Regional Office and in FAO HQ, and other government officials and experts in the countries visited. All people interviewed provided information and discussed issues in a frank and constructive manner.

The Evaluation Mission

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[1] Dr La Porta had to return to Italy on 15 October; due to other commitments, the report was scheduled to be finalized by early 2008.
[2] In Croatia and Hungary, the mission was also accompanied by representatives nominated by the government who provided the mission with their views on the project. In Serbia, field visits could not be arranged as the national project management did not regard them as useful.

List of Acronyms

AESA	-	Agro-ecological System Analysis
BIH	-	Bosnia and Herzegovina
BTOR	-	Back-to-Office Report
CEE	-	Central and Eastern Europe
EPPO	-	European and Mediterranean Plant Protection Organisation
EU	-	European Union
FAO	-	Food and Agriculture Organization (of the UN)
FFS	-	Farmers Field School
FP6	-	6th Framework Programme (EU)
FPMIS	-	Field Programme Management Information System (FAO)
GCP	-	Government Cooperative Programme (FAO)
GIS	-	Geographic Information System
GMO	-	Genetically Modified Organism
IA	-	Impact Assessment
ICM	-	Integrated Crop Management
IPM	-	Integrated Pest Management
LOA	-	Letter of Agreement
LTO	-	Lead Technical Officer
LTU	-	Lead Technical Unit
MTR	-	Mid-Term Review
NGO	-	Non-Government Organization
NPC	-	National Project Coordinator
NPL	-	National Project Leader
NPPO	-	National Plant Protection Organization
NTC	-	National Training Coordinator
PBEE	-	Evaluation Service (FAO)
RC	-	Regional Coordinator
RE	-	Risk Estimation
RPPO	-	Regional Plant Protection Organization
SFS	-	Student Field School
SH	-	Stakeholder
SWOT	-	Strengths, Weaknesses, Opportunities, Threats
UN	-	United Nations
WCR	-	Western Corn Rootworm

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EXECUTIVE SUMMARY

The Western Corn Rootworm (WCR - *Diabrotica virgifera virgifera* LeConte) is a major maize (corn) pest in the USA, which first appeared in Europe in the early 1990s in an area near Belgrade (former Yugoslavia). The pest continued to spread in all directions in Central Europe and by 2001 had reached Italy and France. This regional project was designed to enable countries affected by WCR to develop national Integrated Pest Management programmes by using participatory research and training approaches, in order to effectively manage this pest at field level and avoid the over-use of chemical pesticides which would have serious health and environmental consequences.

Project Budget:	US$ US$ 2,260,000
Duration:	July 2003 to December 2007 (actual)[3]
Project Staff:	Regional Coordinator (part-time), FAO technical and operational backstopping, National Project Leaders and Training Coordinators (part-time)
Participating countries:	Bosnia-Herzegovina, Bulgaria, Croatia, Hungary, Romania, Serbia, Slovak Rep.

The project strategy was "... to promote a regional approach ... and to explore possible links with EU institutions and locally based projects ... to avoid duplications of efforts and to make best use of resources". The overall development objective of the project was defined as "corn production in Europe protected from losses in production caused by WCR through the development and implementation of integrated pest management (IPM) strategies by farmers, based on sound understanding of local agro-ecosystems and protection of local biodiversity as the main element of sustainability of agricultural production".

Immediate Objectives were defined as follows:

1. To establish a participatory training and research programme for IPM based on participatory approach, involving relevant national institutions and farmers for the development and implementation of locally suitable IPM strategies for corn.
2. WCR spread and biology in Europe better understood through a strengthened capacity for monitoring pest spread, enhanced regional coordination and improved understanding of WCR biology at regional level (supported by achievement of objective 3), creating the scientific base for WCR IPM development.
3. To achieve better understanding of different components of local agro-biodiversity, as essential support to sustainable agricultural production in the region, and clarify their role in developing environmentally safe WCR management options, locally adapted to specific farming systems.
4. To obtain better understanding of socio-economic aspects relevant to WCR management strategies in specific local contexts, and provide tools for better policy decision making.

Towards the attainment of these objectives, important results have been achieved, including:

- Participatory research activities, field studies and field training sessions implemented in each country have demonstrated successful management

[3] Original time frame was April 2003 to March 2006.

approaches to control WCR (in different agro-ecological as well as socio-economic conditions);
- The introduction of Farmer Field Schools (FFS) and Student Field Schools (SFS) has provided an innovative model of working with farmers, and for collaboration among farmers;
- The original focus on WCR Risk Management has widened and led to a better understanding also of local agro-biodiversity;
- The involvement of additional institutions (secondary schools[4], local and regional administrations) has increased the awareness of WCR and shown new approaches to agricultural extension;
- Regional networking has contributed to reaching a common understanding in all participating countries, from training activities to WCR monitoring and research; and
- Linkages have been established with similar projects supported under the EU 6th Framework (DIABR-ACT and ENDURE) which can carry on the momentum created by the project in IPM-related activities.

Furthermore, the project has initiated or supported other activities related to WCR management, and IPM and participatory approaches that contributed to better knowledge and provide a base for improved practices:

- A large number of scientific, technical and popular publications and presentations on WCR, as well as on more general IPM aspects and the FFS approach have increased the awareness of the scientific community as well as of agricultural administrators and practitioners.
- Exchange visits among farmers have led to increased interest in regional collaboration also at the field level; and
- A pool of facilitators has been created that can support development activities in the future.

However, the mission also noted constraints in the project, which have affected its operations and could limit its effectiveness:

- Much of the field work has been done on a voluntary basis, with some compensation from the project for field workers[5] but no regular contributions from agricultural administrations;
- Agricultural advisory services are weak in several participating countries and may not be able to keep up the work initiated by the project; and
- Many agricultural administrations in the region are under-funded and fragmented (tasks are divided between national, regional and local administrations, farmers organizations, agricultural chambers, etc), thus creating uncertain prospects for continuation of some project initiatives despite their longer-term perspective.

One remarkable aspect of the project is the enthusiasm it could generate among farmers and collaborators. It showed that joint activities between researchers/facilitators and farmers are not only possible, but preferable to the conventional methods of agricultural extension. On the other hand, as most facilitators participated in the project outside of their regular jobs or occupations, the question of their future status remains unresolved.

As the project is about to terminate, continuation of national activities and regional cooperation will therefore depend on finding some institutional base in relevant

[4] For Students Field Schools.
[5] For travel and use of personal vehicles, communication costs, etc.

national institutions, such as plant health services, extension services as well as regional or local administrations. Some encouraging signs are visible in this regard (e.g., regional and local administrators met in some countries indicated their willingness to fund some FFS activities), but it may still not be enough for many project activities to guarantee their continuation in the future.

It is thus obvious that while the project has met all its major objectives, several constraints remain a challenge for the future. Although the situation varies among countries, the mission recommends as a minimum scenario that governments endorse the technical lessons generated by the project regarding WCR management. Also the FFS approach should receive official encouragement and support. (As this would require a dedicated budget to support facilitators and cover logistical expenses, not all countries will be in a position to continue this initiative on a larger scale). Some countries (Bosnia among them) would also benefit from external support to re-organize their system of agricultural administration and extension, which could also put the project-supported initiatives on a more regular footing.

As some residual funds appear to be available at the end of the project, the mission recommends that the project should conclude with a stock-taking and forward-looking exercise: collaborators in participating countries should be invited to review their experiences, and discuss perspectives and options for the future (i.e. exit strategies for the project at the regional as well as national level) at a workshop organized by the project. Participation at the workshop should be extended beyond the level of project stakeholders, in order to increase the project's recognition and also add more external perspectives.

CONCLUSIONS AND RECOMMENDATIONS

The project has successfully built upon an existing collaboration network. It has been able to demonstrate that the perceived threat by WCR could be managed without taking recourse to chemical treatment or GMO cultivars, by providing general as well as location-specific examples of effective management solutions.

Farmer Field Schools and Student Field Schools have provided an innovative model of working with farmers, and for collaboration among farmers, which could serve in the future as a vehicle not only for participatory research activities, but also as a model for agricultural extension and the formation of farmer organizations in general.

Although field-level training and research has been a core activity of the project, the large number of publications produced with project support and/or in the context of project activities demonstrates a prolific output in terms of technical, popular and scientific value.

The project has been less successful at engaging with national key stakeholders and policy makers in a dialogue regarding IPM strategies and the adoption of the FFS concept. This may be due to several factors: the emphasis given by project leaders to field-level training research activities, the institutional distance between the participating agricultural research institutes and their ministerial counterparts, and generally the fluctuations in agricultural policies as well as in agricultural support structures in the countries of the region.

Project design

Objectives and Outputs

Although the wording of the objectives does not always use the correct terminology, the thrust of the project was clearly developed. However, an expectation regarding "... (the creation of) ... adequate capacities ... to continue (IPM) activities (at the field level) after project completion", was clearly overestimating the potential of the project.

Work Plans, Assumptions and Risks

By and large, regional and national workplans reflected the provisions of the project document (initially with the exception of activities related to Immediate Objective 4).

Only limited risks were foreseen for this project, and one in particular did materialize: the changing institutional environments in the agricultural sector of almost all participating countries affected the search for institutional counterparts, and this absence of institutional counterparts may jeopardize the longer-term continuation of the initiatives introduced by the project.

Institutional Arrangements

The institutional arrangements as formed under the project seem to have functioned reasonably well. Deviations from the original project concept (fewer committees as well as members) appear justified as the core activities of the project were well represented. The area where less interaction than envisaged has taken place is the collaboration with government ministries – but this was often due to the transitions in government structures, and the situation also varied between countries.

Support by governments/national institutions

The project has almost uniformly enjoyed great support from its direct counterpart institutions (mostly agricultural research institutes or university institutions), while efforts made towards involvement of national institutions such as ministries of agriculture, and plant protection services has met with mixed results. Particularly concerning a continuation and upscaling of FFS activities, the perspectives are doubtful in some cases as the project does not have a firm rooting within existing agricultural support services.

Recommendation: An exit strategy outlining the various options has not been formulated yet, and should be formulated with a view to identifying institutions and initiatives that would support the continuation of some selected activities after project termination.

Technical and operational backstopping

The technical support and training role of FAO, Rome, and of consultants appointed through FAO, has been highly appreciated[6]. The project initially relied much on external technical backstopping and consultancy missions, but this was eventually balanced by LoAs given to institutions in the region.

Operational support from FAO's Sub-Regional Office in Budapest (SEUR – now REUR) and through UNDP country offices (due to the absence of FAO representations in most project countries) initially proved to be a complex operation, sometimes causing delays e.g. in disbursement, but mostly seems to have functioned in a satisfactory manner.

Project management

The project document envisaged that "... the project management unit should be placed in the office of the Coordinator of the existing WCR Regional Network at least for the first project year (to) secure continuity of project activities with previous WCR activities in the region". It also stipulated that the "management structure of the project will be based on regional steering committee and national core teams ..."[7], but did not give a clear outline of the planned management structure. This uncertainty may have caused confusion in some instances, as borne out by some questionnaire responses received from National Project Leaders

For a complex regional project, the management structure was rather lean. The size of the Steering Committee was kept at a more manageable level by including fewer members than envisaged in the project document, and most of the burden of running the project was shouldered in an exceptional manner by the Regional Coordinator. Due to his close links with EU-funded and other international activities, the Regional Coordinator also provided for recognition of the project at international levels, and could potentially also facilitate follow-up activities within the framework of EU-supported plant protection initiatives.

National Project Leaders and Training Coordinators have contributed substantially to the good performance of the project. (In a few cases, particularly where NPLs

[6] However, the MTR noted that initially FAO technical backstopping officers (and consultants) became seen as the source of ideas, consultants, skills development, while the national project leaders were more concerned with the running of the project.

[7] A Regional Steering Committee was to be established from seven National Project Officers plus two representatives from thematic areas and one or two FAO staff. (See also section on Institutional Arrangements above.)

apparently found it difficult to meet the demands of the position, replacements or alternative solutions were soon found.)[8]

Actual and expected project results

Immediate Objective 1 - To establish a participatory training and research programme

The participatory training and research programme has been a mainstay of the project. The number of Farmer Field Schools (FFS) and participating farmers increased steadily from 32 FFS/331 farmers in 2003 to 140 FFS/1734 farmers in 2006, the last year of full operation. Likewise, the number of Students Field Schools (SFS) rose from 14 groups involving 204 students and 11 schools in four countries (Bosnia-Herzegovina, Croatia, Hungary, Serbia) to 19 groups involving 614 students and 15 schools. Almost unanimously, the national management teams regard the participatory and field research based extension system promoted by the project as a great strength[9].

The organization of exchange visits among farmers has become a widely appreciated feature, which facilitated also the sharing of general experiences by farmers. As the project during its lifetime has involved approximately 70-80 facilitators in training activities, there exists now a regional cadre of well trained and enthusiastic potential collaborators for future initiatives. However, as many agricultural administrations in the region are under-funded and fragmented, the prospects are uncertain for continuation of some project initiatives despite their longer-term perspective.

Immediate Objective 2 – WCR spread and biology in Europe better understood

The project, through its participatory research activities, field studies and field training sessions implemented in each country has demonstrated successfully that WCR can be controlled through crop management approaches adapted to different agro-ecological as well as socio-economic conditions.

Regional networking has contributed to reaching a common understanding in all participating countries regarding WCR monitoring and research as well as its control; and the linkages established with similar IPM-related projects supported under the EU 6th Framework (DIABR-ACT and ENDURE) have helped to increase visibility as well the prospects for future replication in the region. An international exchange of experiences was maintained through presentation of project results at various workshops, participation in networks and publication of a large number of papers in a multitude of journals and other publications. Communication was maintained and project results were shared with EPPO (European Plant Protection Organisation), IWGO (International Working Group of Ostrinia and other Maize Pests) and the IWGO WCR Sub-Group and IPMEurope Network. A Joint Workshop entitled “Integrated Pest Management for corn: a necessity or an opportunity? The case of Western Corn Rootworm” was organized jointly with the Main Office for Agricultural, Natural, Forest and Mountain Resources of Friuli Venezia Giulia Autonomous Region in Pordenone, Italy.

[8] As all project leaders (including the Regional Coordinator) were only part-time engaged by the project, a common complaint heard was that there were sometimes too many administrative duties to be performed.

[9] For example in Slovakia, scientists to studying WCR together with farmers through participatory field research were able to synthesize all information immediately as advice to maize growers. This, it was said, would not have been possible without the project - government bodies would not have been able to follow the situation in the same manner.

Immediate Objective 3 – To achieve better understanding of different components of local agro-biodiversity

All FFS training programmes in project countries have included a direct learning module in the field about main agro-biodiversity components (maize plant, herbivores, predators, parasitoids, weeds) in order to understand the diversity and functions of these components. In some countries (initially Hungary and Croatia), a broader agro-ecosystem management approach was introduced (considering green manure, field margins, natural enemies) with the aim to support locally suitable development of IPM systems. This allowed farmers to improve their understanding of sustainable soil, organic matter, weed and pest management.

Farmers' understanding of the maize agro-ecosystem has improved significantly, and on a more scientific level, studies commissioned by the project made further investigations possible into future reliable WCR control options, and confirmed the validity of some already introduced practices involving biotic diversity.

Immediate Objective 4

This thematic area was off to a slow start, as initially specific proposals were not forthcoming and the socio-economic aspect of IPM for WCR was not considered by project countries in 2003 activities and in 2004 workplans. A study dedicated to the topic took some time to materialize (2004-07), and did not produce essentially new insights.

Most project countries organized national meetings with relevant national stakeholders, essentially with the aim to ensure involvement and commitment of national institutions and to enlarge support for project activities at national level (and ultimately to develop national IPM strategies). However, while local communities and community leaders mostly showed enthusiasm and interest, it became apparent that necessary policy support is not available in each country, often due to changing structures in the agricultural support systems.

Specific topics and issues

Sustainability of Project Interventions

Much of the work being done depends on voluntary labour of institutional collaborators, facilitators and farmers. While this is a sign that the project and its work is much appreciated by stakeholders, there is no guarantee that especially the innovative extension approach introduced by the project will find the necessary institutional support.

Continuation of national activities as well as future regional cooperation will therefore depend on finding some institutional base in relevant national or regional institutions and initiatives. Concerning the FFS, some encouraging signs are visible as regional and local administrators have indicated their willingness to fund some FFS activities. Regarding future regional research coordination and collaboration, some activities may possibly be continued within the framework of EU-funded initiatives: for example, the 6th Framework DIABR-ACT, and ENDURE.

Cost-effectiveness

It is clear that the WCR control options developed by the project have provided farmers with clear and affordable guidance for their crop management. In addition, the FFS approaches piloted by the project could prove to be a successful (and cost-efficient) approach for future extension activities, once agricultural administrations have stabilized. (However, the formation of FFS requires initial investments and the availability of facilitators.)

The implementation modality of the project (part-time coordinators and project leaders) also helped to contain costs – the share of direct staff costs (professional salaries and consultants) has been just over 20% of the total budget.

Gender Equity in Project Implementation and Results

Gender equity did never figure as a particular factor in the project. In the absence of specific guidance, the project mostly proceeded with those farmers that showed most interest in participating. Participation by women in FFS ranged from around 5% in three countries, and 10-20% in another three countries, to 50% in one country.

Nevertheless, while the project did not try to select farmer participants on the basis of gender, among project management the gender composition was better balanced: roughly 1/3 female – 2/3 male.

Environmental Issues

The recognition that WCR damage can be contained through crop management approaches adapted to different agro-ecological as well as socio-economic conditions has helped to avoid an undue confidence that otherwise might have been placed in chemical control and GMO approaches.

Major Factors Affecting the Project Results

The project initially had to struggle with the late start of the project (July 2003, when the maize planting season had already started), and thus could not take full advantage of the 2003 cropping season. Some administrative difficulties arose because FAO was not present with a representation in six out of seven project countries, and the project thus had to establish administrative modalities with local UNDP Offices.

In some countries, the innovative approaches promoted by the project were quite uncommon, and also demanding in terms of workload. This led to changes in NPL or NTC positions in some countries; in others, additional national consultants were approached and tasks newly distributed.

The limited involvement of national stakeholders (such as national institutes or NGOs and policy makers) figured as a constraint in almost every progress report. The February 2007 progress report conceded that institutionalization efforts by national staff and partners did not deliver the expected results – an opinion that is shared by the evaluation mission.

1. INTRODUCTION AND BACKGROUND

The Western Corn Rootworm (WCR - *Diabrotica virgifera virgifera* LeConte) is a major maize (corn) pest in the USA, which first appeared in Europe in the early 1990s in an area near Belgrade (former Yugoslavia). The pest continued to spread in all directions in Central Europe[10] and by 2001 had reached Italy and France. This regional project was designed to enable countries affected by WCR to develop national Integrated Pest Management programmes by using participatory research and training approaches, in order to effectively manage this pest at field level and to avoid the over-use of chemical pesticides which would have serious health and environmental consequences.

Originating in Mexico, the WCR became the number one pest of corn in the USA and can cause yield losses of up to 4 tons/hectare. The cost for chemical control combined with the value of crop loss has been estimated to reach approximately US$ 1 billion per annum. WCR became the pest receiving the highest insecticide input in the USA, while at the same time the phenomenon of resistance to several pesticides was observed. In the USA, in areas where WCR is present, high residues of chemical products used for its control have been detected in ground water. (The chemical control problems may be one reason why American seed companies have invested substantially in developing GMO varieties genetically resistant to WCR.)

The identification of WCR as a newly introduced pest in Europe prompted the development of a regional network of research and plant protection institutions involved in monitoring the spread of the new pest. This network was supported from 1997 to 1999 by a regional FAO project TCP/RER/6712 “Development and Implementation of Containment and Control of the Western Corn Rootworm in Europe”. Participating countries were Bosnia-Herzegovina, Croatia, Hungary, and Romania, with informal cooperation from the former Federal Republic of Yugoslavia.

After TCP project termination, WCR monitoring activities were expanded to include the newly infested countries of Bulgaria and Slovakia. The University of Godollo in Hungary was involved in an EU-5th Framework project on WCR management that was completed in 2003, which created a linkage between the European Union research group and the network of researchers operating in infested countries. Under this project pilot, crop rotation field trials were established in Hungary, F.R. Yugoslavia and Croatia in 2001 and in Romania in 2002. In 2002 the Global IPM Facility supported pilot activities in the region, involving farmer communities to conduct monitoring and selected field trials. This project was to build on the experiences of these previous projects and programmes.

2. PROJECT OBJECTIVES AND DESIGN

The Italian Government expressed interest in supporting a regional project to develop and implement locally appropriate IPM measures to control WCR (which in 2002 was already present in Italy and other Western European countries). The project was to build on WCR research results from USA and Europe, and on the 20-year experience of FAO in participatory IPM programmes. Project objectives also corresponded to relevant FAO corporate objectives as outlined in its Strategic Framework 2000-2015 and in the Medium Term Plan 2004-2009 (programme area 212A5 – Mainstreaming IPM by enhancing essential ecological processes).

[10] Damage was reported in Serbia and Montenegro, Hungary, Croatia and Romania, with yield losses of up to 70% reported in Serbia.

The project document also referred to several EU assistance programmes aimed at supporting structural reforms in candidate countries as well as fostering research and technological development, which could constitute an enabling environment for the project. The project was also to take up results of an EU-5th Framework Programme project on WCR in Europe, which looked in particular at the biology of WCR and at the effect of crop rotation on WCR population level.

2.1 Development and immediate objectives

The overall development objective as defined for the project read: "Corn production in Europe protected from losses in production caused by WCR through the development and implementation of integrated pest management (IPM) strategies by farmers, based on sound understanding of local agro-ecosystems and protection of local biodiversity as the main element of sustainability of agricultural production".

To this end, four immediate objectives were to be pursued:

- Immediate Objective 1 - To establish a participatory training and research programme for IPM based on participatory approaches, involving relevant national institutions and farmers for the development and implementation of locally suitable IPM strategies for corn.

- Immediate Objective 2 - WCR spread and biology in Europe better understood through a strengthened capacity for monitoring pest spread, enhanced regional coordination and improved understanding of WCR biology at regional level (supported by achievement of objective 3), creating the scientific base for WCR IPM development.

- Immediate Objective 3 - To achieve better understanding of different components of local agro-biodiversity as essential support to sustainable agricultural production in the region, and clarify their role in developing environmentally safe WCR management options, locally adapted to specific farming systems.

- Immediate Objective 4 - To obtain better understanding of socio-economic aspects relevant to WCR management strategies in specific local contexts, and provide tools for better policy decision making.

Although the wording of the objectives deviates from standard project formulation guidelines[11], taken together with other sections of the project document, the thrust of the project becomes clear. More detail comes in the section on the expected end-of-project situation: e.g. the intention to establish a functioning monitoring network established in the region; the development of a field-tested and cost-effective integrated set of IPM-based WCR management strategies (excluding GMOs) developed in close collaboration with farmers; and collaboration established within and outside the region among institutions and organizations involved in WCR research and management.

A concluding statement in the section on the expected end-of-project situation read: "this project will provide the essential elements to develop IPM strategies for WCR, but also for other principal corn pests, and will result in IPM implementation at the field level. Adequate capacities will be built at national level, both as human

[11] The objectives are worded as activities (to obtain, etc) and do not refer to a status to be reached as a result of the project.

resources and institutional capacities, to continue activities after project completion". With the benefit of hindsight, it can be said that this statement went beyond the resources and potential of the project.

2.2 Workplans, assumptions and risks

Regional workplans were to be prepared (or at least reviewed) by the regional steering committee, and national workplans were to follow suit within one month after the workshop. By and large, regional and national workplans reflected the provisions of the project document (initially with the exception of activities related to Immediate Objective 4).

Only limited risks were foreseen for this project as the proposed project strategy was based on previous experience developed in the region, and on 20 years of FAO experience in developing IPM programmes. However, factors contributing to uncertainty were identified: changing institutional environments in several of the participating countries (potentially affecting the counterpart structure, and changing policy parameters), agricultural input providers lobbying against the project strategy, and the limited presence of FAO offices in the project countries (potentially affecting project administration and input delivery).

2.3 Institutional arrangements

Under this heading, the project document mentioned that "Ministries of Agriculture in participating countries will be the direct counterparts for project activities", with the qualifier that "specific national institutions would be more directly involved in project implementation, based on previous experience of technical collaboration on this topic during the past ten years in the Region and with FAO". Effectively, this meant that the project would build on the existing regional WCR network comprised of national research institutions/universities in Bosnia-Herzegovina, Croatia, Hungary, Romania, Serbia and Montenegro, and/or plant protection service institutes in Bulgaria, and Slovakia. In addition, the section specified that links would be established with other ongoing projects in the region, with special attention to EU - FP6 projects, in order to create operative links of local counterparts to the EU framework structure.

In order to ensure continuity with the activities of the WCR Regional Network preceding the project, the project management unit was proposed to operate from the office of the Network Coordinator at least for the first project year. (An additional reason given was that no FAO offices were present in any of the participating countries except Hungary, and that adequate capacities existed at national and regional level in terms of technical and managerial skills.)[12]

In addition, the project was to support the establishment of regional thematic working groups for the four thematic areas of the project. (However, during the first year of project implementation, only the first two thematic areas – participatory research & training; WCR monitoring & IPM development – were to have national coordinators, while the coordinators for the third and fourth thematic areas were to be defined later.)[13] The existing national coordinators for the area "WCR monitoring & IPM

[12] A surprising aspect of this arrangement is that the project's Regional Coordinator is not mentioned in the project document, apart from a section in the Project Agreement (the legally binding contractual part of a project document), where it states that "all project staff will work under the direction of a Regional Coordinator who, on behalf of FAO, has immediate technical responsibility for the execution of the Project."

[13] Only the positions of National Project Leader (NPL) and National Training Coordinator (NTC) were formalized in the course of project implementation.

development" were proposed to assume the role of National Project Officers, and oversee all project activities in their respective countries.

A Regional Steering Committee was to be established from "the 7 National Project Officers plus two representatives from each of the other thematic areas" (and) "one or two FAO staff (HQ and/or Regional Office)", and meeting once a year. The coordination arrangements were to be mirrored by "National Core Teams", consisting of the national coordinators for the four thematic areas at country level.

FAO was to provide monitoring and technical support by FAO technical officers and by consultants/institutions contracted by the project, with additional technical and logistic coordination to come from relevant technical staff within the Plant Protection Department of Godollo University. Finally, the project document envisaged that appropriate links would be established with relevant units of other Ministries for proper interaction.

In the course of project implementation, a structure developed that was slightly at variance with the planned structure. The Coordinator of the Regional Network emerged as the project's Regional Coordinator and de-facto manager, while the Regional Steering Committee comprised fewer members than originally foreseen (also due to the absence of coordinators for the additional thematic areas). At country level, project management/coordination was performed by a National Project Leader and a National Training Coordinator.

The institutional arrangements as formed under the project seem to have functioned reasonably well. Deviations from the original project concept (fewer members) appear justified as the core activities of the project were well represented. The area where less interaction than envisaged has taken place is the collaboration with government ministries – but this was often due to the transitions in government structures, and the situation also varied between countries.

Questionnaire responses received by the evaluation mission as well as findings by the Mid-Term Review Mission (undertaken in 2005) show that there have been some tensions concerning the running of the Steering Committee (some comments deplored the lack of clear procedural rules) as well as regarding the selection/performance of national project leaders. Yet, the identified weaknesses in some countries were either overcome (change of National Project Leaders, taking on more Lead Facilitators), or did not affect the core project activities. However, the question of finding an institutional home, especially for continuing and scaling-up of training/extension activities and FFS, will remain a crucial topic for future sustainability.

3. PROJECT IMPLEMENTATION STATUS

The budget and expenditure figures are based on the latest budget information available from the project; the reporting on the implementation status is derived from project progress reports, other project files and observations of the mission. The emphasis is on recent developments.

3.1 Project budget and expenditure

Table 1: Original Budget, Budget Revisions "A" and "B"

	Original Budget (Prodoc)	Percentage	Revision A	Percentage	Revision B	Percentage
5300 Salaries Professional			46,575	2%	80,274	4%
5500 Salaries General Service	10,800	0%	0	0%	1,800	0%
5570 Consultants	50,5000	22%	385,392	17%	382,589	17%
5650 Contracts	240,000	11%	425,432	19%	455,489	20%
5660 Locally Contracted Labour	21,000	1%	5,000	0%	6,063	0%
5900 Travel	294,000	13%	316,477	14%	330,046	15%
5920 Training	640,000	28%	601,349	27%	545,990	24%
6000 Expendable Procurement	90,000	4%	54,590	2%	58,977	3%
6100 Non Expendable Procurement	57,000	3%	47,967	2%	42,967	2%
6110 Hospitality	0	0%	0	0%	0	0%
6130 Support Costs	260,000	12%	260,000	12%	254,528	11%
6150 Technical Support Services	73,200	3%	62,890	3%	45,478	2%
6300 General Operating Expenses	69,000	3%	49,322	2%	50,670	2%
6400 General Overhead Expenses	0	0%	2,244	0%	2,368	0%
6500 Chargeback	0	0%	2,761	0%	2,761	0%
TOTAL	2,260,000	100%	2,260,000	100%	2,260,000	100%

The budget breakdown above indicates the main items of expenditure items: apart from the standard support costs, the bulk of expenditure is on training (original 28%, Revision "A" 27%, Revision "B" 24%), contracts (original 11%, Rev "A" 19%, Rev "B" 20%), consultants (original 22%, Rev "A" and "B" 17%) and travel (original 13%, Rev "A" 14%, Rev "B" 15%). This is in line with the provisions of the project document and the regional character of the project, which required more extensive travel.

The most significant proportional changes to the budget during the course of the project are an increase in contracts (from 11% to 19% - Rev "A" – and 20% - Rev "B" – respectively) due to increased use of Letters of Agreement (LoAs) mainly for research activities. The decrease in the budget allocation for consultants (from 22% to 17%) went hand-in-hand with a (slightly disproportionate) allocation for Professional salaries. The other major budget items have remained largely the same.

The two budget revisions were, however, also triggered by the need to accommodate no-cost project extensions. Budget Revision "A" was justified by the delayed start of the project: the project start partly missed the first cropping season, while WCR control strategies needed to be tested during several cycles of crop rotation.

Budget Revision "B" was proposed in response to the draft report of this evaluation mission, which recommended a final workshop in order to develop an exit strategy and plan follow-up activities at regional and national levels.

3.2 Activities and outputs under immediate objectives 1 to 4

This section provides an overview of the activities of the project; statistical break-downs can be found in the annexes.

Project activities started with a study tour to the Philippines[14] and to the Netherlands in February 2003, for future trainers, facilitators and farmer co-facilitators to be exposed to participatory approaches being used in the context of IPM training and research activities in those countries. The Regional Inception Workshop in March 2003 served to agree upon the main project components, establish the project structure, and elect the Project Steering Committee. National project leaders and training coordinators, the regional coordinator and secretarial staff were recruited as (part-time) national consultants and support staff, respectively in order to ensure proper implementation of project activities at regional and national levels.

Under the four thematic areas, the project conducted/supported in the main the following activities:

Participatory training and research programme

The participatory training and research programme started with two regional IPM training workshops for trainers/facilitators in Hungary (May 2003) and Croatia (September 2003), which were complemented by training for national facilitators (5-8 per country) in each country. This pattern of regional and national training workshops was repeated throughout the project lifetime [15] . The first FFS were already established under an LoA for pilot participatory training activities before the Regional Project became operational. From 2003 onwards new FFS were established from year to year[16].

In each project country initially 3-8 Farmer Field Schools (farmers groups) were organized, to conduct season-long training classes on WCR biology and management in their own village. This type of participatory training was almost everywhere a novel experience, as feedback from participants showed – in most countries, there was no history of intensive, field-based extension activities[17]. Pilot participatory research work (field studies) were conducted in some project countries with selected FFS based on farmers interests in IPM and specific issues in local corn agro-ecosystem. Farmers were supported to make economic calculations for their maize production related to their inputs, control options and yields in order to assess options for WCR management.

Also in the first year of the project, contracts were signed with institutions in three countries (Croatia, Hungary, Romania) to conduct field trials on WCR, and to provide recommendations for research follow-up. At the same time, several in-country and some regional exchange visits were organized for national facilitators and farmers to develop their knowledge on IPM for maize with special reference to WCR. These exchange visits were continued throughout the project's life cycle.

[14] Some NPLs queried the choice of the Philippines as too different a setting from Europe – an opinion that is partly shared by the mission.
[15] Regional Training Workshop on average seem to have lasted three days, with NTCs and facilitators (generally 3 per country) as participants, and FAO staff and external resource persons as facilitators.
[16] FFS were intended to be supported for 3 years; once in their 4th year, project support would be reduced.
[17] Of course, the country situation differed: on one side of the spectrum is Slovakia with mostly large, professionally run farm units, while other countries in South-East Europe have a significant proportion of small, often part-time farmers.

Still in the first project year, work was started on a Field Guide for Facilitators (finalized in March 2004), and a Field Guide on WCR Natural Enemies was also prepared in collaboration with CABI and the Global IPM Facility. (CABI also provided inputs to a selected number of FFS in Hungary and Serbia on the potential of nematodes as biological control agents of WCR larvae in the soil.)

An international consultancy on IPM strategy development was undertaken in June 2004, including field visits to Croatia, Bosnia and Hungary[18]. Bosnia started in 2004 with testing participatory training activities (Students Field Schools) in collaboration with Secondary Agricultural Schools – a scheme that was expanded in the years to follow. The initiative was replicated in 2006 in three additional project countries (Bulgaria, Hungary and Serbia), ultimately with the aim of involving schools as active partners in IPM development and as advisers to local rural communities.

A regional facilitators' network was informally set up in 2004 and supported through exchanges at regional training workshops and field exchange visits. (The 2005 MTR suggested a strengthening of the network with a view to future institutionalization, perhaps even as associations - this has not happened yet in a formal sense)

Data collection and interpretation for impact assessment of training activities was the main topic of the regional training workshop in Sofia in March 2005. Based on the workshop, some data collection was initiated in all project countries in the context of FFS.

Work done under a Letter of Agreement (LoA) on Risk Management[19] contributed to regionally harmonized WCR Risk Management methods; the study documented the spread and economic damages of WCR in 2006, the development of indicators (correlation between adult WCR population in 2005 and larval damage in 2006) and the validation of methods for WCR sampling for risk estimation (traps/visual counting), and also compared methods and discussed their feasibility in project countries.

The in-country and regional exchange visits organized for farmers and trainers steadily expanded their topics: apart from discussing WCR agro-ecosystems, IPM development and experiences on green manure application, also introduction of IPM in crops other than maize or in orchards[20] became a topic, as well as the sharing of experiences on the adaptation of farming practice by Hungarian and Slovakian farmers after EU accession with farmers from Romania and Croatia.

WCR monitoring

WCR monitoring started in 2004 with providing training and equipment (traps) for WCR population checks. Activities for WCR-IPM development and WCR monitoring were conducted in each FFS and SFS[21] through population checks for risk assessment. This allowed mapping of WCR densities (hazard) at field, community, national and regional levels. The information collected allowed farmers to make informed decisions regarding their crop rotations, and managing WCR through developing IPM.

[18] A list of international consultancies to the project is found in the Annex.
[19] Coordinated by Hungary.
[20] Such as sunflower, wheat, fodder crops, vegetables, fruits and medicinal plants.
[21] Students Field Schools (SFS) with secondary schools were initiated in Bosnia-Herzegovina in 2004, and followed by Hungary and Serbia in 2005.

Initial efforts were made to produce a WCR spread map and potential adult economic activity map in cooperation with project and non-project countries under the Regional WCR Network. However, a digitized version of the WCR spread map was not produced, as more attention was given to interpretation of pest-spread data linked with agro-ecological aspects. Eventually, the project concentrated on the development of (non-digital) village maps as a tool for community shared decision making process[22].

Regional participatory research work on risk assessment was conducted in each project country by WCR, under coordination from Hungary, based on the pilot experiences of 2003 corn season. Most of the actual monitoring was done through participatory WCR monitoring was conducted by farmers during the season. Farmers evaluated their WCR sampling data and assessed the impact of rotation and other management practices (soil preparation, variety, etc.) on WCR infestation level. This included: collection and interpretation of trap data, comparison with other assessment tools (whole plant counting), and the development of village maps.

Regional LoAs on biodiversity[23] and risk estimation[24] made an essential contribution to the development of locally suitable IPM strategies based on local conditions and common principles.

International interaction and exchange of experiences with non-project countries was maintained through reporting and discussion of project results at IWGO WCR Sub-Group workshop in Bratislava by project staff. International interaction and exchange of experiences with non project countries was maintained through communication by the Regional Coordinator with professionals in Ukraine, Albania and with EU Member States, including Italy.

Better understanding of different components of local agro-biodiversity

The first project year saw field trials on crop rotation in three countries (Croatia, Hungary and Romania), aiming at a three-year study for establishing yield losses caused by WCR, assessing the role of crop rotation as a WCR IPM option and to develop new directions for further participatory research topics for the following project years.

Participatory research was conducted initially in three project countries (Croatia, Slovak Republic and Hungary) under contract with national institutions, to investigate the role of selected components/parameters of local biotic diversity. Parameters for biotic diversity (natural enemies, soil nematodes, soil management practices, plants in field/field margin, etc.) were identified and their influence on WCR/other pests and corn productivity was assessed in collaboration with selected FFS.

All FFS training programmes in project countries have included a direct learning module in the field about main agro-biodiversity components (maize plant, herbivores, predators, parasitoids, weeds)[25] to understand the diversity and functions

[22] Serbia was highlighted as a main protagonist in this regard: village maps are being used as a powerful tool (decision support system) for field based risk assessment and community planning.
[23] University of Zagreb, Agricultural Faculty, Department of Zoology, Zagreb, Croatia (involved: BH, Bulgaria, Hungary, Romania, Serbia and Slovakia)
[24] Department of Plant Protection, Szent István University, Gödöllő, Hungary (involved: BH, Bulgaria, Croatia, Romania, Serbia and Slovakia)
[25] Framers learned about main predator and parasitoid groups: carabids, spiders, coccinellids, syrphids, chrysopids and aphid parasitic wasps; non pest herbivores: flea beetles, leafhoppers. During field trainings (AESA, Agro-EcoSystem Analysis), soil dwelling arthropods (including predators) were sampled and demonstrated to farmers with pitfall trapping; other predators and herbivores were sampled and studied with visual plant check.

of these elements. In some countries (initially Hungary and Croatia), a broader agro-ecosystem management approach was introduced (considering green manure, field margins, natural enemies) with the aim to support locally suitable development of IPM systems. This allowed farmers to improve their understanding of sustainable soil, organic matter, weed and pest management. Green manure crops field tested in FFS and SFS in Hungary and partly in Croatia were: winter rape, mustard, oilseed radish, yellow lupine and mixture of seeds[26].

Several project countries (Croatia, Hungary, Bosnia and Herzegovina, Serbia) broadened the training topics of FFS. Plant protection issues of additional crops (fodder and medicinal plants) or orchards and grape vine were introduced. In Hungary, Integrated Farming became important part of training since this type of farming offers additional incomes to farmers (subsidies provided from EU and national sources for eco-services). This approach is becoming an incentive to improve understanding and benefit of local agro-ecosystems[27].

Also the regional LoA on Risk Management covered a broad spectrum of topics related to agro-biodiversity components, and the regional LoA on Biodiversity contributed to enriching the knowledge base of farmers on local components of biodiversity in maize (carabids, coccinellids, staphylinids, large spiders – as predators), neutrals (herbivores but not pests), WCR and ECB (European Corn Borer; *Ostrinia nubilalis*) antagonists (entomopathogens). In Hungary, these components were compiled into a study "Feasibility of Integrated Farm" (Kiss. and Hoffmann, 2006).

The results of the agro-biodiversity studies, and of field training experience were integrated with results of the participatory WCR monitoring regional study, into a more comprehensive IPM strategy for WCR in the region that confirmed crop rotation as the most effective component, followed by soil management, sowing date, fast rooting corn cultivars, etc, and leaving chemical control as the least attractive option. However, as national policies on IPM and the general understanding of IPM differ among project countries, also the level of understanding of the importance of agro-biodiversity shows regional variations.

As part of the project's awareness-raising efforts, project representatives made various presentations to national and international workshops[28] and leaflets on the project were prepared and distributed among project countries and relevant international organizations.

Links were established in 2004-05 with the IPM Europe network (The European Group for Integrated Pest Management in Development Cooperation, http://www.ipmeurope.org/), and further developed. The ENDURE[29] network became operational in January 2007. Since the institute of the Regional Coordinator is actively involved in this project, there is a good chance to continue project-initiated activities within the framework provided by ENDURE. Similarly, the EU 6th Framework DIABR-ACT (http://www.diabract.org/) specific support action) project for

[26] A regional exchange training workshop on green manure crops with Croatian, Slovak and Hungarian farmers was organized in Hungary in September, 2006.
[27] Beside IPM in crops, some FFS are dealing with more environmental oriented topics like farming practices and habitat development for protected animal species (Great Bustard).
[28] For example, the IWGO WCR Subgroup Workshop, the IPM Europe Steering Committee meeting (Verona, Summer 2005), and the Phare Small Projects Programme "Phytosanitary measures beyond accession: from present achievements to future policy" (Central Department of Agricultural, Natural and Forest Resources, Autonomous Region Friuli Venezia Giulia, Italy, Summer 2005), IWGO WCR Subgroup Workshop in Switzerland; Plant Protection Days in Tulln, Austria. Also the Mid-Term Review provided a range of additional contacts.
[29] European Network for the DURable Exploitation of crop protection strategies, EU-6th Framework Network of Excellence 4-year project, http://www.endure-network.eu/.

WCR started in 2006. The Regional Coordinator became responsible for IPM of WCR, and in this capacity facilitated the involvement of FAO project partners in DIABR-ACT workshops (on communication, chemical control, biological control, cultural control, etc). This allowed the linking of project partners to ongoing EU R&D activities and increased the recognition and dissemination of project results on a European scale.

Better understanding of socio-economic aspects

This thematic area was off to a slow start, as initially specific proposals were not forthcoming. Based on the 2003 activities, a pilot socio-economic (sociological) survey was made in Hungary with special emphasis on the impact of training on local community. In 2005, a study on Economics and Policy Aspects of Corn Production in Croatia and Hungary was commissioned[30], and a similar study was commissioned from the NGO Agri-Serbia International to be conducted in collaboration with selected FFS groups, as well as a study assigned to the Department of Management and Marketing, Slovak Agricultural University, Nitra, on socio-economic aspects of corn growing and their impact on training activities in Slovakia.

As national policies regarding IPM varied from project country to project country, the FFS training programmes initially focused on direct learning in the field about main agro-biodiversity components. Taken together with the results produced by regional studies (LoA for WCR Risk Management and Secondary Schools), the outcomes of FFS training programmes provided a basis for improved local adaptations of WRC management strategies, as well as for the development of IPM Guidelines.

Most project countries organized national meetings with relevant national stakeholders, essentially with the aim to ensure involvement and commitment of national institutions and to enlarge support for project activities at national level (and ultimately to develop national IPM strategies)[31]. However, while local communities and community leaders mostly showed enthusiasm and interest, it became apparent that necessary policy support is not available in each country, often due to changing structures in the agricultural support systems.

4. SUPPORT BY GOVERNMENTS, TECHNICAL AND OPERATIONAL BACKSTOPPING, PROJECT MANAGEMENT

The management of a regional project involving countries with different agricultural system and administrative and political set-ups and affiliations, almost by definition has to be more flexible and prepared for unexpected developments than a country-level project. Especially in a region undergoing such rapid and fundamental changes as Central and South-Eastern Europe, the provisions of the project document regarding government support and regional management structures were therefore likely to change.

4.1 Support by governments/national institutions

The project has almost uniformly enjoyed great support from its direct counterpart institutions (often agricultural research or university institutions) – while there were

[30] Department for Agro-forest and Rural Environment Economics, University of Tuscia, Viterbo, Italy.
[31] This was already recommended by the MTR to ensure institutionalization and improved sustainability of project results.

limitations on the degree of collaboration provided by some National Project Leaders, these initial constraints were overcome in the course of project implementation[32].

Efforts made towards involvement of national institutions beyond the circle of immediate collaborators (such as ministries of agriculture, plant protection services) met with mixed results[33]. Country situations varied, but it appears that particularly with regard to the national extension services, capacities are limited. Particularly concerning a continuation and upscaling of FFS activities, the perspectives are doubtful in some cases owing to a general uncertainty about the future organization of agricultural support services.

Much of the work being done depends on voluntary labour of institutional collaborators, facilitators and farmers. While this is a sign that the project and its work is much appreciated by stakeholders, it is no guarantee that especially the innovative extension approach introduced by the project will find enough institutional support.

4.2 Technical and operational backstopping

The technical support and training role of FAO, Rome, and of consultants appointed through FAO, was highly appreciated[34]. The project's initial reliance on external technical backstopping and consultancy missions was eventually balanced by giving a significant number of (mainly research-oriented) LoAs to institutions in the region.

Operational support from FAO's Sub-Regional Office in Budapest (SEUR – now REUR) and through UNDP country offices (due to the absence of FAO representations in 6 out of 7 project countries) initially proved to be a complex operation, sometimes causing delays e.g. in disbursement, but mostly seems to have functioned in a satisfactory manner as evidenced by questionnaire responses.

4.3 Project management

The project document envisaged that "... the project management unit should be placed in the office of the Coordinator of the existing WCR Regional Network at least for the first project year (to) secure continuity of project activities with previous WCR activities in the region". It also defined that the "management structure of the project will be based on regional steering committee and national core teams ..."[35], but did not give a clear outline of the planned management structure. This may have proved a source of confusion in some instances, as borne out by some questionnaire responses from National Project Leaders.

For a complex regional project, the management structure was rather lean. The size of the Steering Committee was kept at a more manageable level (fewer members than envisaged in the project document), and most of the burden of running the project was shouldered in an exceptional manner by the Regional Coordinator. Due to his close links with EU-funded and other international activities, the Regional Coordinator also provided for recognition of the project at international levels, and

[32] The Mid-Term Review in 2005 provided a good opportunity to identify and address constraints, although some of the MTR's conclusions were not shared by all project stakeholders.
[33] At the time of the MTR, some links were reported to ministries of agriculture, organic farming organizations, municipal-level contacts, and agriculture universities.
[34] However, the MTR noted that initially FAO technical backstopping officers (and consultants) became seen as the source of ideas, consultants, skills development, while the national project leaders were more concerned with the running of the project.
[35] A Regional Steering Committee was to be established from seven National Project Officers plus two representatives from thematic areas and one or two FAO staff. (See also section on Institutional Arrangements above.)

could potentially also facilitate follow-up activities within the framework of EU-supported plant protection initiatives.

National Project Leaders and Training Coordinators have contributed substantially to the good performance of the project. Some measure of compensation for them (but at the same time representing a new obligation), were the LoAs funded by the project to undertake studies in relevant subject areas. (In a few cases, particularly where NPLs apparently found it difficult to meet the demands of the position, replacements or alternative solutions were found.)[36]

5. ACTUAL AND POTENTIAL RESULTS

The project has successfully built upon an existing collaboration network. It has been able to demonstrate that the perceived threat by WCR could be managed without taking recourse to extensive chemical treatment or GMO cultivars, by providing general as well as location-specific examples of effective management solutions.

The Farmer Field Schools and Student Field Schools have provided an innovative model of working with farmers, and for collaboration among farmers, which could serve in the future as a vehicle not only for participatory research activities, but also as a model for agricultural extension and the formation of farmer organizations in general.

Although field-level training and research has been a core activity of the project, the large number of publications produced with project support and/or in the context of project activities demonstrates a prolific output in terms of technical, popular and scientific value.

The project has been less successful at engaging national key stakeholders and policy makers in a dialogue regarding IPM strategies as well as the adoption of the FFS concept. This may be due to several factors: the emphasis given by project leaders to field-level training research activities, the institutional distance between the participating agricultural research institutes and their ministerial counterparts, and generally the fluctuations in agricultural policies as well as in agricultural support structures in the countries of the region.

5.1 Immediate Objective 1 - To establish a participatory training and research programme

The participatory training and research programme has been a mainstay of the project. Number of Farmer Field Schools (FFS) and participating farmers increased steadily from 32 FFS/331 farmers in 2003 to 140 FFS/1734 farmers in 2006, the last year of full operation[37]. Likewise, the number of Students Field Schools (SFS) rose from 14 groups involving 204 students and 11 schools in four countries (Bosnia-Herzegovina, Croatia, Hungary, Serbia) to 19 groups involving 614 students and 15 schools.

[36] As all project leaders (including the Regional Coordinator) were only part-time engaged by the project, a common complaint heard was that there were sometimes too many administrative duties to be performed.
[37] Although the project received a no-cost extension for 2007, no – or only very few – FFS were formed and some FFS were already phasing out. Also, project management made conservative budget estimates regarding the available budget.

Table 2: Number of FFS in 2006

Country	No of FFS	# of farmers involved
Bosnia & Herzegovina	23	619
Croatia	11	80
Bulgaria	16	147
Hungary	19	195
Romania	17	175
Serbia	44	442
Slovakia	10	76
Total	**140**	**1,734**

The topics for in-country and regional exchange visits organized for farmers and trainers steadily expanded: apart from WCR management, many other aspects such as agro-ecosystems, IPM development, green manure, IPM in crops other than maize were covered. The exchange visits among farmers became a widely appreciated feature, which facilitated also the sharing of general experiences by Hungarian and Slovakian farmers with farmers from Romania and Croatia regarding the adaptation of their farming practices after EU accession. As the project has involved during its lifetime approximately 70-80 facilitators in training activities, there exists now a regional cadre of well trained and enthusiastic potential collaborators for future initiatives. (An informal facilitators network exists but is likely to suffer from the absence of future funding.)

Concerning the replicability of the FFS approach, one has to accept the great diversity in the region: sizes of participating farms range from 3 to 4,000 ha, and also agro-ecological conditions differ widely. FFS have functioned in all participating countries, but the diverse conditions call for regionally and locally adapted methodologies rather than a blueprint approach.

Table 3: Average Farm Size (and Range) of Participating Farmers

Country	Farm size (ha)
Bulgaria	3-5
Bosnia-Herzegovina	5
Croatia	10 (2-200)
Hungary	30-400
Romania	5-10
Slovak Republic	50-4,000
Serbia	6

Almost unanimously, all national management teams regard the participatory, discovery-based extension and field research based system by the project as a great strength[38]. However, many also point out that participatory extension approaches and cooperative efforts among private owners hardly existed in Central and South-East Europe in the past, and that therefore some initial skepticism had to be overcome. While the project has generally succeeded at the level of farmers and local administrations (the evaluation mission received from a number of local and regional

[38] For example in Slovakia, scientists to studying WCR together with farmers through participatory field research were able to synthesize all information immediately as advice to maize growers. This, it was said, would not have been able without the project - government bodies would not have been able to follow the situation in the same manner.

administrations assurances that they were actively considering funding of FFS and their facilitators), it is not clear whether enough recognition exist at higher levels for a replication of the approach on a national scale.

FFS budget levels for 2005 suggest that the funding received may be beyond the current capacity of many agricultural administrations.

Table 4: Average Budget for FFS Groups 2005

Country	Average Budget for FFS Groups US$
Bosnia-Herzegovina	2,079
Bulgaria	1,776
Croatia	3,564
Hungary	1,980
Romania	1,654
Serbia	2,095
Slovakia	3,754
Average Overall	**2,415**

An already visible constraint lies in the fact that much of the field work has been done on a voluntary basis, with some compensation from the project for field workers (facilitators). So far, there have only been occasional contributions from agricultural administrations, and it appears that agricultural advisory services in several participating countries are currently in a weakened state and may not be able to keep up the work initiated by the project. Many agricultural administrations in the region are under-funded and fragmented (tasks are divided between national, regional and local administrations, farmers organizations, agricultural chambers, etc), thus creating uncertain prospects for continuation of some project initiatives.

5.2 Immediate Objective 2 - WCR spread and biology in Europe better understood

The project, through its participatory research activities, field studies and field training sessions implemented in each country has demonstrated successfully that WCR can be controlled through crop management approaches adapted to different agro-ecological as well as socio-economic conditions.

Regional networking has contributed to reaching a common understanding in all participating countries regarding WCR monitoring and research as well as its control; and the linkages established with other similar projects supported under the EU 6th Framework (IABR-ACT and ENDURE) have helped to increase visibility as well the prospects for future replication in the region. Communication was maintained and project results were shared with EPPO (European Plant Protection Organisation), IWGO (International Working Group of Ostrinia and other Maize Pests) and the IWGO WCR Sub-Group and IPMEurope Network. A Joint Workshop entitled "Integrated Pest Management for corn: a necessity or an opportunity? The case of Western Corn Rootworm" was organized jointly with the Main Office for Agricultural, Natural, Forest and Mountain Resources of Friuli Venezia Giulia Autonomous Region in Pordenone, Italy.

At the local and regional level, the involvement of secondary schools, local and regional administrations has increased the awareness of WCR and at the same time demonstrated new approaches to agricultural extension. Instruments popularized by the project such as the village map method proved to be a very powerful tool as a base for making collective decisions about priorities for crop rotation among different

village fields/areas[39]. Key components of local biodiversity have become better known to farmers – they scout their fields to estimate WCR infestation levels and use their knowledge when doing WCR risk management and deciding on better IPM strategies[40].

On a higher level, the work done on WCR risk estimates helped to develop locally suitable IPM strategies based on local conditions and common principles. A wider awareness of the work done was achieved through an international exchange of experiences with non-project countries at various workshops, through participation in networks and publication of articles in a multitude of journals and other publications.

5.3 Immediate Objective 3 - To achieve better understanding of different components of local agro-biodiversity

All FFS training programmes in project countries have included a direct learning module in the field about major agro-biodiversity components (maize plant, herbivores, predators, parasitoids, weeds) in order to improve the understanding of the diversity and functions of these components. In some countries (initially Hungary and Croatia), a broader agro-ecosystem management approach was introduced (considering green manure, field margins, natural enemies) with the aim to support the development of locally suitable IPM systems. This allowed farmers to improve their understanding of sustainable soil, organic matter, weed and pest management.

Participatory research was conducted initially in three project countries (Croatia, Slovak Republic and Hungary) under contract with national institutions to investigate the role of selected components/parameters of local biotic diversity. Parameters for biotic diversity (natural enemies, soil nematodes, soil management practices, plants in field/field margin, etc.) were identified and their influence on WCR/other pests and corn productivity was assessed in collaboration with selected FFS.

A regional study "Participatory Research on the Role of Local Biodiversity in Maize Agro-Ecosystem on IPM for WCR"[41] supported by a project LoA, was complemented by further research in the following project countries:

- Investigation of soil dwelling entomofauna (Croatia)
- Investigation of the entomofauna on corn plants (Croatia, Bosnia and Herzegovina and Romania)
- Study on the role of field margin (Hungary and Bulgaria)
- Study on entomopathogens of WCR (Hungary, Slovakia)
- Evaluation of the feasibility of "IPM farm" (Hungary)
- Explain the factors influencing the impact of natural enemies (parasitoids, predators) to insect pests of maize (Slovakia)
- Implementation of a study on role of WCR alternative hosts plants (Serbia)

Summing up, the study came to the result that in most cases, farmers' practices were not changed because of the research done, but that their understanding of the maize agro-ecosystem had improved significantly. (For example, regarding their understanding of the correlation between pests – e.g. aphids – and their natural

[39] A digitized version of the WCR spread map was not produced, as more attention was given to interpretation of pest spread data linked with agro-ecological aspects. Eventually, the project concentrated on the development of village maps as a tool for community shared decision making process.
[40] The project claims that as WCR management rotation and IPM has increased, there has been decreased larval damage over the region (although though this may be partly due to high rainfall in 2005 that allowed quick root regeneration in maize).
[41] Coordinated by the Faculty of Agriculture, Department for Agricultural Zoology, Zagreb, Croatia.

enemies – lady beetles). On a more scientific level, the studies commissioned made further investigations possible into future WCR options, and confirmed the validity of some already introduced practices involving biotic diversity. (In Hungary, components from the study were taken up in a study "Feasibility of Integrated Farm".)

The results of the agro-biodiversity studies and of field training exercises were integrated with results of the participatory WCR monitoring regional study into a more comprehensive IPM strategy for WCR in the region. The study confirmed crop rotation as the most effective component, followed by soil management, sowing date, etc, and leaving chemical control as the least attractive option. In order to popularize results further, project representatives made various presentations to national and international workshops, and leaflets on the project were prepared and distributed among project countries and to relevant international organizations. In addition, links were established with the IPM Europe network, the ENDURE network, and further developed with the IPM Europe network. Also, in the EU 6th Framework DIABR-ACT project for WCR, which started in 2006, the project Regional Coordinator holds the position responsible for IPM of WCR. This allowed the linking of project partners to ongoing EU R&D activities and increase the recognition and dissemination of project results on a European scale.

5.4 Immediate Objective 4 - To obtain better understanding of socio-economic aspects

This thematic area was off to a slow start, as initially specific proposals were not forthcoming and the socio-economic aspect of IPM for WCR was not considered by project countries in their 2003 activities and in 2004 workplans. However, in 2004 a pilot socio-economic (sociological) survey was made in Hungary based on the 2003 activities, with special emphasis on the impact of training on the local community. Several other studies were commissioned: in 2004, a study on Economics and Policy Aspects of Corn Production in Croatia and Hungary[42], a similar study to be done by the NGO Agri-Serbia International (conducted in collaboration with selected FFS groups), as well as a study contracted to the Department of Management and Marketing, Slovak Agricultural University, Nitra, on socio-economic aspects of corn growing and their impact on training activities in Slovakia.

In particular the "study on economics and policy of corn production in Croatia, Hungary and limitedly in Serbia and Montenegro" took some time to materialize (2004-07), and did not produce essentially new insights. The authors concluded that for the area studied by them in Hungary, maize was the most profitable crop if compared to potential crop substitutes, and that large and mixed farms as well as those adopting agro-environmental schemes had better chances to obtain good economic results under most scenarios. Concerning Croatia, the authors found that medium farms showed better economic results due to a better dynamism and efficiency, and lower production costs. It is not clear whether the results of the study fed into additional research, or inspired policy and strategy papers.

As national policies regarding IPM varied from project country to project country, the FFS training programmes initially focused on direct learning in the field about main agro-biodiversity components. Taken together with the results produced by regional studies (LoA for WCR Risk Management and Secondary Schools), the results of FFS training programmes provided a basis for improved local adaptations of WRC management strategies, as well as for the development of IPM Guidelines.

[42] Agroforestry, Economics and Rural Environment Department, University of Tuscia, Viterbo, Italy. (Dipartimento di Economia Agroforestale e dell'Ambiente Rurale (DEAR), Università della Tuscia (Viterbo), Italy)

Most project countries organized national meetings with relevant national stakeholders, essentially with the aim to ensure involvement and commitment of national institutions and to enlarge support for project activities at national level (and ultimately to develop national IPM strategies). However, while local communities and community leaders mostly showed enthusiasm and interest, it became apparent that necessary policy support is not available in every country, often due to changing structures in the agricultural support systems.

6. SPECIFIC TOPICS AND ISSUES

6.1 Sustainability of project interventions

One remarkable aspect of the project is the enthusiasm it could generate among farmers and collaborators. However, voluntary activities can seldom be sustained over lengthy periods of time, and the departure of facilitators from the project to other (paid) positions already indicate the existence of a problem. As the continued funding of facilitators remains uncertain, the institutional future of the farmer support structures created by the project remains a challenge.

Continuation of national activities as well as future regional cooperation will depend on finding some institutional base in relevant national or regional institutions and initiatives. Concerning the FFS, some encouraging signs are visible as regional and local administrators have indicated their willingness to fund some FFS activities. Regarding future regional research coordination and collaboration, some activities may possibly be continued within the framework of EU-funded initiatives: for example, the 6th Framework DIABR-ACT, and ENDURE.

There is no doubt that in social, technical and economic terms the approaches developed by the project are viable, but it is also obvious that they cannot yet continue on their own. Further institutional support is required, especially if the aim is a mainstreaming of IPM and FFS. The challenge of identifying possible alternatives should be taken up by the project in consultation with potential partners such as national ministries of agriculture and funding sources of regional initiatives.

The outcome of these consultations should be exit strategies for the project, which would allow the continuation of project activities within longer-term national and regional initiatives and programmes.

6.2 Cost-effectiveness

In the absence of detailed cost break-downs, the evaluation mission cannot judge the cost-effectiveness of the project in strictly economic terms (such as, e.g. return on investment). It is clear, however, that the WCR control options developed by the project have provided farmers with clear guidance for their crop management practices. In addition, the FFS approach piloted by the project could prove to be a successful (and cost-efficient) approach for future extension activities, once agricultural administrations have stabilized and funding has improved. (As the formation of FFS requires initial investments and the availability of facilitators, sufficient start-up funding is of crucial importance.)

The implementation modality of the project (part-time coordinators and project leaders) also helped to contain costs – the share of direct staff costs (professional salaries and consultants) has been just over 20% of the total budget.

6.3 Gender equity in project implementation and results

Gender equity did never figure as a particular factor in the project. (The project document simply declared under target beneficiaries that "attention will be given to gender issues during project implementation", without going into further detail, and in the context of a workshop that "... attention would be given to training methodology, monitoring of training process and quality, involvement of appropriate stakeholders at community level and gender issues".)

In the absence of specific guidance, the project mostly proceeded with those farmers that showed most interest in the participating in the FFS and field research.

Table 5: % of Women among Participating Farmers

Country	% of Women
Bulgaria	50%
Bosnia-Herzegovina	2-3%
Croatia	2-3%
Hungary	20%
Romania	10%
Slovak Republic	5%
Serbia	10%

Nevertheless, while the project did not try to select farmer participants on the basis of gender, among project management the gender composition was better balanced: in some countries, both NPL and NTC were female (Croatia), and generally the balance seemed to be roughly 1/3 female – 2/3 male. Among facilitators, the exact gender breakdown is not known to the mission, but the presence of many female facilitators was observed.

6.4 Environmental Considerations

All FFS training programmes in project countries have included a direct learning component in the field about main agro-biodiversity components, and thus generated a better understanding of the agro-ecosystem. Farmers' understanding especially of the maize agro-ecosystem has improved significantly, and on a more scientific level, studies commissioned by the project made further investigations possible into future WCR options, and confirmed some already propagated practices involving biotic diversity.

The recognition that WCR damage can be contained through crop management approaches adapted to different agro-ecological as well as socio-economic conditions will help to avoid an undue reliance that might otherwise have been placed in chemical control and GMO approaches.

6.5 Major factors affecting the project results

The project initially had to struggle with the late start of the project (July 2003, when the maize planting season had already started), and thus could not take full advantage of the 2003 cropping season. Some administrative difficulties arose because FAO was not present with a representation in six out of seven project countries, and the project thus had to establishing administrative modalities with local UNDP Offices. Other problems stemmed from the fact that national administrative/management procedures and rules were quite different from the FAO

project modalities. In addition, reporting routines (timing and content) needed to be established from national to regional level and to FAO. (And contributed to high workloads of some project NPLs, to go by their questionnaire responses.)

In some countries, the innovative approaches promoted by the project were quite uncommon, and also demanding in terms of workload. This led to changes in NPL or NTC positions in some countries; in others, additional national consultants were approached and tasks newly distributed.

The limited involvement of national stakeholders (such as national institutes or NGOs and policy makers) figured as a constraint in almost every progress report. Project management suggested that potential partners should be involved in project activities at different levels, in order to create appropriate links and ensure positive collaboration and ultimately to ensure sustainability of project results. However, the February 2007 progress report conceded that institutionalization efforts by national staff and partners did not deliver the expected results – a view that is shared by the evaluation mission.

Annex 1: Terms of Reference

Regional Project
Integrated Pest Management for Western Corn Rootworm
in Central and Eastern Europe
(GTFS/RER/017/ITA)

Terminal Evaluation
Terms of Reference

1. Background

The Western Corn Rootworm (WCR), a pest of maize, was first found in Europe in 1992, near Belgrade airport, former Yugoslavia. In USA WCR is widely distributed in the Corn Belt region, since 1970's, causing damages estimated up to a value of USD 1 billion/year for crop losses and control costs. WCR control in USA is mostly based on chemical treatments and, since 2003, on WCR resistant GM maize hybrids (various Yield Gard and Herculex hybrids). In the 90's WCR steadily spread in Europe, as an invasive pest endangering one of the most important crops, and reaching West Europe in 2001, often with initial infestations around airports. Specific quarantine measures were developed under EC regulation (CD 24.10.2003; 2003/766/EC; 2006/564/EC and Commission Recommendation 2006/565/EC).

When the WCR was initially detected in the Eastern/Central European region, very limited quarantine control could be implemented, due to specific local political and/or conflict conditions in the affected countries. The pest could then spread and establish a significant population in corn growing ECE countries, making quarantine/eradication measures impossible and its management only possible at farm/field level.

FAO provided assistance to WCR infested countries in East/Central Europe since the middle 90's, with limited available resources, supporting the establishment of a Regional Network of scientists who conducted pest monitoring activities that was base for developing the WCR distribution map. Pilot training activities started in 2002, with selected farming communities, for them to monitor WCR for management purposes.

The recent WCR invasion in Europe can be interpreted as a risk or an opportunity: a new pest – the most important corn/agricultural pest in the USA - is perceived as a high risk by the European corn production sector. This perception triggered a set of control mechanisms, starting with quarantine measures aiming at pest eradication, requiring effective surveillance systems and heavy use of pesticide in the focal areas. The presence of this new pest, and the availability of a specific GM corn to control it, also feeds into the European discussion on the acceptability and risks of GMOs.

From the biological and agronomic point of view, WCR spread is an excellent example of biological invasion into the European agro-ecosystem where it should now be considered - in most countries covered by the FAO regional project – not as a quarantine pest but as a field management problem. WCR as an invasive species in Europe provided an opportunity to formulate new questions for understanding its biology and spread and to develop innovative modalities for its management. The specific political-socio-economic context upon arrival of WCR in Europe – of countries in transition and in partly in conflict - created barriers for immediate action but also opportunities for the development of new responses. The challenge was then to turn this "threat" into an opportunity: to explore modalities for developing appropriate responses to an invasive species, suitable for the specific political-socio-economic conditions in the European sub-region, with involvement of local stakeholders, from corn producers to local institutions.

2. Official arrangements

In July 2003 a regional project was approved for funding by the Italian Government under the Special Contribution - Trust Fund for Food Security and Food Safety, to support development of IPM for WCR, using participatory approaches. Project duration was to be 3 years and total budget provided USD 2,260,000. Countries involved were: Bosnia–Herzegovina, Bulgaria, Croatia, Hungary, Romania, Serbia-Montenegro, Slovak Republic.

An extension of NTE for the project to December 2007, without budget increase, was approved in 2006 to allow completion of project activities that are closely related with the corn growing season.

3. Objectives of the project

The Programme has the following overall development objective:

Corn production in Europe protected from losses caused by WCR through the development and implementation of integrated pest management (IPM) strategies by farmers, based on sound understanding of local agro-ecosystems and protection of local biodiversity as the main element of sustainability of agricultural production.

The immediate objectives of the Programme are as follows:

- To develop and implement participatory research and training
- WCR monitoring and IPM development
- bio-diversity studies
- socio-economic and political studies

The project initiated activities in 2003 with the assignment and recruitment of national and regional staff, including National Project Leaders with technical responsibilities and National Training Coordinators, with responsibilities linked with the training component of the project implementation. Regional coordination was ensured by a Regional Project Coordinator, supported by part time administrative staff. All staff were selected among experts from the region itself. The Regional Coordinator, all 7 NPLs and 3 NTCs constituted the Project Steering Committee, in representation of the project countries, supported by FAO staff as needed.

Training activities were supported by the project, starting with regional workshops to train national trainers, continuing with national level training for trainers/facilitators, and establishment of Farmers Field Schools at local level, with season long training and experimentation. Training activities were based on principles on participatory approaches as used in other FAO programmes, with required modifications to fit to local needs and conditions.

Specific studies were assigned during the project, under contractual arrangements, to further explore:

- specific aspects of WCR biology, monitoring tools and methods for risk assessments, field based decision making;
- policy-economic and social aspects relevant to develop appropriate WCR management strategies
- local adaptation of FFS methods for inclusion in curriculum of Secondary Schools for Agriculture

A Mid-Term Review Mission took place in July 2005, visiting 6 project countries, reviewed status of project activities and provided specific recommendations for improve achievement of project objectives.

4. Purpose of the Evaluation

The Implementation Agreement between the Donor and FAO stipulates that a terminal evaluation mission must be carried out on the last year of the project. The Evaluation mission is planned for October 2007 as members of the mission will be able to evaluate project impact in four of the project countries.

The principal objective of the terminal evaluation is to provide all stakeholders (e.g. member countries, donor, FAO and the project management) with an independent assessment of project's achievements. The evaluation mission will also make detailed recommendations for follow up after project termination.

5. Scope of the Evaluation

The mission will assess the:

a) Relevance of the project to development priorities and needs.

b) Clarity, and realism of the project's development and immediate objectives, including specification of targets and identification of beneficiaries and prospects for sustainability.

c) Achievement of project objectives and unexpected results

d) Accountability

e) Quality, clarity and adequacy of project design including:

- clarity and logical consistency between inputs, activities, outputs and progress towards achievement of objectives (quality, quantity and time-frame);
- realism and clarity in the specifications of prior obligations and prerequisites (assumptions and risks);
- realism and clarity of external institutional relationships, and in the managerial and institutional framework for implementation and the work plan;
- likely cost-effectiveness of the project design.

f) Efficiency and adequacy of project implementation including:

- availability of funds as compared with budget for both the donor and national component;
- the quality and timeliness of input delivery by both FAO and the Government;
- managerial and work efficiency;
- implementation difficulties;
- adequacy of monitoring and reporting;
- the extent of national support and commitment;
- the quality and quantity of administrative and technical support by FAO

g) Project results, including a full and systematic assessment of outputs produced by the project (quantity and quality as compared with work-plan and progress towards achieving the immediate objectives). The mission will especially review the status and quality of work on:

- participatory research and training activities
- WCR monitoring (RM) and IPM development and its adaptation for field use
- bio-diversity studies
- socio-economic and political aspects

h) The prospects for sustaining the project's results by the beneficiaries and the host institutions after the termination of the project. The mission should examine in particular:

- legal status and capabilities of the technical counterparts
- policy support for IPM implementation at both national and local levels
- local funding available for IPM activities

- potential for local spread of IPM activities
- awareness generated on WCR impact and overall ecosystem management, at field and national level

i) The cost-effectiveness of the project.

Based on the above analysis, the mission will draw specific conclusions and make proposals for any necessary further action by Governments and/or FAO to ensure sustainable development, including any need for additional assistance and activities of the project prior to its completion. The mission will draw attention to any lessons of general interest. Any proposal for further assistance should include precise specification of objectives and the major suggested outputs and inputs.

6. Composition of the Mission

The terminal evaluation mission team will consist of two core members as well as representatives of the countries visited by the mission, as follows:

- Mission Leader (FAO Evaluation Staff or Consultant nominated by FAO)
- Donor representative (specialist in plant protection issues)
- Representatives of the countries visited by the mission (only to join the mission within his/her own country

Mission members should be independent and have no direct involvement with the project with regard to its formulation, implementation or backstopping. They should preferably have experience of evaluation.

7. Timetable and Itinerary of the Mission

The Mission will take place in October 2007 with a total duration of about 22 days. The indicative programme of the mission will be as follows:

2 days	Briefings in FAO-HQ plus team discussion (1-2/10)
1 day	Briefing in Budapest (REU-Operations and SEUR staff) (3/10)
14 days	Visits to 4 project countries, being Hungary, Serbia, Bosnia-Herzegovina and Croatia (3-16/10)
1 day	Debriefing in Budapest (REU and SEUR- Technical and Operational Staff (16/10)
1 day	De-briefing at FAO-HQ (17/10)
5 days	Report writing following incorporation of comments arising from countries/field visits and debriefing (till 22/10)

8. Consultations

The mission will liaise with FAO, the Donor Ministry of Foreign Affairs and the concerned national agencies, as well as with national and international project staff. Although the mission should feel free to discuss with the authorities concerned anything relevant to its assignment, it is not authorized to make any commitments on behalf of the Government, the donor or FAO.

9. Reporting

The mission is fully responsible for its independent report which may not necessarily reflect the views of the Governments or the Donor or the FAO. With some room of flexibility, the report will be written in conformity with the following headings:

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VI. Country reports (which should concentrate on conclusions and not description)
VII. List of documents consulted

The findings and recommendations will be completed and agreed prior to termination of the mission. The report also will be completed to the maximum extent possible. The mission will also complete the FAO Project Evaluation Questionnaire. The Team Leader bears responsibility for finalization of the report, which will be submitted to FAO within two months of mission completion. FAO will submit the report to Governments and Donor together with its comments.

Annex 2: Mission Itinerary

1 October, Monday:

Arrival in Rome of Donor Representative

overnight in Rome, Hotel S. Prisca

2 October, Tuesday:

Briefing for mission members at FAO HQ

10:00 – 11:00 meeting with TCAP
11:00 – 12:00 meeting with AGPP
12:00 – 14:00 lunch
14:00 – 15:00 meeting with PBEE
15:00 – 17:00 final meetings as needed
and fly to Budapest

B. Bultemeier and N. La Porta (**MA 403 FCOBUD 2015 2205)**

overnight in Budapest, Hotel Benczúr

3 October, Wednesday:

08.45 J. Kiss to join the Team at Hotel Benczur
09.00: Briefing in Budapest (REU-Operations and SEUR staff)
13.30: to meet Prof. Cagan NPL and O. Paucova NTC Slovakia at SEUR Budapest

Team to overnight in Budapest, Hotel Benczúr

4 October Thursday

08.30 J. Kiss to pick up Team and departure by car for Croatia
13.00 Arrival to Terezino Polje
13.00 Introduction and discussion with Croatian team:
Prof.dr.sc. Jasminka Igrc Barčič, NPL,
Prof.dr.sc. Renata Bažok, NTC,
Dipl.ing. Tomislav Kos, senior facilitator
14.00 Visit farmer and facilitator, Špoljar Josip
15.00 Visit farmer, member of FFS Terezino Polje, Čorić Željko
16.00 Visit farmer, member of FFS, Katančić Zlatko
Traveling to Ferdinandovac
18.00 FFS meeting in Ferdinandovac or visiting 2 farmers from the group (optionally, depending on farmers availability)

overnight in Đurđevac

5 October, Friday

9.00 Traveling to Zagreb
11.00 Meeting at Ministry of Agriculture
13.00-15.00 Lunch
15.00 Meeting with the team of facilitator at Faculty of Agriculture

overnight in Zagreb

6 October, Saturday

9.00 Visit farmer, member of FFS Vukovina, Fabijančić Stjepan
10.00 Visit farmer, member of FFS Vukovina,
11.30 Travel to Vinkovci, Lunch on the way
15.00 Arrival to Vinkovci
16.00 Meeting with farmer, member of FFS Tovarnik, Glibo Ante
17.00 Meeting with farmer, member of FFS Tovarnik, Grgić Zlatko
18.30 Arrival to Vinkovci
18.30-20.00 Final discussion with the team from Croatia
20.00 Leaving of the team from Croatia

TEM to overnight in Vinkovci

7 October, Sunday

Morning: briefing and discussion on experiences in Croatia
13.00 travel to Serbia
rest/discussions/report writing

overnight in Beograd

8 October, Monday:

09.00: Team to meet I. Sivcev NPL and S. Stankovic NTC Serbia,
Report by NPL and NTC and discussion on activities and outputs in Serbia

visit: the institute in charge for project implementation and relevant Ministry
discussion on institutionalization

overnight in Beograd

9 October, Tuesday:

outstanding issues, briefing and final discussion with the team from Serbia
travel to Hungary

overnight Mezohegyes, Hotel Nónius

10 October, Wednesday:

08.00: Departure for Ketegyhaza to meet SFS group, maize labyrinth, established in this year.
Field visit, to meet Facilitator and farmer P. Rozsavolgyi, implementation of Integrated Farming under national Agri-Environmental Programs. Meeting with facilitators and some farmers of Ketegyhaza FFS

overnight Mezohegyes, Hotel Nónius

11 October, Thursday:

08.00: departure for Dunavecse FFS, Farming under national Agri-Environmental Programs: How to link farming to habitat protection: The feasibility of developing nesting program for great bustard (*Otis tarda*). Field visit. Meeting with farmers.
Lunch
15.00 Travel to Regoly, to meet Regöly FFS, main activity WCR Risk Management.
In hall discussion (field visit if possible).

overnight in Szekszárd, Hotel Gemenc

12 October, Friday

08.00 Travel for Budapest
11.00: Visit to Ministry of Agriculture and Rural development, Hungary, Department of Plant- Soil- and Agri-Environmental Protection
Afternoon: Briefing for Hungary, report writing

overnight in Budapest

13 October, Saturday:

Departure for Bosnia from Budapest (MA450 BUD/SJJ 12:45/13:50)
Preparations for BiH discussion

overnight in Sarajevo, Hotel Europa Garni

14 October, Sunday:

visit in Bosnia, in Hall discussion on BiH activities, outputs

overnight in Sarajevo, Hotel Europa Garni

15 October, Monday:

Morning: visit BH Ministry(ies) and Faculty
afternoon fly to Budapest, (MA451 SJJ/BUD 14:35/15.40)
N. La Porta to leave for Milan from Budapest

overnight in Budapest, Hotel Benczur

16 October, Tuesday:

discussion
debriefing in REUD/SEUR

overnight in Budapest, Hotel Benczur

17 October: fly to Rome,

One day in the week of 22 October:

debriefing at FAO-HQ

18-23 October: report writing

Annex 3: Project Staffing

Project Management and Facilitators[43] by Country and Year					
	2003	2004	2005	2006	2007
Bosnia and Herzegovina					
NPL	Husnija Festic	Husnija Festic	Husnija Festic	Husnija Festic	Husnija Festic
NTC	Nedzad Karic	Nedzad Karic	Nedzad Karic	Nedzad Karic	Nedzad Karic
Facilitators	Samid Kurtalic		Meho Majdancic	Meho Majdancic	Meho Majdancic
	Meho Majdancic		Vojislav Trkulja	Vojislav Trkulja	Vojislav Trkulja
	Muriz Imsirpasic		Smajo Toromanovic	Smajo Toromanovic	Smajo Toromanovic
	Irfan Sabanovic				
Bulgaria					
	Ivanka Ivanova	Ivanka Ivanova	Ivanka Ivanova	Ivanka Ivanova	Ivanka Ivanova
	Krassimira Kokoranova	Krassimira Kokoranova	Krassimira Kokoranova	Krassimira Kokoranova	Krassimira Kokoranova
Croatia					
NPL	Jasminka Igrc-Barcic	Jasminka Igrc-Barcic	Jasminka Igrc-Barcic	Jasminka Igrc-Barcic	Jasminka Igrc-Barcic
NTC	Renata Dobrincic	Renata Dobrincic-Bazok	Renata Dobrincic-Bazok	Renata Bazok	Renata Bazok
Facilitators	Lidia Lasan	Lidia Lasan	Tomislav Kos	Tomislav Kos	
	Tomoslav Grgic				
	Zdenka Horvat				
	Tomislav Kos				
Hungary					
NPL (and RC)	Jozsef Kiss	Jozsef Kiss	Jozsef Kiss	Jozsef Kiss	Jozsef Kiss
NTC	Judit Komaromi	Judit Komaromi	Judit Komaromi	Judit Komaromi	Judit Komaromi
Admin Assistantant	Andrea Nagy	Andrea Nagy	Andrea Nagy	Andrea Nagy	Andrea Nagy
Facilitators	Tamás Tuska			Peter Hoffmann	Istvan Terpo
	Peter Rozsavolgyi				
Co-Facilitators	Judit Szeiberling				
	Gabor Nagy				
	Peter Hoffmann				

[43] List of facilitators not complete

Romania					
NPL	Ioan Rosca	Ioan Rosca	Ioan Rosca	Ioan Rosca	Ioan Rosca
NTC	Tomel Petrache	Tomel Petrache	Tomel Petrache	Tomel Petrache	Tomel Petrache
Facilitators	Ion Arsinte				
	Adriana Balint Pop				
	Ion Motica				
Serbia					
NPL	Ivan Sivcev	Ivan Sivcev	Ivan Sivcev	Ivan Sivcev	Ivan Sivcev
NTC	Anicka Galo		Sladjan Stankovic	Sladjan Stankovic	Sladjan Stankovic
Facilitators	Sladjan Stankovic	Sladjan Stankovic			
	Florian Farkas				
	Vladimir Ridic				
	Vlado Krejic				
Slovakia					
NPL	Peter Sivicek	Peter Sivicek	Peter Sivicek	Ludovit Cagan	Ludovit Cagan
NTC	Olga Paucova	Olga Paucova	Olga Paucova	Olga Paucova	Olga Paucova
Facilitators	Csaba Varga	Csaba Varga		Csaba Varga	
	Marek Polak				

Annex 4: International Consultants

Name	Function
2003	
Jesus BINAMIRA	Consultant, IPM Program Development
Frederike PRAASTERINK	Consultant IPM training
Stefan TOEPFER (CABI)	Consultant, WCR Bio-control
2004	
Ludovit CAGAN	Consultant, Maize pests
Carl BARFIELD	Consultant, IPM dev.
Frederike PRAASTERINK	Consultant IPM training
Stefan TOEPFER (CABI)	Consultant, WCR Biocontrol
Lorenzo FURLAN	Consultant, Wireworms
2005	
Frederike PRAASTERINK	Consultant IPM training
Janice JIGGINS	MTR Mission Team Leader
Gianluca GOVERNATORI	MTR Mission Team Member
Pier Paolo ROGGERO	MTR Mission Team Member

Annex 5: Publications

REGIONAL

Scientific book chapters, papers, proceedings (English)

Kiss J, C.R. Edwards, H.K. Berger, P. Cate, M. Cean, S. Cheek, J. Derron, H. Festic, L. Furlan, J. Igrc-Barčić, I. Ivanova, W. Lammers, V. Omelyuta, G. Princzinger, Ph. Reynaud, I. Sivcev, P. Sivicek, G. Urek and O. Vahala (2005): Monitoring of Western Corn Rootworm (*Diabrotica virgifera virgifera* LeConte) in Europe 1992-2003. In S. Vidal, U. Kuhlmann and C.R. Edwards (Editors): Western Corn Rootworm: Ecology and Management. CABI Publishing, Wallingford, Oxon UK. 29-39 p.

Scientific abstracts, oral presentations (English)

J. Kiss, J. Igrc-Barcic and C.R. Edwards (2000): Management of western corn rootworm in Europe. XXI International Congress of Entomology, Foz do Iguassu, Brasil. 2000. August 20-26. Abstracts of the Congress Book I. 42 p.

J. Kiss, B. Khosbayar, J. Komáromi, J. Igrc-Barčić, R. Dobrinčić, I. Sivcev, C.R. Edwards and I. Hatala-Zsellér (2001): Is the Western Corn Rootworm adapting itself to the European crop rotation system? Results of a joint European trial. IWGO-NEWSLETTER XXII. 1-2. 8-9p.

J. Kiss, B. Khosbayar, J. Komáromi, J. Igrc-Barčić, R. Dobrinčić, I. Sivcev, C.R. Edwards and I. Hatala-Zsellér (2001): Is the Western Corn Rootworm adapting itself to the European crop rotation system? Results of a joint European trial. Proceedings of XXI. IWGO Conference and VIII. *Diabrotica* Subgroup Meeting, 27 Oct-03 Nov. 2001, Venice, Italy. 29-37p.

Kiss J.; C.R. Edwards, M. Allara, I. Sivcev, J. Igrc-barcic, H. Festic, I. Ivanova, Princzinger G., P. Sivicek, I. Rosca (2001): A 2001 update of the western corn rootworm *Diabrotica virgifera virgifera* LeConte, in Europe. Proceedings of XXI. IWGO Conference and VIII. *Diabrotica* Subgroup Meeting, 27 Oct-03 Nov. 2001, Venice, Italy. 83-87p.

Kiss, J. (2002): Regional IPM Cooperation: Contribution to Pesticide Risk Reduction. Sub-Regional Workshop on the Implementation of the Rotterdam Convention. Kiev, Ukraine 25-29 November 2002.

J. Kiss, B. Khosbayar, J. Komáromi, J. Igrc-Barčić, R. Dobrinčić, I. Sivcev, C.R. Edwards, I. Rosca and I. Hatala-Zsellér (2002): Western Corn Rootworm (*Diabrotica virgifera virgifera* LeConte) and the European crop rotation system: Results of a regional trial. Abstracts of the 9th EPPO ad hoc Panel and the 8th International IWGO Workshop on Diabrotica virgifera virgifera LeConte. 02-05 November, 2002. Belgrade, FRY. 36-37p.

Kiss, J. (2003): Integrated Pest Management for Western Corn Rootworm (WCR) in Central and Eastern Europe. Poster at Agricultural Fair, Nitra, Slovak Republic.

Kiss, J. (2003): From risk by new invasive pest towards regional alience in Europe. World Food Day Round Table Discussion, 15 October 2003. FAO SEUR, Budapest.

Kiss J, B. Khosbayar, J. Komáromi, J. Igrc-Barčić, R. Dobrinčić, I. Sivcev, C.R. Edwards, I. Rosca, I. Hatala-Zsellér (2003): Western Corn Rootworm and the European crop rotation system: Adaptation or egg-laying by chance? Abstracts of the International Symposium “Ecology and management of Western Corn Rootworm”. 19-23 January 2003. Göttingen, Germany. Abstracts of the Symposium. 30p.

DOBRINČIĆ, R., IGRC-BARČIĆ, J., TUŠKA, T., GALO, A., OLGA, P., KARIĆ, N., IVANOVA, I. and ALLARA, M. (2003): Participatory Approach as a Management Tool for Western

Corn Rootworm (*Diabrotica virgifera virgifera* LeConte). International Symposium on the Ecology and Management of Western Corn Rootworm, Januar, 19-23, 2003, Gottingen, Germany, Abstract No. 20.

R. Dobrinčić, J. Igrc Barčić, T. Tuska, A. Galo, O. Paučova, N. Karić, I. Ivanova, M. Allara (2003): Participatory approach as a management tool for Western Corn Rootworm (*Diabrotica virgifera virgifera* LeConte) International Symposium «Ecology and Management of Western Corn Rootworm», Gottingen, 19-23 January, 2003. Proceedings, pp. 17.

Igrc Barcic J., Bazok, R., Kiss, J., Edwards, C. R., (2004): Western corn rootworm (*Diabrotica virgifera virgifera* LeConte) and possible adaptation to European crop rotation system. Plant Protection towards the 21st Century. Abstracts (Guo, Yu-yuan et al., Eds.) Proceedings of the 15th International Plant Protection Congress, Beijing, China, May 11 - 16, 2004. Foreign Languages Press: 329.

Kiss, J. (2005): Development of IPM in Central and Eastern Europe: The case of WCR. "2nd Symposium of Plant Protection in Bosnia and Herzegovina" Teslić, 14-16 December 2005. Abstracts: Trkulja (Editor) 37-38 p.

Bazok, R.; Igrc-Barcic, J.; Kiss, J.; Komaromi, J.; Sivcev I.; Cagan, L.; Karic, N.; Rosca I. and Ivanova, I. (2005): Risk assessment for Western Corn Rootworm in infested areas in 2004. *IWGO Newsletter* XXVI 1, p.42

Kiss, J. (2005): Development of IPM in Central and Eastern Europe: The case of WCR. Second Symposium of of the Plant Protection Society in Bosnia Herzegovina, Teslic, BiH, 14-16 December, 2005. Abstracts: (V. Trkulja, Editor), 37-38 p.

Kiss, J. (2006): From Integrated Pest Management towards Integrated Farming/Production. "50th Plant Protection Seminar, 7-10 February 2006, Opatija, Croatia. Abstracts: Glasilo Biljne Zastite, 4. 1. pp. 20-21

Kiss, J. (2006): *Diabrotica virgifera virgifera* in corn in Europe: outline, consequences, perspectives. Proceedings of the International Workshop "Integrated Pest Management for corn: a necessity or an opportunity? The case of the Western Corn Rootworm. Pordenone, 19-20 April 2006 (in press)

Kiss J. (2006) How to contain the invasive pest of maize, the Western Corn Rootworm (*Diabrotica virgifera virgifera* LeConte)? Technical and social aspects of monitoring and management of the population in Eastern Europe. Joint Seminar on IPM, 21 April, 2006. Wageningen University, NL

Scientific book chapters, papers, proceedings (non-English)

Kiss J.; M. Allara, C.R. Edwards, H. Festic, J. Igrc-barcic, I. Ivanova, Princzinger G., I. Sivcev, P. Sivicek, I. Rosca: FAO WCR NETWORK: Regionális network az amerikai kukoricabogár populációjának megfigyelése és a fenntartható védekezési stratégiák kidolgozása érdekében. 48. Növényvédelmi Tudományos Napok, Budapest, 2002. március 6-7. poster Abstracts: Kuroli, G.; Balázs,K.; Szemessy,Á (Editors), 136 p.

BOSNIA AND HERZEGOVINA

Scientific book chapters, papers, proceedings (English)

KARIĆ, N. (2005): Integrated Pest Management of Western Corn Rootworm (*Diabrotica virgifera virgifera* Le Conte) in Bosnia nad Herzegovina. Contemporary Agriculture, Faculty of Agriculture Novi Sad, Serbia and Montenegro, No. 3-4, 217-221.

Scientific abstracts, oral presentations (English)

FESTIĆ, H. and KARIĆ, N. (2004): Monitoring of spreading Western Corn Rootworm in Bosnia and Herzegovina 2003. 10th IWGO *Diabrotica* Subgroup Meeting, 14-16 January 2004, Engelberg, Switzerland, Abstracts No.6.

KARIĆ, N and FESTIĆ, H. (2004): Organization of Farmers Field School in Bosnia and Herzegovina. 10th IWGO *Diabrotica* Subgroup Meeting, 14-16 January 2004, Engelberg Switzerland, Abstracts No. 68.

KARIĆ, N. (2004): Introduction of Farmer Field Schools as part of Integrated Pest Management of WCR (*Dioabrotica virgifera virgifera* Le Conte) in Bosnia and Herzegovina. 5th Congres of Plant Protection with International participation, November 22-27, 2004, Zlatibor, Serbia and Montenegro, abstract No. 51.

KARIĆ, N., FESTIĆ, H., MAJDANČIĆ, M., TRKULJA, V. and KURTALIĆ, S. (2005): Results of implementation Farmer Field Schools (FFS) in Bosnia and Herzegovina 2004. 11th Diabrotica Subgroup Meeting, 10th EPPO ad hoc Panel and FAO Network Group Meeting, February 14-17, 2005, Bratislava, Slovak Republic, Abstract No. 33.

KARIĆ, N., MAJDANČIĆ, M. and KURTALIĆ, S. (2005): Involving Agricultural Secondary Schools in IPM development. 11th Diabrotica Subgroup Meeting, 10th EPPO ad hoc Panel and FAO Network Group Meeting, February 14-17, 2005, Bratislava, Slovak Republic, Abstract No. 45.

FESTIĆ, H. and KARIĆ, N. (2005): Weather conditions influence at Western Corn Rootworm spreading in Bosnia and Herzegovina. 11th Diabrotica Subgroup Meeting, 10th EPPO ad hoc Panel and FAO Network Group Meeting, February 14-17, 2005, Bratislava, Slovak Republic, Abstract No. 40.

Scientific book chapters, papers, proceedings (non-English)

KARIĆ, N i FESTIĆ, H. (2004): Zlatica kukuruza (*Diabrotica virgifera virgifera* Le Conte) – Novi štetnik u Bosni i Hercegovini. Radovi Poljoprivrednog fakulteta, br. 54/1, pp 55-63, Sarajevo.

KARIĆ, N. i FESTIĆ, H. (2006): Istraživanje zlatice kukuruza (*Diabrotica virgifera virgifera* Le Conte) u Bosni i Hercegovini u 2004. godini. Radovi Poljoprivrednog fakulteta, br. 57/2, Sarajevo, pp 121-131.

KARIĆ, N. i FESTIĆ, H. (2005): Uvođenje modela poljskih škola za farmere kao dijela Integralne kontrole zlatice kukuruza (*Diabrotica virgifera virgifera* Le Conte) u Bosni i Hercegovini. Radovi Poljoprivrednog fakulteta, br. 56/2, Sarajevo, pp 37-43.

Scientific abstracts, oral presentations (non-English)

FESTIĆ, H. i KARIĆ, N. (2004): Istraživanje zlatice kukuruza (*Diabrotica virgifera virgifera* Le Conte) u Bosni i Hercegovini u 2003. godini. Drugi simpozij poljoprivrede, veterinarstva, šumarstva i biotehnologije, 28-30 septembar, Bihać, sažetak br. 114.

KARIĆ, N. (2004): Uvođenje modela poljskih škola za farmere kao dijela integralne kontrole zlatice kukuruza (*Diabrotica virgifera virgifera* Le Conte) u Bosni i Hercegovini. Drugi simpozij poljoprivrede, veterinarstva, šumarstva i biotehnologije, 28-30 septembar, Bihać, sažetak br. 115.

MESIĆ, ALMA i KARIĆ, N. (2004): Pojava i širenje zlatice kukuruza (*Diabrotica virgifera virgifera* Le Conte) na Unsko-Sanskom kantonu. Drugi simpozij poljoprivrede, veterinarstva, šumarstva i biotehnologije, 28-30 septembar, Bihać, sažetak br. 117.

KARIĆ, N. (2004): Zlatica kukuruza (*Diabrotica virgifera virgifera* Le Conte) u Bosni i Hercegovini – trenutni status i prognoza za naredne godine. I sipozijum o zaštiti bilja sa međunarodnim učešćem, 14-16 decembar 2004., Sarajevo, Bosna i Hercegovina, sažetak br.18.

KARIĆ, N. (2005): Integralna kontrola zlatice kukuruza (*Diabrotica virgifera virgifera* le Conte) u Bosni i Hercegovini. 49 seminar biljne zaštite, 07-10. februar 2005, Opatija, Hrvatska, sažetak br. 50.

BULGARIA

Scientific abstracts, oral presentations (non-English)

Gesheva S. (2006) Diabrotica virgifera and good practices in agriculture – regional meetings with farmers in Montana and Vratza (oral presentations), February, 2006

Ivanova I. (2006): Diabrotica virgifera virgifera –serious pest- review Plant Protection, 2, 2006

Milovska M., Kokoranova K., Ivanova I. (2007) – Diabrotica virgifera – how work with farmers, FFS, Meetings with NPPS inspectors (oral presentations), July, 2007

Any kind of other publications, TV, radio interviews, web site news, etc.

Ivanova I. (2003) Diabrotica virgifera and maize – local radio interview - Bregovo

Ivanova I. (2003) Diabrotica virgifera – new pest in region- local TV in Montana

CROATIA

Scientific book chapters, papers, proceedings (English)

Bažok, R., Kos, T., Igrc Barčić, J., Kolak, V., Lazarević, B., Čatić, A. (2007): Abundance and Distribution of the Ground Beetles *Pterostichus melanarius* (Illiger 1878) and *Pseudophonus rufipes* (DeGeer 1774) in Corn Fields in Croatia. Entomologia Croatica 10 (1-2) in print

Igrc Barčić, J., Bažok, R., Edwards, C. R., Kos, T. (2007): Western corn rootworm adult movement and possible egg laying in fields bordering maize. *J. Appl. Entom*. 131(6), 400-405.

Igrc Barčić, J., Bažok, R., Maceljski, M. (2003): Research on the Western corn rootworm (*Diabrotica virgifera virgifera* LeConte, Coleoptera Chrysomelidae) in Croatia (1994-2003). Entomol. Croat. Vol.7 Num 1-2: 62-83.

Scientific abstracts, oral presentations (English)

Bažok, R. Igrc Barčić, J. (2006): Overview the changes of population level of WCR in Croatia 1995-2005. Workshop: Integrated Pest Management for corn: a necessity or an opportunity?The case of Western Corn Rootworm. 19-20 April 2006, Pordenone, Italy

Bažok, R., Igrc Barčić, J. (2004): Principles and the experience of the farmers field school approach in Croatia. 10th IWGO Diabrotica Subgroup Meeting and 9th EPPO ad hoc Panel and FAO Network Group Meeting, Engelberg, Switzerland, 14-16 January 2004., Abstracts, pp. 66.

Scientific abstracts, oral presentations (non-English)

Bažok, R., Igrc Barčić, J., Kos, T. (2006): Važnost procjene rizika od štetnika u integriranoj zaštiti bilja. Glasilo biljne zaštite. 1 (dodatak)/2006: 22-23. sažeci Seminara iz zaštite bilja, Opatija, 7-10.2. 2005.

Kos, T., Bažok, R., Igrc Barčić, J.(2006):Uloga istraživanja biološke raznolikosti u integriranoj zaštiti bilja. Glasilo biljne zaštite. 1 (dodatak)/2006: 23-24. sažeci Seminara iz zaštite bilja, Opatija, 7-10.2. 2005

Igrc Barčić, J., Bažok, R. (2005): Procjena i prognoza šteta od kukuruzne zlatice. Glasilo biljne zaštite. 1(dodatak)/2005: 120-121. sažeci Seminara iz zaštite bilja, Opatija, 8-10.2. 2005.

Igrc-Barčić, J., Bažok, R., Lasan, L. (2004): "Farmers field schools" prvi put u Hrvatskoj I Europi. Glasilo biljne zaštite 1/04:7. sažeci Seminara iz zaštite bilja, Opatija, 10-13.2. 2004.

Any kind of other publications, TV, radio interviews, web site news, etc.

Bažok, R. (2006): FAO program edukacije poljoprivrednih proizvođača o mjerama integrirane zaštite kukuruza od kukuruzne zlatice. Gospodarski list 15.10.
Lasan, L. (2006.) Kukuruzna zlatica na dugoselskom području, br. 485. Studeni.

Markovica, T. (2006.) Kukuruzna zlatica ozbiljno prijeti, rujan, Glas podravine i Prigorja, Listopad 2006.

Kos, T. (2006.) Integrirana zaštita bilja, Glasnik Turopolja, rujan 2006. str. 45.
Smoljo, K. (2006.) Edukacija seljaka o kukuruznoj zlatici prema mjerama integrirane zaštite bilja, Virovitički list, kolovoz 2006.

Kos, T. (2005.) Znanjem i učenjem protiv kukuruzne zlatice, Glasnik Turopolja br. 273, str. 35.

Smoljo, K. (2005.) Kukuruzna Zlatica i na ivanečkom području, Varaždinske novine, rujan, broj 3168.

Ožegović, D. (2005): Kukuruzna zlatica - rastuća globalna prijetnja uzgoju kukuruza. Agroglas, br. 107. str. 42-43.

Bažok, R. (2005): Kukuruzna zlatica- novi opasni štetnik kukuruza. Gospodarski list, 15.6.2005.

Kos T. (2004): Bitka protiv kukuruzne zlatice, Glasnik Turopolja, br. 261, Listopad. god XIII.

Rukavina, S. (2004.) Kukuruzna zlatica ozbiljno prijeti, Virovitički list, kolovoz.2004.

Bažok, R. (2007): Kukuruzna zlatica ponovno prouzrokovala velike štete. HTV emisija Plodovi zemlje , 15.09.2007.

Bažok, R. (2007): FAO program edukacije poljoprivrednih proizvođača o mjerama zaštite od kukuruzne zlatice na području Vukovarsko srijemske županije, Hrvatski radio Vukovar, 31.1.2007.

Bažok,R. (2006): FAO program edukacije poljoprivrednih proizvođača o mjerama zaštite od kukuruzne zlatice. HTV, emisija Plodovi zemlje, 1.10.

Igrc Barčić, J. (2006): Štete od kukuruzne zlatice i kako ih izbjeći. HTV, emisija, Plodovi zemlje, 1.10.

Bažok, R. (2006): Prezentacija FFS prgrama edukacije poljoprivrednih proizvođača o mjerama integrirane zaštite kukruza od kukuruzne zlatice, Terezino polje, 25.rujan 2006. godine. Gospodarski list 15.10.2006.

Bažok,R. (2006): FAO program edukacije poljoprivrednika i mogućnosti sprečavanja šteta od kukuruzne zlatice, NET TV, emisija Miris zemlje, 26.11.

Bažok Renata (2005): Integrirana zaštita ratarskih kultura od štetnika. HRVATSKI KATOLIČKI RADIO, emisija: Lice zemlje, 12.svibanj 2005.

Igrc Barčić, Jasminka (2005): “Kukuruzna zlatica i project FAO- organizacija rada Škola u polju”. HRVATSKA TELEVIZIJA, emisija: Plodovi zemlje, rujan 2005.

Bažok, Renata (2005): “Kukuruzna zlatica i project FAO- organizacija rada Škola u polju”. HRVATSKA TELEVIZIJA, emisija: Plodovi zemlje, rujan 2005.

HUNGARY

Scientific book chapters, papers, proceedings (English)

Kiss J, J. Komáromi, J. K. Bayar, C.R. Edwards, I. Hatala-Zsellér (2005): Western Corn Rootworm (*Diabrotica virgifera virgifera* LeConte) and the crop rotation systems in Europe. In S. Vidal, U. Kuhlmann and C.R. Edwards (Editors): Western Corn Rootworm: Ecology and Management. CABI Publishing, Wallingford, Oxon UK. 189-220 p.

Scientific abstracts, oral presentations (English)

J. Kiss, J. Komáromi, B. Khosbayar, C.R. Edwards, I. Hatala-Zsellér (2000): Crop Rotation and WCR Management: Methods and First Year Results. Abstracts of the 5th FAO/TCP Meeting, 6th EPPO ad hoc Panel and the 7th International IWGO Workshop on *Diabrotica virgifera virgifera* LeConte. 16-17 November, 2000. Stuttgart, Germany. p.

J. Kiss, J. Komáromi, B. Khosbayar, C.R. Edwards, I. Hatala-Zsellér (2000): Crop Rotation and WCR Management: Methods and First Year Results. IWGO Newsletter XXI. 1-2. 23-24 p.

J. Komáromi, B. Khosbayar, J. Kiss, C.R. Edwards and E. Széll (2002): Is the development of Western Corn rootworm possible in corn/soybean and corn/alfalfa rotation systems? Abstracts of the 9th EPPO ad hoc Panel and the 8th International IWGO Workshop on *Diabrotica virgifera virgifera* LeConte. 02-05 November, 2002. Belgrade, FRY. 40-41p.

Bayar K, J. Komáromi, J. Kiss, C.R. Edwards, E. Széll (2003): Population build-up of *Diabrotica virgifera virgifera* LeConte in cornfields: A case study. Abstracts of the International Symposium "Ecology and management of Western Corn Rootworm". 19-23 January 2003. Göttingen, Germany. 31p.

Komaromi, J. and Kiss, J. (2005): Participatory training with farmers for IPM of WCR in Hungary: Training methods & outputs. *IWGO Newsletter* XXVI 1, pp.5-6 (presented at the Xth IWGO -Diabrotica subgroup meeting in Engelberg, Switzerland, January 14-17, 2004).

Komáromi, J.; Rózsavölgyi P.; Kiss, J. and Toepfer, S. (2005): How to work with stakeholders for developing and implementing IPM in maize? *IWGO Newsletter* XXVI 1, pp.40-41

Toepfer, S.; Kiss, J., Turoczi, G, Komaromi, J., and U. Kuhlmann (2005): Options for developing integrated control measures against the maize pest *Diabrotica virgifera virgifera* (Coleoptera: Chrysomelidae) in Europe. *IOBC/WPRS Bulletin* 28 (2): 1-7.

Komáromi J., P. Rózsavölgyi, J. Kiss and S. Toepfer (2005): How to work with stakeholders for developing and implementing IPM of maize? IOBC-IWGO meeting – 11 Subgroup Diabrotica, Bratislava, Slovakia, (14. - 16. February 2005).

Balogh, P. J. Komaromi, S. Toepfer and J. Kiss (2005): Pilot socio-economic study on farmers, on FFSs and on training outputs under the FAO "IPM for WCR" project in Hungary. IWGO WCR Subgroup Workshop, 14-16 February 2005, Bratislava, Slovakia

Kiss, J. (2005): Development of IPM in Central and Eastern Europe: The case of WCR. Second Symposium of of the Plant Protection Society in Bosnia Herzegovina, Teslic, BiH, 14-16 December, 2005. Abstracts: (V. Trkulja, Editor), 37-38 p.

Boriani, M. Agosti, M.; J. Kiss and C. R. Edwards (2006): Sustainable management of the Western Corn Rootworm (*Diabrotica virgifera virgifera* LeConte, Coleoptera: Chrysomelidae) in infested areas: Italian, Hungarian and USA experiences. *OEPP/EPPO Bulletin* 36 (3) pp. 531-537

Kiss, J. I. Terpó, J. Komaromi, P. Rózsavölgyi, P. Hoffmann (2006): Peaceful co-existence with WCR? A case of Integrated Production/Farming from Hungary. Proceedings of the Workshop „IPM for corn: a case or an opportunity? The case of WCR" 19-20 April 2006. Pordenone, Italy (in press)

Kiss, J. and Hoffmann, P. (2006): From Integrated Pest Management towards Integrated Farming/Production. "50th Plant Protection Seminar, 7-10 February 2006, Opatija, Croatia. Abstracts: Glasilo Biljne Zastite, 4. 1. pp. 20-21

Kiss, J. (2006): From Integrated Pest Management towards Integrated Farming/Production. "50th Plant Protection Seminar, 7-10 February 2006, Opatija, Croatia. Abstracts: Glasilo Biljne Zastite, 4. 1. pp. 20-21

Scientific book chapters, papers, proceedings (non-English)

Kiss J. (2003): Nemzetközi együttműködéssel a kukoricabogár okozta probléma megoldásáért. Az ENSZ FAO projektje Közép- és Kelet-Európában. (Regional co-operation to manage Western Corn Rootworm. Project of FAO in Central and Eastern Europe). Agrofórum 4 Extra, p. 46

Hoffmann P.; Szeiberling J.; Komáromi J. (2003): Horvát- és magyarországi gazdák közös képzése Sombereken (Regional training meeting of Hungarian and Croatian farmers in Somberek). Agrofórum 4 Extra, p. 49

J. Papp Komaromi, I. Terpó, M. Tokaji (2007): Working together, learning from each other: Farmers'field School groups in Hungary. Pesticide News

Scientific abstracts, oral presentations (non-English)

Kiss, J. Komáromi, J. Khosbayar, B. C.R. Edwards, Hataláné-Zsellér I. Széll E. (2001): A vetésváltás mint az amerikai kukoricabogár (*Diabrotica virgifera virgifera LeConte*) egyik lehetősége: előzetes eredmények. 47. Növényvédelmi Tudományos Napok, Budapest, 2001. február 27-28. Abstracts: Kuroli,G.; Balázs,K.; Szemessy,Á (Editors), 55 p.

Bánka P. (2007): A projektmódszer alkalmazási lehetőségei a középfokú mezőgazdasági szakképzésben (Egy növénytermesztési oktatási project szervezése és hatásvizsgálata) (Possibilities for the implementation of project method in the curriculum of secondary agricultural school. (Organization and impact assessment of one plant production project). Kecskeméti Főiskola Tanítóképző Főiskolai Kar; Projektpedagógia – Projektmódszer X. Konferencia. (X.th Conference on Project method)

Bánka P. (2007): A projektmódszer alkalmazási lehetőségei a középfokú mezőgazdasági szakképzésben (Egy növénytermesztési oktatási project szervezése és hatásvizsgálata) (Possibilities for the implementation of project metod in the curriculum of secondary agricultural school. (Organization and impact assessment of one plant production project). Erdei Ferenc IV. Tudományos Konferencia (IVth. Ferenc Erdei Scientific Conference).

Any kind of other publications, TV, radio interviews, web site news, etc.

Balatoniné Medvegy Anna, Gyulai Anikó, Ribóczi Edina (2006): Gazdacsoportok működése Békés megyében (Farmers'Field School groups in Bekes County). Gazda-Társ Hírlevél, 2006, 5. szám.
http://www.bekesmeak.hu/gtars/cikk.php?ev=2006&szam=5&link=xi5/6a.html

Tokaji M. (2005): Kísérlet a tudásközpontban (Experiment in the Knowledge Centar). Summary on Green manure experiment and SFS activity at ketegyhaza Secondary Agricultural School.
http://www.eduport.hu/cikk.php?id=12966&PHPSESSID=59a569cba31547f4a8

Komaromi S. (2005): „Felvettük a kesztyűt" a kukoricabogárral szemben (We start to fight against WCR) Summary on the activities conducted at Ketegyhaza SFS school. http://bmhirlap.hu/index.php?apps=cikk&c=373052&d=2005.01.13&r=1

Á. Csizér (2005): Zöldtrágya a környezetért (Green manure for better farming) Summary on the aims, outcomes of Participatory research conducted on the feasibility of IPM farm at Ketegyhaza. Bekes Megyei Hírlap (deleted from the webpage)

Anonym (2005): Világprogram Kétegyházán (Worldprogram at Ketegyhaza) Summary on SFS activities conducted at Ketegyhaza in the frame of FAO GTFS/RER/017/ITA project. Bekes Megyei Hírlap (deleted from the webpage).

TV interviews:

P. Rózsavölgyi (farmer facilitator of Ketegyhaza FFS group). Summary on the aims, experiences and outcomes of FFS activity conducted at Ketegyhaza and kevermes FFS groups. Bekes County TV.

B. Püski (facilitator of bekes FFS and SFS groups). Summary on the aims, experiences and outcomes of Bekes FFS group acticvities. Bekes County TV.

Anonym (student of Hódmezővásárhely SFS group) (2005). Advantages of SFS activity (summary of the interview was on the webpage, but it is already deleted). Hódmezővásárhely Local TV.

J. Papp Komaromi (2005): New method in students' education, possibilities for curriculum development. Hódmezővásárhely Local TV.

R. Ferenc (farmer of Attala FFS group), J. Papp Komáromi, P. Hoffmann (2006): Aims, experiences and outcomes of WCR risk management activity.

J. Papp Komaromi (2006): New method in farmers training. Delta - Scientific Program of Hungarian television.

P. Bánka (2007): Új oktatási irányzat a magyarországi mezőgazdasági szakközépiskolákban. (Egy oktatásmódszertani esettanulmány beszámolója). New approach in agricultural secondary schools in students' education. Tradíció és Innováció Tudományos Konferencia. Tradition and Innovation- Scientific Conference.

ROMANIA

Scientific book chapters, papers, proceedings (English)

ROSCA I., 2003, -"Present and future of Western Corn Rootworm (*Diabrotica virgifera* Le Conte) in Romania". Procedings of International Scientific Conference "50 years University of Forestry", session Plant Protection, 1-2 April Sofia, Bulgaria, 79-81.

ROSCA I., 2004, -"Crop rotation and western corn rootworm (Diabrotica virgifera) in Romania". Proceedings of XXXIV Annual Meeting of ESNA, 29 August-2 September 2004, Novi Sad, Serbia and Montenegro, 484-488.

ROSCA I., 2004, -"Biology of western corn rootworm (Diabrotica virgifera) in Romania". Proceedings of XXXIV Annual Meeting of ESNA, 29 August-2 September 2004, Novi Sad, Serbia and Montenegro, 489-492.

ROSCA I. 2007, Impact of EU regulations and experiences related to weswtern corn rootworm (Diabrotica virgifera Le Conte) management in Romania. Lucrari stiintifice la „National Scientific Symposium with International Participation - The impact of Romania's entry into the European Union in Agriculture", 351-356.

Scientific abstracts, oral presentations (English)

ROSCA I., 2000 –Tendencies of management of north-western corn rootworm (Diabrotica virgifera virgifera Le Conte) in Romania- ESNA XXX Annual meeting, 26-30 August, 2000, Keszthely, Hungary. 120. Abs.

ROSCA I., 2000, "Potential strategies to control Western Corn Rootworm (Diabrotica virgifera virgifera La Conte) in Romania" Western Corn Rootworm Diabrotica virgifera virgifera Le Conte, Abstracts, %th FAO/TCP Meeting, 6th EPPO ad hoc Panel, 7th International IWGO – Workshop, Stuttgart – Germany, 16-17 November 2000, 16, Abs.

ROSCA I., HANCU MARIANA, 2001, -Researches regarding crop rotation, WCR management and pest evolution in Timis district - Romania. Proceedings of IWGO Conference, LEGNARO, ITALY, 27 October-3 November 2001, 91-96.

ROSCA I., AXINTE I., 2002, -Possibilities of controlling western corn rootworm (Diabrotica virgifera virgifera Le Conte) in Romania through crop rotation and other methods. IWGO – Newsletter XXIII – 2, 3-5.

ROSCA I., -2002, - Posibilities of control western corn rootworm-Diabrotica virgifera virgifera Le Conte – in Romania-. ESNA XXXII Annual meeting, 10-14 septembrie 2002, VARSOVIA- Polonia. Abs.

MARIANA HANCU, PALAGESIU I., ROSCA I., GROZEA IOANA, 2002, -Monitoring of the western corn rootworm (Diabrotica virgifera virgifera Le Conte) in Timis county, from 1997 to 2002-. 9th IWGO Diabrotica Subgroup Meeting and 8th EPPO ad hoc Panel, Belgrade, November 3-5, 2002. Book of abstracts. 18.

ROSCA I., PETRACHE T., 2005, -Importance and menagement option on WCR (*Diabrotica v. virgifera*) in Romania-. International Working Group on Ostrinia and other maize pests; 11th Diabrotica Subgroup Meeting; 10th EPPO and hoc Panel and FAO Network Group meeting. 14-17 February 2005, Bratislava, Slovak Republic. Abs.

PETRACHE T., ROSCA I., & FFS facilitators, 2005, -Experiences with farmer field school activities in Romania as an important part of WCR (*Diabrotica v. virgifera*) IPM program-. International Working Group on Ostrinia and other maize pests; 11th Diabrotica Subgroup Meeting; 10th EPPO and hoc Panel and FAO Network Group meeting. 14-17 February 2005, Bratislava, Slovak Republic

Scientific book chapters, papers, proceedings (non-English)

ROSCA I., 2004, -Cercetari privind pierderile de productie cauzate de atacul viermelui vestic al radacinilor de porumb (*Diabrotica virgifera virgifera* Le Conte) masuri de prevenire si combatere. Lucr. St. U.S.A.M.V.- Bucuresti. Seria A. Agronomie, XLVI, 242-244.

ROSCA I., 2004, -Cercetari privind biologia viermelui vestic al radacinilor de porumb (*Diabrotica virgifera virgifera* Le Conte) in Romania. Lucr. St. U.S.A.M.V.- Bucuresti. Seria A. Agronomie, XLVII, 328-333.

ROSCA I., PETRACHE T., 2006, Cercetari privind biologia viermelui vestic al radacinilor de porumb (D*iabrotica virgifera virgifera* Le Conte). Lucrari stiintifice, U.S.A.M.V., seria A, volum XLIX, 2006, 465-470.

PETRACHE T., ROSCA I., 2006, Studiu privind aprecierea riscului viermelui vestic al radacinilor de porumb (D*iabrotica virgifera virgifera* Le Conte). Lucr. St. U.S.A.M.V. Bucuresti, seria A, volum XLIX, 2006, 471-476.

Scientific abstracts, oral presentations (non-English)

Any kind of other publications, TV, radio interviews, web site news, etc.

PALAGESIU I., HANCU MARIANA si ROSCA I. 2001 -Ce trebuie sa stim despre viermele vestic al radacinilor de porumb-. Ed. SYLVI, 20 p. ISBN 973-8258-33-2

ROSCA I., PETRACHE T., IACOMI BEATRICE, CIONTU C., 2005, -Ghidul facilitatorului scolii de camp a fermierilor-. Ed. SYLVI, 225 p. . ISBN 973-648-128-5

SERBIA

Scientific book chapters, papers, proceedings (English)

Toth, M., Sivcev, I., Ujvary, I, Tomasev, I., Imrei Z., Horvath, P, Szarukan, I. (2003): Development of Tapping Tools for Detection and Monitoring of *Diabrotica v. virgifera* in Europe. *Acta Phyt. et Ent. Hung.* 38 (3-4) 307-322

Scientific abstracts, oral presentations (English)

Galo, A., Sivcev, I. (2003) Notes on WCR biology in south Banat in 2002.IWGO Newsletter Vol XXIV No. 1-2. 5

Galo, A., Sivcev, I. (2003): Farmers Field School-Yugoslav experience in 2002. IWGO Newsletter Vol XXIV No. 1-2. 13

Sivcev, I., Stankovic, S. (2004): Population level changes of western corn rootworm in Serbia. IWGO, X Diabrotica subgroup meeeting. 14 16 January 2004 Engelberg Switzerland. Abstracts. 1.

Stankovic, S., Sivcev, I. (2004): IPM for western corn rootworm participatory training through farmer field school in Serbia. IWGO, X Diabrotica subgroup meeeting. 14 16 January 2004 Engelberg Switzerland. Abstracts. 69.

Scientific book chapters, papers, proceedings (non-English)

Tancik, J., Baca, F., Sivcev, I. (2002) Kuričiar korenovy (Diabrotica virgifera virgifera LeConte), škodlivost sposoby egulacie v Juhoslavii po desiatch rokoch o jeho zavlčenia. Naše pole. No.8, 12-13.

SLOVAKIA

Scientific book chapters, papers, proceedings (English)

BARTA, M. – CAGÁŇ, Ľ.: Records of aphidophagous Entomophthorales in Slovakia. In: IOBC/wprs Bulletin, 2005, Vol. 28, No. 3, p. 69-73.

BARTA, M. – CAGÁŇ, Ľ. 2005: Seasonal dynamics and species composition of cereal aphids on different host crops. Acta Fytotechnica et Zootechnica, vol. 8, 2004, no. 3.

BARTA, M. – CAGÁŇ, Ľ. (2006). Observations on the occurrence of Entomophthorales infecting aphids (Aphidoidea) in Slovakia. In: BioControl, vol. 47, p. 1-14.

BARTA, M., CAGÁŇ, Ľ.: Laboratory assessment of the western corn rootworm adults, *Diabrotica virgifera virgifera* LeConte, susceptibility to Slovak strains of *Beauveria bassiana* (Bals.) Vuill. Proceedings of XVII. Czech and Slovak Plant Protection Conference, Praha, 2006, ISBN: 80-213-1564-4, p. 404-407.

CAGÁŇ, Ľ., BARTA, M.: Spread of the Western corn rootworm, *Diabrotica virgifera virgifera* LeConte, in Slovakia during 2004 and 2005. Proceedings of XVII. Czech and Slovak Plant Protection Conference, Praha, 2006, ISBN: 80-213-1564-4, p. 408-411.

BARTA, M. – CAGÁŇ, Ľ. 2006. Fungi of the order Entomophthorales infecting aphids. In: Biologia (Bratislava), 125 pp.

.L. CAGÁŇ, P. BOKOR, A. PLAČKOVÁ. 2006. Microsporidian infection of the ECB populations of Slovakia and Czech Republic. Acta Fytotechnica et Zootechnica, vol. 9, 2006, No. 3

BARTA, M. – CAGÁŇ, Ľ. 2007. Natural control of *Diuraphis noxia* and *Rhopalosiphum maidis* (Aphidoidea) by parasitic entomophthorales (Zygomycota) in Slovakia. In: Cereal Res. Communication, 2007

Scientific abstracts, oral presentations (English)

BACA, F. – PLANCAK, J. V. – TANCIK, J. J. – CAGAN, L. – TOTH, M.: Atractiveness of sweet maize hybrids for WCR (*Diabrotica virgifera virgifera* LeConte) beetles in the late sowing in 2004. In: H. Berger, R.. C. Edwards (eds.) International Working Group on Ostrinia and other maize pests 11th Diabrotica Subgroup Meeting, 10th EPPO ad hoc Panel and FAO Network Group meeting, Bratislava, Slovak Republic, 2005, Scientific Programme, Abstracts and Participants, p. 46.

VARGA, C. – CAGÁŇ, Ľ.: Biology of Western corn rootworm in Central Slovakia. In: H. Berger, R.. C. Edwards (eds.) International Working Group on Ostrinia and other maize pests 11th Diabrotica Subgroup Meeting, 10th EPPO ad hoc Panel and FAO Network Group meeting, Bratislava, Slovak Republic, 2005, Scientific Programme, Abstracts and Participants, p. 47.

VARGA, C. – CAGÁŇ, Ľ.: Participation between farmers and research persons on IPM for WCR in Central Slovakia. In: H. Berger, R.. C. Edwards (eds.) International Working Group on Ostrinia and other maize pests 11th Diabrotica Subgroup Meeting, 10th EPPO ad hoc Panel and FAO Network Group meeting, Bratislava, Slovak Republic, 2005, Scientific Programme, Abstracts and Participants, p. 49.

BACA, F. – GOCIC-DONDO, S. – TANCIK, J. J. – CAGAN, L.: First results of application of *Beauveria bassiana* (Balsamo) Vuillemin for WCR larvae control in Serbia and Montenegro and Slovak Republic in 2004. *(*In: H. Berger, R.. C. Edwards (eds.) IWGO 11th Diabrotica Subgroup Meeting, 10th EPPO ad hoc Panel and FAO Network Group meeting, Bratislava, Slovak Republic, 2005, Scientific Programme, Abstracts and Participants, p. 56.

CAGÁŇ, Ľ. – TANCIK, J. – BARTA, M.: Impact of native strains of entomopathogenic fungi to maize insect pests. In: H. Berger, R.. C. Edwards (eds.) IWGO 11th Diabrotica Subgroup Meeting, 10th EPPO ad hoc Panel and FAO Network Group meeting, Bratislava, Slovak Republic, 2005, Scientific Programme, Abstracts and Participants, p. 60.

BACA, F. – TANCIK, J. – PLANCAK, J. – CAGAN, L. – TOTH, M.: Atractiveness of sečet maize hybrids to western corn rootworm (*Diabrotica v. virgifera*) Beatles in the late swing in 2005. IWGO 22nd Konference Vienna, Austria, 5-8 November 2006, Book of abstracts, Poster 030

Scientific book chapters, papers, proceedings (non-English)

CAGÁŇ, Ľ.: Škodlivosť kukuričiara koreňového (Diabrotica virgifera virgifera) na Slovensku sa výrazne zvyšuje /The harmfullnes of the WCR in Slovakia is getting higher/. Naše pole, 2/2006, 23-25.

CAGÁŇ, Ľ. Metodika ochrany proti škodcom kukurice (Methods for control of insect pests of maize). SPU Nitra, 2006, 22 s.

CAGÁŇ, Ľ.: Stav v škodlivosti a ochrane kukurice siatej proti vijačke kukuričnej /Current situation in the control of the European corn borer in maize/ . Naše Pole 2/2007, s. 24-25.

Annex 6: List of Office Equipment Provided

Bosnia Herzegovina

2	PC - Compaq EVO1020V
1	HP LaserJet 1300
2	Mobil phone - Nokia 6610
1	Digital photo camera HP PhotoSmart 850
1	Epson Projector EMP 53
2	Genius USB Optical
1	PC – HP Compaq nx9010
1	Hp ScanJet 3970
1	Digital photo camera HP PhotoSmart 950
1	HP Digital Camera Starter Accessory
2	Mobil phone - Nokia 3100

Bulgaria

2	IBM ThinkPad Note Book G Series
2	Xerox Phaser3130
1	Canon Ixus 400
1	Canon camera
2	Mobile phones
3	Mobile phones

Croatia

2	PC - HP Compaq nx9010 with bag
1	Olympus Camedia C-750 + picture card
1	Printer HP LaserJet
2	Samsung SGH E-720
1	LCD PROJETOR SANYO PLC-SL20
1	OLYMPUS CAMEDIA C-5000 ZOOM
1	CASE LOGIC NCV-2
1	SSK USB MEMORY STICK 128 MB USB 1,1
1	FSC AMILO PRO V1000 MP4 2,2GHz 256MB 40 GB INTEL EXTREME 15”

Hungary

2	DELL Latitude C840 Laptop
1	DELL GX270 Workstation.
1	HP Laserjet 1300 Printer.
2	HP Photosmart 850 digital camera
2	SONY VPL-CS6 LCD projector

Romania

2	Notebook HP Compaq n x 9010 Business Pentium 4-DT 2,8 GHz, 80 Gb
1	HITACHI CP-X327 LCD PROJECTOR
3	Mobile phone model NOKIA tip 3410

Serbia

3	Laptop - HP Compaq nx9000
2	Laptop DELL Inspiron
1	PLUS Data Projector U4-136

Slovakia

2	Laptop, HP Nx9005 A2400/14/256 and software
2	Printer, HP LJ 1010
1	Camera, PhotoSmart 812 dig. cam
4	Mobile phone, Nokia7250i and accessories
2	Mobile phone, Alcatel
1	Laptop, Acer

Annex 7: Breakdown of FFS/SFS by Country and Year

FFS by Country and Year

	2003		2004		2005		2006		2007
	Groups	**Farmers Trained**	**Groups**	**Farmers Trained**	**Groups**	**Farmers Trained**	**Groups**	**Farmers Trained**	**Groups**
Bulgaria	4	34	6	69	10	110	16	147	10
Bosnia-Herzegovina	4	56	10	156	24	260	23	619	15
Croatia	3	41	11	144	14	170	11	80	3
Hungary	8	75	14	110	21	210	19	195	15
Romania	3	34	10	111	13	130	17	175	7
Slovak Republic	5	31	10	85	6	40	10	76	10
Serbia & Montenegro	5	60	19	196	37	370	44	442	16
Total	**32**	**331**	**80**	**871**	**125**	**1290**	**140**	**1734**	**76**

SFS by Country and Year

	2005			2006			2007
	# of SFS	# of Students Involved	# of Schools	# of SFS	# of Students Involved	# of Schools	# of SFS
Bosnia - Herzegovina	6	97	6	7	106+347	7	5
Croatia	1	24	1				
Hungary	3	43	3	6	91	6	6
Serbia - Montenegro	6	40	1	6	70	2	6
Total	**14**	**204**	**11**	**19**	**267+347=614**	**15**	**17**

Annex 8: Training Workshops, Exchange Visits, Study Tours

Training organized (regional):

2003			
Regional Planning Workshop	23	Mezohegyes, Hungary	March 2003
Regional IPM Field Training	27	Mezohegyes, Hungary	May 2003
Regional Training Workshop	23	Vinkovci, Croatia	Sept. 2003
Regional Planning Workshop	15	Sarajevo, BiH	Dec. 2003
2004			
Fourth Regional Training Workshop for Facilitators	24 NTCs, Facilitators	Mezohegyes, Hungary,	28-30 June 2004
Joint Training of Facilitators	25 facilitators	Zagreb/Sarajevo	March/May 2004
2005			
Regional Facilitators Workshop	22 NTCs, Facilitators	Sofia, Bulgaria	1-4 March 2005
Regional Planning Workshop	NPLs, NTCs	Zabreb, Croatia	29 Nov-02 Dec. 2005
2006			
Regional Planning Workshop	14 NPLs, NTCs, Facilitators	Budapest, Hungary	1-3 February 2006
2007			
Regional Planning Workshop	16 NPLs, NTCs, Facilitators	Piestany, Slovakia	11-14 March 2007

Exchange visits (national as well as regional):

Activity	Participants	Location	Date
2003			
Regional Exchange Meeting of Farmers	25	Somberek, Hungary	August
2004			
Regional Exchange Meeting of Farmers	20 farmers	Vidin (Bg/Ro)	July
	25 farmers	Ketegyhaza (Hu/Ro)	August
	15 farmers	Topolje (Cro/Hu)	July
2005			
Regional Exchange Field Trainings with Farmers	50 farmers	Croatia/Hungary, Kajdacs, Hu	August
	30 farmers	Romania/Hungary, Hu	August
In-country Exchange Field Training with Farmers	150	Hungary, Serbia, Slovakia, BH	Summer 2005
Regional Exchange Field Trainings with Farmers	30 farmers	Bulgaria/Serbia, Jagodina, SM	October
	28 farmers	Ro/Hung,Pitvaros, Hu	September

In-country Exchange Field Training with Farmers	210	Hungary, Serbia, Slovakia, BH, Croatia, BG and Romania	Summer

2006

Regional Exchange Field Trainings with Farmers	50 farmers	Croatia-Slovakia-Hungary, in Hu	August
	30 farmers	Romania/Hungary, in Romania	September
In-country Exchange Field Training with Farmers	200	In each country	Summer
Regional Exchange Field Trainings with Farmers	50 farmers	Szombathely (Cro-Hu-SLK farmers), Hungary	September
In-country Exchange Field Training with Farmers	200	Hungary, Serbia, Slovakia, BH, Croatia, BG and Romania	Summer

Study tours:

2003

Activity	Participants	Location	Date
IPM study tour	12 NTCs, Key Facilitators	Philippines, Netherlands	Feb. 2003

Annex 9: Backstopping Visits, Duty Travel

2003

- Regional Coordinator, Travel Report (July 2003, Croatia, Bosnia-Herzegovina)
- Backstopping Report by the Regional Coordinator and by the IPM Consultant, F. Praasterink, (Aug. 2003 Hungary, Romania and Bulgaria)

2004

- Backstopping visit/TOF Workshop to Hungary, 11–14 March 2004, F. Praasterink, IPM Training Cons.
- Backstopping visit to BH, 20-26 May 2004, F. Praasterink
- Report and Recommendations for IPM Development Trip and Backstopping to FFS in Hungary, Croatia, Bosnia-Herzecovina for WCR. Carl Barfield, 19 June to 1 July, 2004
- Notes on Travel to Bulgaria June 9-12, 2004, Marjon Fredrix
- Report on Backstopping visit to one FFS in Slovak Republic, Regional Coordinator, 27 July 2004
- Notes on Travel to Serbia & Montenegro August 11 – 14, 2004, Marjon Fredrix
- Report on duty travel to Slovak Republic (SLR), 19-20 August 2004, Regional Coordinator
- Report on duty travel to Romania, 07-10 September 2004, Regional Coordinator
- Consultancy Report by Dr. Stefan Toepfer with materials on participatory research in CEU
- Backstopping visit/TOF Workshop to Romania, 11–15 Nov. 2004, F. Praasterink, IPM Training Consultant

2005

- Report by the Regional Coordinator on attending the IWGO WCR Subgroup Workshop, 14-17 February, Bratislava, Slovak Republic
- Mid-Term Review Report on GTFS/RER/017/ITA PROJECT, Janice Jiggins, Gianluca Governatori and Pier Paolo Roggero, August 2005
- Travel Report to Bosnia & Herzegovina; and Serbia & Montenegro, May 2005, Marjon Fredrix, FAO
- Backstopping visit to Training of Facilitators, Hungary and Romania, May 2005, F. Praasterink, IPM Training Consultant, June 2005
- Backstopping visit to Training of Facilitators, Vinkovci, Croatia, F. Praasterink, IPM Training Consultant, June 2005
- Backstopping visit in Croatia and Hungary, May 2005, M. Allara and R. Labrada, FAO
- Regional Facilitators Workshop, Sofia, Bulgaria, 1 – 4 March 2005, Frederike Praasterink (IPM consultant) and Marjon Fredrix (FAO)
- Report on Study Tour of TRANSFER project, The Netherlands, Dec. 2005, J. Komaromi, NTC Hu
- Travel Report to Bosnia & Herzegovina, 2nd Symp. of Plant Protection, Dec. 2005, J. Kiss, Reg. Coord.

2006

- Ppt presentation Report to Croatia, 50th Plant Protection Seminar, February 2006, J. Kiss, Reg. Coord.
- Third Regional Planning Workshop, Budapest, Hungary, 1 – 3 February 2006, Marjon Fredrix and M. Allara, (FAO)

- Travel report on a visit to the project on Integrated Pest Management for WCR in CEU (Hungary, Serbia and Croatia), October 2006, N. A. Bosque-Perez, Visiting Expert, AGPP
- Travel Report to Hungary and Slovak Republic, August 2006, Manuela Allara, FAO
- Travel Report to Serbia, Bosnia & Herzegovina, June 2006, Marjon Fredrix, FAO
- Travel Report to Bulgaria and Romania, July 2006, Marjon Fredrix, FAO
- Backstopping visit to National Training Coordinator, Croatia, August 2006, J. Kiss, Regional Coordinator

2007

- Technical Report, Fourth Regional Planning Workshop, WCR IPM project, Piestany, March 11-14, 2007, Manuela Allara, FAO
- BTO Report, Fourth Regional Planning Workshop, WCR IPM project, Piestany, March 11-14, 2007, Gordon Biggar, FAO