



ISPP Task Force on Global Food Security

REPORT

on meeting in Bangkok, 13-16 September 1999

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SUMMARY

The activities of this Task Force relate to the 7th International Congress of Plant Pathology (ICPP98), held in the UK in 1998 under the auspices of the International Society for Plant Pathology (ISPP). During ICPP98, a public meeting was held on "Global Food Security: The Role for Plant Pathology". The enormity of the problem of food security was outlined, and its link with poverty, noting especially the needs of developing countries where rates of population increase are highest. The determination of the World Food Summit in Rome in 1996 to halve the number of hungry people by 2015 was noted.

The impact of pests, diseases and weeds on food supply was highlighted, noting estimates that they reduce production by at least one-third, and that diseases alone reduce production by more than 10%. Options for managing crop diseases to improve food security were addressed by five distinguished scientists, including Nobel Peace Laureate Norman Borlaug.

During a public discussion of these issues, ISPP accepted the challenge to form a Task Force on Global Food Security.

The Executive Committee of ISPP, recognizing its limited resources, adopted the principle that a small Task Force should focus its activities, and should concentrate on delivering some tangible results of demonstrable value. In consultation with ISPP Councillors, representing national plant pathology societies, the Executive determined that the first activity would be to hold a meeting of the Task Force in Bangkok, in September 1999, in association with a meeting on "Food for the Billions: Sustainable agriculture - the global issues" organized by APCPA and GFAR. Eleven plant pathologists were identified to form the Task Force, representing many different regions and disciplines, of whom seven met in Bangkok. The meeting was generously financed by the British Society for Plant Pathology.

The Task Force prepared for its first meeting by reading a series of papers, including: • Papers from the World Food Summit, November 1996; • Papers related to plant pathology and food security, e.g. from ICPP98, and from the APS/CPS 1999 meeting; • Papers on population growth and poverty, including links with plants; • Material proposed by Task Force Members themselves.

At its meeting the Task Force elected to: • Focus on what ISPP can *do* to deliver tangible results; • Identify *changes* that ISPP may bring about; • Evaluate the likelihood of *achieving* changes, given ISPP's status as an international scientific society with limited resources; • Develop a *workplan*, with timetable and budget for 3 years, focusing on a small number of achievable objectives.

Six areas were addressed in which ISPP might reasonably expect to be able to effect useful *change*: • Policy changes; • Education changes; • R & D changes; • Farmer-practice changes; • Public opinion changes; • Information changes.

One member of the Task Force adopted each of these topics, as indicated in the list above, and prepared a short paper during the meeting, summarizing areas where change might be sought. These papers were

then debated by the Task Force, with a view to prioritizing a smaller number of areas which offered the best probability of change being successfully effected by ISPP. As part of the process, the six topics were shared with representatives of National Programmes in Asia, FAO and other bodies represented at the APCPA and GFAR meetings, who joined the Task Force for one of its sessions. Other input came from participation by Task Force members in the APCPA and GFAR meetings.

These papers and resources were used as input in the preparation of proposals for five *Activities*. Each is presented, with: • Rationale; • Objectives; • Activities plan; • Anticipated outputs; • Resource requirements (including proposals for sources).

1. Establish an *ISPP Policy Group*
With a programme to inform policy makers of the importance of plant diseases in food insecurity
2. Study *PhD training for plant pathologists* in developing countries, with a view to enhancement
To assist decision making by donors, national agricultural research services, and universities in developing and developed countries
3. Quantify *economic impact of some major diseases*
To provide a record of major examples of the consequences of diseases for food security, pointing to the need for support for continuing research
4. Develop a pilot project for *farmer training in simple disease management*
Focused on basic knowledge of cassava diseases in Ghana, to help in diagnosis and management, as a starting point for further knowledge transfer
5. Develop the *ISPP Website* as a means of improved communication
To provide information about ISPP, plant pathology, and the work of the Task Force

The first of these is an overarching activity which may need to be projected forward indefinitely. the last is a piece of infrastructure for the others, and for ISPP's entire programme. The middle three are specific and varied in their aims - respectively in education, economics and extension - each being focused on an objective for which ISPP has access to the necessary skills for its completion.

All the proposed Activities are considered to be: • Appropriate to the status of ISPP; • Achievable within a time frame of 3 years; • Capable of being resourced; • Likely to deliver tangible results that will effect useful change.

Obviously these outputs are a beginning rather than an end. They are presented by the Task Force to the Executive and Councillors of ISPP, and through them to the membership, as a proposed basis for action and - in due course - for delivery of tangible results through effecting change in the chosen areas.

Subject to the agreement of ISPP Executive Committee, work will start immediately on these activities and on securing the resources necessary for their completion.

Chrys Akem, Mike Jeger, Hajime Kato, Jill Lenné, Emmanuel Moses, Peter Scott, Paul Teng
For *ISPP Task Force on Global Food Security*
October 1999



ISPP Task Force on Global Food Security

REPORT

on meeting in Bangkok, 13-16 September 1999

BACKGROUND

At the 7th International Congress of Plant Pathology (ICPP98), Edinburgh, August 1998, a Special Public Meeting was convened on **Global Food Security: The Role for Plant Pathology**. The Organizer, W. Clive James, provided the following background brief:

The enormity of the problem

During the World Food Summit in Rome in 1996, Heads of States agreed to halve the number of hungry people by 2015. Today there are 800 million, almost all of them in developing countries of Asia, Africa and Latin America.

Hunger and poverty are inextricably linked and the solution does not rely on one factor, but on an interrelated complex of factors that includes population, technology, policy and social changes.

What are the facts about Global Food Security?

- World population is 5.8 billion
- 80% live in developing countries, where the population increases 1.9% per year
- More than 800 million people do not have adequate food
- 1.3 billion live on less than \$1 a day
- 50% of poor people live in Asia, 25% in Africa, 12% in Latin America
- Most poor people live in areas where the land is marginal and ecosystems are fragile
- Global food production is 5 billion tons per annum

Why do diseases and pests of crops matter?

- Crop diseases, pests and weeds reduce production by at least one-third, despite the use of pesticides worth \$32 billion
- Crop diseases alone reduce production by more than 10%
- For example, potato blight, the disease that caused the Irish famine in 1845, is again becoming prevalent

What are the options for managing crop diseases to improve food security?

To address this question, five distinguished scientists addressed different aspects of the issue:

Clive James (*Chairman, International Service for the Acquisition of Agribiotech Applications*)
Global Food Security

Norman Borlaug (*Nobel Peace Laureate, Mexico*)
Food security, plant pathology and quarantine

Cyrus Ndiritu (*Director, Kenyan Agricultural Research Institute*)
Human capital investment in plant pathology: a view from the South

Robert Williams (*Deputy Director General, CAB International*)

Public-private sector partnerships in plant pathology that will contribute to food security

Paul Teng (*International Rice Research Institute, Philippines*)

Practising plant pathology in changing agricultural systems

Abstracts have been archived at:

http://www.bspp.org.uk/icpp98/abstracts/toc_global.html

These presentations were followed by a public discussion, during which **Paul Teng** (*International Rice Research Institute, Philippines*) and **David Thurston** (*Cornell University, USA*) issued the challenge to the International Society for Plant Pathology (ISPP) to **establish an ISPP Task Force on Global Food Security**.

FORMATION OF THE TASK FORCE

The Executive Committee of ISPP took up this challenge and formed a Task Force on Global Food Security. Its function was potentially so demanding and open-ended that its activities needed to be sharply focused if tangible results were to be achieved by an organization with limited resources such as ISPP. ISPP Executive therefore adopted the following principles:

- A small Task Force will address initially the nature of the global food security problem, and the principles and modalities whereby plant pathologists may realistically tackle it.
- Attention will be focused on delivering tangible results of demonstrable benefit to global food security.
- A programme will be chosen that can benefit from ISPP's facilitating or coordinating role in relation to existing or planned programmes in plant pathology, rather than from initiation of new work.
- Achievable results are likely to derive from coordinating existing research programmes, or through surveying incidence of damage, or through supporting extension or outreach programmes.
- ISPP's own funds are very limited, so fundraising in support of such action is likely to be one objective.
- The first activity of the Task Force will be to convene a meeting in 1999, to agree a work programme for the following 3 years, with a budget and time schedule.
- The work of the Task Force will be monitored by ISPP Executive Committee and reported to the Membership through Councillors. Feedback from the Membership will be encouraged, to guide the future programme.

ISPP Councillors, representing the national plant pathology societies within the membership of ISPP, were informed of the plans for the Task Force and their views invited. They were also invited to participate in a new ISPP e-mail ListServe through which they could readily send open e-mail messages on ISPP matters to one another.

FIRST MEETING

The Board of the British Society for Plant Pathology (BSPP) undertook to support ISPP's Task Force initiative, by providing funding for an initial meeting of the Task Force. The context selected was a Roundtable meeting on:

Food for the Billions: Sustainable agriculture - the global issues.

This was convened in Bangkok in September 1999 by the Asia Pacific Crop Protection Association (APCPA, an industry-sponsored group) and the Global Forum for Agricultural Research (GFAR, a group sponsored by the World Bank and FAO). GFAR specifically convened a session on networking including public-sector / private-sector partnerships.

ISPP Executive appointed the following to be the initial members of the Task Force (contact details are in Appendix 2):

Chrys Akem, International Center for Agricultural Research in the Dry Areas (ICARDA), Aleppo, Syria

Mike Jeger, British Society for Plant Pathology (BSPP), Wageningen, Netherlands

Hajime Kato, Kobe, Japan

Jill Lenné, Natural Resources International Ltd, Chatham, UK

Emmanuel Moses, Crops Research Institute, Kumasi, Ghana

Chris Mundt, Oregon State University, USA *

Rebecca Nelson, International Potato Center, Lima, Peru *

Peter Scott, International Society for Plant Pathology (ISPP), Oxford, UK

CY Shen, Food and Agriculture Organization of the United Nations (FAO), Bangkok, Thailand *

Paul Teng, Monsanto, Manila, Philippines

Nollie Vera Cruz, International Rice Research Institute, Los Baños, Philippines *

* Not available for the Bangkok meeting.

The schedule for the Task Force was:

Monday 13 September

am - Task Force meets and plans initial strategy

Tuesday 14 September

am/pm - Task Force participates in APCPA/GFAR Round Table

Wednesday 15 September

am - Task Force participates in GFAR Workshop

pm - Task Force meets, with representatives of National Programmes

Thursday 16 September

am - Task Force prepares its Report

WORKING METHOD

Before meeting, Task Force members had read a series of papers including:

- Papers from the World Food Summit, November 1996:
 - Proposals by Jim Cook of ISPP for inclusion in the ISPP submission to the Summit
 - Antonio Graniti's report on the Summit to ISPP
 - The "Rome Declaration" and "World Food Summit Plan of Action"
- Material related to plant pathology and food security:
 - Background and abstracts from the Public Forum on Global Food Security: the Role for Plant Pathology, ICPP98, Edinburgh, August 1998
 - Background and abstracts from the World Food Crisis Symposium, APS/CPS meeting, Montreal, August 1999
 - Article on "The Need for Plant Pathology" from the Scottish Crop Research Institute
- Three recent general publications:
 - Lloyd Evans on "The imperative of further increase in yield" from *Feeding the Ten Billion: Plants and population growth*, 1998
 - The Times* on "Indian births set to burst billion barrier", August 1999
 - Jeffrey Sachs on "Helping the world's poorest" from *The Economist*, August 1999
- Material provided by Task Force members
 - Jill Lenné's 1999 lecture on Conservation of Agrobiodiversity and Global Food Security
 - Topics for discussion proposed by Task Force members and ISPP officers

The Task Force, led by Peter Scott and Paul Teng, elected to:

- Focus on what ISPP can *do* to deliver tangible results
- Identify *changes* that ISPP may bring about
- Evaluate the likelihood of *achieving* changes, given ISPP's status as an international scientific society with limited resources
- Develop a *workplan*, with timetable and budget for 3 years, focusing on a small number of achievable objectives.

Six areas were addressed in which ISPP might reasonably expect to be able to effect useful *change*:

- Policy changes (Jill Lenné)
- Education changes (Mike Jeger)
- R & D changes (Chrys Akem)
- Farmer-practice changes (Emmanuel Moses)
- Public opinion changes (Jim Kato)
- Information changes (Peter Scott)

One member of the Task Force adopted each of these topics, as indicated in the list above, and prepared a short paper during the meeting, summarizing areas where change might be sought. These papers were then debated by the Task Force, with a view to prioritizing a smaller number of areas which offered the best probability of change being successfully effected by ISPP.

As part of the process, the six topics were shared with representatives of National Programmes in Asia, FAO and other bodies represented at the APCPA and GFAR meetings, who joined the Task Force for one of its sessions. Those involved were:

FAO

Prem Nath, Assistant Director General and Regional Representative, FAO, Bangkok
P.K. Saha, FAO-RAP, Bangkok

Bangladesh

M.A. Bakr, Research Director, Bangladesh Agricultural Research Institute

Indonesia

S. Kartaatmadja, Head, Research Planning and Coordination, Central Research Institute for Food Crops

Korea Republic

Sok-Dong Kim, Research Planning Division, RDA

Malaysia

Md Sharif Ahmad, Director General, Malaysian Agricultural Research and Development Institute

Philippines

Betty P. del Rosario, Deputy Executive Director, Philippine Council for Agriculture, Forestry and Natural Resources Research and Development

R. Hautea, Director, International Service for the Acquisition of Agribiotech Applications

Sri Lanka

L. Nugaliyadde, Entomologist, Rice Research Institute

G. Balasuriya, Socio-Economic and Planning Centre, Department of Agriculture

OUTPUT

The results of discussion among Task Force members were strengthened and extended by the discussions with FAO and National Programme representatives. Other valuable input came from participation by the Task Force in the APCPA Roundtable on *Food for the Billions*, and the GFAR Session on networking including public-sector / private-sector partnerships. Input from these sources contributed to the process that followed, from which specific outputs were derived as described below.

The six papers mentioned above were used as working documents to identify five specific activities for which workplans would be developed. The activities that emerged were:

1. Establishment of an *ISPP Policy Group* (Paul Teng), initially to prepare science-based position papers designed to effect change in public policy and opinions on:
 - the significance of plant pathology to sustainable agriculture
 - the potential of transgenic crops in relation to plant pathology
2. Optimization of *postgraduate training* in plant pathology for developing countries (Mike Jeger)
3. Quantification of the *economic impact of some major diseases* (Jill Lenné and Jim Kato)
4. Development of a pilot project for *farmer training in simple disease management* in tuber crops in West Africa, focusing on healthy planting material (Emmanuel Moses and Chrys Akem)
5. Development of the *ISPP Website* as a means of improved communication (Peter Scott)

Papers on each of these activities are appended.

The Task Force believes that these activities present the basis for an appropriate and achievable programme for ISPP in relation to global food security for the next 3 years. They aim to deliver specific and tangible outputs, rather than to be comprehensive in coverage.

- The first is an overarching activity which may need be projected forward indefinitely, since policy issues are never static.
- The last is a piece of infrastructure for the others, and for ISPP's entire programme .
- The middle three are specific and varied in their aims - respectively in education, economics and extension - each being focused on an objective for which ISPP has access to the necessary skills for its completion.

Obviously these outputs are a beginning rather than an end. They are presented by the Task Force to the Executive and Councillors of ISPP, and through them to the membership, as a proposed basis for action and - in due course - for delivery of tangible results through effecting change in the chosen areas.

CONCLUSIONS

ISPP, in its role as an international scientific society, representing the national plant pathology societies of the world, has an important responsibility to present the significance of plant pathology effectively to policy makers and the public. Special importance attaches to this function in the context of global food security.

ISPP's Task Force on Global Food Security has selected a small number of activities that are considered:

- Appropriate to the status of ISPP
- Achievable within a time frame of 3 years
- Capable of being resourced
- Likely to deliver tangible results that will effect useful change.

Five papers appended to this Report propose five activities (summarized above in "Output"), which the Task Force recommends for adoption by ISPP. Each includes:

- Rationale
- Objectives
- Activities plan
- Anticipated outputs
- Resource requirements.

Clearly these proposals are a minor contribution to the enormous global challenge of food security. Nevertheless, they are commended for action because they can be expected to yield results that will make a difference, and their scale is in line with what ISPP can expect to achieve.

Subject to the agreement of ISPP Executive Committee, work will start immediately on these activities and on securing the resources necessary for their completion.

Progress will be reported to ISPP Membership through Councillors. Feedback from the Membership will be encouraged, to guide the programme as it develops.

ACKNOWLEDGEMENTS

Members of the Task Force express their appreciation to those at the 7th International Congress of Plant Pathology who challenged ISPP to take this initiative relating to global food security.

Thanks are also due to ISPP Executive Committee who have supported the Task Force initiative, and especially the British Society for Plant Pathology who provided the resources to enable this first meeting to take place.

Chrys Akem, Mike Jeger, Hajime Kato, Jill Lenné, Emmanuel Moses, Peter Scott, Paul Teng
For ISPP Task Force on Global Food Security
October 1999



ISPP Task Force on Global Food Security

ACTIVITY 1

Changing Public Policy and Opinions on Global Food Security

Rationale

- There is currently much ignorance about and apathy towards the importance that plant diseases play in causing food insecurity through outbreaks and chronic yield gaps of 30-70%.
- Most plant pathologists agree that modern R & D technologies are required to manage crop diseases to ensure increases in production and productivity, especially in the farming systems of the developing world that produce surpluses to feed urban populations. It is also generally agreed that new technologies are urgently needed to increase productivity of the marginal lands where most resource-poor farmers reside.
- Public opinion on the role of modern R & D technology to develop crops with improved resistance or tolerance to diseases, and techniques for disease management, mostly ranges from opposition to apathy, often based on misinformation or no information.
- There is an urgent need to rally public support behind the use of technology in agricultural research to ameliorate the problems of poverty-associated hunger in the developing world. There is an equally urgent need to inform the public about the magnitude of the food problem.
- An important instrument in shaping public support for technological approaches is enlightened policy based on sound science.
- ISPP, as the international mouthpiece for the world's plant pathologists, and as a member of other international scientific organizations, is in a unique position to help shape policy and public opinion on the critical role that modern technology plays in ensuring food security, since many desired plant traits in the crop cultivars to be developed are related to improved disease tolerance.

Objectives

1. Formation of an *ad hoc* or standing ISPP Policy Group, charged with identifying the relevant issues, developing the appropriate supporting papers, determining the target forum(s) and most effective mechanisms for influencing policy, and
2. Formulation of a program of action to inform key stakeholders about the role of modern technology in agricultural R & D and specifically on the role it plays in reducing crop losses caused by diseases which destabilize food supply.

Activities plan

This proposal assumes that Year 1 (Y1) starts on October 1 1999.

Formation of and generation of support for ISPP Policy Group

- Proposal of activity to ISPP Council for endorsement and action (Q1, Year 1)
- Contact with potential group members (Q1, Y1)
- First meeting of group (Q1, Y1 – coincide with Brighton Conference, Nov 15 1999) to finalize two-year workplan.

Development of position papers

- Scoping, resourcing, writing and finalization of first position paper on "Plant pathology and sustainable agriculture", to include the role of technological innovations, the impact of diseases

on society, the relationship between cropping system intensification and diseases, and smallholder disease management (Y1)

- Scoping, resourcing, writing and finalization of second position paper on "The role of biotechnology to produce GM crops with improved disease resistance as a means of reducing crop losses and increasing food availability" (Y1)
- Scoping, resourcing, writing and finalization of third position paper on "Review of Biosafety in field tests of GM crops with new disease traits" (Y2).

Communication to policy forums

- Presentation of GMO position paper at Biodiversity Convention/Biosafety Protocol meetings (Y1)
- Presentation of position paper at Annual Meeting of Third World Academy of Sciences (Q4, Y1)
- Presentation of position paper at FAO Council meeting, Year 2000 (Y2).

Communication to policy groups

- Presentation to EU science and technology commission on ISPP positions on food security
- Presentation to ASEAN science and technology committees on importance of plant pathology in sustainability
- Presentation to CGIAR Mid Term Meeting, May 2000, on ISPP and ISPP positions on food security, crop losses, and modern R & D technologies.

Communication to public groups

- Media workshop at Beijing Asian Plant Pathology Conference, to inform agricultural journalists from Asian Region (Q3, Y1)
- Media workshop at a Pan-African scientific meeting (Q3-4, Y1)
- Media workshop at GFAR meeting in Dresden, May 2000 (Q3, Y1).

Anticipated outputs

- Focal point created - in the form of a policy group - within ISPP for international concern by plant pathologists about food security, the role of diseases, and the roles that technology and plant pathologists can play
- Improved profile for ISPP, and for plant pathology, in selected policy platforms
- Changes in policy on plant pathology related topics effected by ISPP position papers on key issues
- Changes in media articles on plant pathology related topics effected by ISPP workshops
- Increased public awareness of diseases, crop losses and the need for modern R & D technologies, effected in two geographic regions (Sub-Saharan Africa, S.E. Asia)

Resource requirements (per annum)	USD
0.2 PY student assistant	3000
Contribution in kind from group chair (to be elected or appointed)	
Meetings of policy group	15,000
Potential resourcing from BSPP, ECPA, GFCP	
Development of position papers	5000
Potential resourcing: ISAAA, APCPA	
Communication to policy forums	9000
Potential resourcing: ISAAA	
Communication to public groups (USD 20,000 per workshop)	60,000
Potential resourcing: APCPA, ISAAA	

Total	92,000



ISPP Task Force on Global Food Security

ACTIVITY 2

Enhanced PhD training for plant pathology in developing countries

Rationale

Many developed (northern) countries offer schemes for training of PhD researchers from developing (southern) countries. These range from placements in the north for the full period of the PhD (3-4 years) to 'sandwich' arrangements in which only short periods are spent in the north (6 months to 1 year) with the bulk of research being done in the south at the researcher's home institution.

The full-time placement arrangement has been criticised for:

- Not being related to national needs and priorities
- Choice of crop/disease not being relevant in a southern context
- Removing the PhD researcher from the immediate environment of the home institution
- Not recognising the cultural environment and background of the south
- Creating problems upon completion of the PhD when the researcher does (or does not) return to the home country.

The major advantage of the full-time arrangement, it has been claimed, is that only by working in a 'high-tech' laboratory in the north can a southern PhD researcher hope to keep up scientifically and strengthen national capability upon return.

The advantages of the 'sandwich' arrangement are that continuity is ensured, especially when the PhD is project-related with the funding for in-country research provided by the home institution. It is also likely that the presence of the researcher will raise the profile of the discipline (in this case plant pathology) in the home country. This is particularly relevant with regard to the observation that few potential PhD researchers choose plant pathology as their discipline of choice for a PhD.

Objectives

It is thus timely for the ISPP to sponsor a study of the relevance and impact of PhD training in plant pathology for southern countries in terms of sustainable development and its ultimate contribution to global food security.

The aims of the study are to:

1. Assist aid donors (bilateral/multilateral) and national agricultural research services in making decisions on PhD training
2. Inform northern universities and national plant pathology societies of the options and arrangements possible.

It is anticipated that, as a consequence, novel and flexible arrangements for PhD research and training will emerge. Donors and national societies of the ISPP will be approached to support the activities proposed.

Activities plan

1. Commission a study that will survey, analyse, and summarize the effectiveness of different forms of PhD research training sponsored by the north. Effectiveness will be defined in terms of personal career development of individual PhD researchers, contribution to home institution capacity building, and contribution to the status of plant pathology in the south.
2. The study will make specific recommendations on the sandwich construction as a model for effective PhD training and suggest ways in which novel and flexible arrangements can be made.
3. The study should involve at least two 'academic' plant pathologists from northern universities with an equivalent number of counterparts from the south. National member societies of the ISPP should be involved in the survey activities. To provide focus, two or three case studies should be analysed in depth.
4. The output of the study should be timed to correspond with an international plant pathology event, such as the Asian Plant Pathology Congress in Beijing in 2000 and be made available as an ISPP report under the aegis of the Task Force.

Anticipated outputs

It is anticipated that, as a consequence of the activities:

- Novel and flexible arrangements for PhD research and training will emerge
- Donors and national plant pathology societies affiliated to ISPP will benefit from an improved basis for decision making in supporting PhD training
- A contribution will be made to sustainable development and ultimately to global food security.

Resource requirements	USD
Travel	8000
Honoraria	12,000
Secretarial/incidentals	4000
Publicity	4000
Circulation	2000

Total	30,000

Potential resourcing: National plant pathology societies; educational foundations.



ISPP Task Force on Global Food Security

ACTIVITY 3

Quantification of the economic impact of some major diseases

Rationale

- There is a worrying lack of awareness among the general public of the effects of major plant diseases in reducing crop yields, and, as a result, threatening global food security. Serious plant diseases not only cause acute food shortages but also can cause far-reaching and long-term changes in cropping systems and societies.
- There is an urgent need to make policy-makers and the wider public more aware of the importance of major plant diseases to global food insecurity and the contribution of plant pathology research in resolving some of these problems, especially in the past 50 years. The continuing need for support for plant pathology research to make an ongoing contribution to global food security should be reinforced by such actions.
- Quantification of the economic impact of plant diseases through key examples will help to establish the importance of the issue.

Objectives

1. To document dramatic examples of the immediate and longer-term consequences of major plant diseases on important food crops and as a consequence, society.
2. To document impressive examples of successful plant pathological interventions that have ameliorated major plant diseases.
3. To emphasize the need for continuing support for plant pathology research to further contribute to global food security.

Activities plan

Three projects are proposed, for completion between Q4, Y1 and Q2, Y2:

1. Compile an historical account of the immediate and longer-term consequences of major plant disease epidemics on society.
2. Compile a list of examples where successful interventions have been supported by sound plant pathological research and development.
3. Compile a small database of key reference material.

Project 1

Compile an historical account of the immediate and longer term consequences of major plant disease epidemics on society.

Examples will include:

- wheat rust epidemics graphically described in the bible
- wheat rust epidemics contributing to major famines in India (1850-1950)
- potato late blight epidemic in Europe in 1845 which resulted in the Irish potato famine
- rice brown spot epidemic in West Bengal in 1941 which contributed to the Bengal rice famine

- southern corn leaf blight in the USA in 1971
- coffee rust in Sri Lanka in 1880s
- groundnut rosette epidemics in Nigeria in 1975-6 and Southern Africa in 1994-5
- African cassava mosaic virus disease in Uganda 1994-1998
- sorghum ergot in Latin America in 1997-9
- maize gray spot in southern Africa in 1998-9
- coconut lethal yellowing in Ghana in 1997-8
- and many others.

Where known, causes of epidemics will also be documented (e.g. new race evolved; severe climatic conditions; changes in cropping systems; changes in varieties grown; new vector biotype evolved etc.)

Project 2

Compile a list of examples where successful interventions have been supported by sound plant pathological research and development.

Examples will include:

- contributions of plant breeding especially for rice, wheat and maize (backed up by sound economic data)
- contributions to the understanding of epidemiology and biology of plant pathogens (including the application of modern tools such as biochemical and molecular tools)
- contributions of indigenous practices (e.g. varietal mixtures; cultural practices etc.).

Project 3

Compile a small database of key reference material.

Key reference material both published and unpublished will be developed as a database.

Anticipated outputs

1. A well referenced historical account of the immediate and longer-term consequences of major plant disease epidemics on society and examples of successful interventions through sound plant pathological research as a document for:
 - further distribution as an ISPP Task Force Report
 - a possible journal publication
 - inclusion on the ISPP Website
 - use by the ISPP Policy Group.
1. A small database of key reference material for inclusion on the ISPP Website.

Resource requirements

No additional requirements are anticipated. Information will be compiled as part of on-going activities for the Crop Protection Programme of the UK's Department for International Development.



ISPP Task Force on Global Food Security

ACTIVITY 4

Farmer training in simple disease management: pilot project for cassava in Ghana

Rationale

In most parts of Sub-Saharan Africa, farming activities are largely carried out by peasant farmers whose activities are mainly for subsistence. The majority of farmers in this region depend on traditional farming practices to produce food crops on small pieces of farmland, usually of less than 0.5 ha. The concept of such farming is typically that the farmer produces enough food from a small piece of land to meet the food requirements of his family. These farmers are generally ignorant of plant diseases and are hardly aware of yield losses caused by plant pathogens. This is important because in most countries within the region food security is a critical issue.

Roots and tubers, principally cassava, are the major staples in Africa. Cassava for example is the most important food crop in Africa and it is the principal source of carbohydrate for more than 500 million people in the developing world (Lozano, 1986; Fauquet and Fargette, 1990). It is a very hardy crop and will often thrive in poor soils where other food crops will not grow at all. The cassava tuber can be processed into many products including "gari" and cassava chips and stored for years without the products losing their food values. These processed food products are used in meal preparations by people living in West and Central Africa. The leaves of cassava are used in salads and soup preparations. The crop is eaten in Eastern, Central and Southern Africa as well. The qualities of cassava makes it one of the most important food crops in terms of food security in most Sub-Saharan African countries. Every effort made to improve production of cassava in this part of the world will go a long way to improve the poor food security situation in the region.

Diseases are a major constraint to production of cassava. The major diseases of the crop include Africa Cassava Mosaic Virus (ACMV), Cassava Bacterial Blight (CBB) and Cassava Anthracnose Disease (CAD). A number of new diseases have also been identified as causing losses. ACMV alone causes an estimated 50% yield loss. CBB caused starvation and food shortages in Zaire and Nigeria in the 1970s (Lozano, 1986; Williams et al., 1973). CBB is capable of causing 100% yield loss. Farmer practices have been identified as major contributory factor promoting the spread and persistence of these diseases, as infected planting materials are used for propagation through ignorance. The problem is compounded when extension staff also lack knowledge of diseases, which often is the case in most parts of Africa.

Every effort exercised to control diseases of cassava will go a long way to improve food security on the African continent. Farmer practices require improvement, so that the effects of diseases on crop yield can be reduced.

Objectives

1. To train farmers, extension staff and NGOs to acquire basic knowledge of diseases that affect cassava production.
2. To help farmers, extension staff and NGOs to develop simple skills in diagnostic methods that can help in disease identification.
3. To help farmers select healthy planting materials for cultivation.
4. To help farmers develop practices that reduce the effects of diseases on yield.

Activities plan

Year 1

- Simple pictorial guides and facts sheets on diseases in English and local languages will be produced.
- Thirty farmers, five extension staff and five representatives of NGOs will be selected from one major cassava-producing district in the Ashanti region of Ghana to begin the programme.
- A two-day workshop on diseases affecting cassava production will be organized at least one month before the beginning of the major farming season. Activities will include using the guides in disease identification and selection of healthy planting material in planned field work. Plant pathologists, agronomists, social scientists and senior extension staff will function as resource persons.
- Extension staff will distribute guides and knowledge acquired at the workshop to farmers in their districts as part of their routine activities.
- Farmers will participate in the selection of healthy planting materials from Planting Materials Multiplication Sites (established under the National Root and Tuber Improvement Programme of Ghana) for field establishment in the new season.
- Extension staff will offer advice to farmers during field establishment.
- A team of research and extension staff will monitor farmers' fields at intervals of 3 months to reinforce improved farmer practices.
- Incidence and severity of cassava diseases in selected farmers' fields will be documented and compared with that of the entire district.
- Farmers will be encouraged to quantify yield and compare with previous years.

Year 2

- A Workshop on diseases affecting cassava production will be organized for 20 extension staff and five NGO representatives (different group) drawn from the districts of the Ashanti region of Ghana before the major farming season.
- Extension officers will lead a training programme with guides and fact sheets for their various districts, to give practical advice on diseases to farmers at the on-farm level. Emphasis will be placed on the selection of healthy planting materials for cultivation.
- Extension staff will repeat the first-year activities with the 30 selected farmers, who will now be encouraged to act as trainers of other farmers in their communities.
- Incidence and severity of cassava diseases documented 6 months into the farming season will be compared with existing figures for the region.

Year 3

- Activities in the second year will be repeated in the third year with 20 different extension officers.
- The success of the programme will be evaluated using disease incidence and severity as indicators. Yield figures compiled over the period in the districts and the region will help in the evaluation.
- A seminar or farmers' forum will be organized to discuss achievements and mechanisms to improve farmers' practices at the end of the third year.

Anticipated outputs

- Farmers' awareness of diseases will be improved.
- Farmers will be able to identify diseases on their farms.
- Farmers will select healthy planting materials.
- Farmers will appreciate the importance of diseases and therefore, make conscious efforts to control them.
- Crop yield will increase as effects of diseases are reduced.
- Results obtained from this project will be extended to cover other cassava-growing regions of

Ghana.

- Transfer of knowledge from this project into other cassava-growing countries in Sub-Saharan Africa is the ultimate goal of the programme.

Resource requirements	USD
<i>Year 1</i>	
Computer and accessories for data storage and processing	2500
Fuel for vehicles and maintenance of vehicles for project	3200
Publication of Field Guides and Fact Sheets (2500 laminated sheets: 5 diseases, 500 sheets per disease)	11,000
Stationery	500
Correspondence	500
Workshop costs (including travel and accommodation for 50 participants for 2 days)	4000
On-farm work and monitoring	7300

Total	29,000
<i>Year 2</i>	
Total	< 10,000
<i>Year 3</i>	
Total (approx.)	15,000

Total	54,000

Potential resourcing: Crop Protection Programme of the UK's Department for International Development.

A successful first and second year's activities will help attract additional funding from national (Ghana) and international sources.

References

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ISPP Task Force on Global Food Security

ACTIVITY 5

Development of the ISPP Website

Rationale

The ISPP's Website provides a core of information about the Society and about some aspects of plant pathology. It has considerable potential for development as an improved means of communication, through which change can be effected in line with the priorities identified.

Objectives

Develop the ISPP Website to have the following functions:

1. Provide members and other visitors with information about the Society
2. Provide information about plant pathology, why it is important, and what needs to be done about it
3. Present the outcomes of the ISPP Task Force on Global Food Security

Provide an improved means of communication between those with offices and functional roles in ISPP.

Activities plan

1. Provide information about the Society, including:
 - Objectives
 - Activities
 - Structures
 - Executive Committee, with contact details
 - Affiliated Societies, with contact details and links to web sites
 - Councillors, with contact details
 - Subject Matter Committees, with contact details
 - Subject Matter Committee web pages
 - Task Force on Global Food Security, with contact details
 - Links to other sites
2. Provide information about plant pathology, including:
 - Newsletter
 - Links to relevant sites
 - Coming events
 - World Directory of Plant Pathologists
 - Report and recommendations of Task Force on Global Food Security
 - Details of individual recommendations and actions, with contact details and links to relevant sites
 - Link to ProMed Plant (reports of outbreaks)
 - Names of plant pathogenic bacteria
 - Links to other sites
3. Present outcomes of ISPP Task Force on Global Food Security

4. Alongside development of the Website, establish a ListServ to provide for open e-mail communications between those with offices and functional roles in ISPP.

These activities will be addressed as follows:

- Register new URL (if possible www.ispp.org), Q4, Y1
- Establish ISPP-LIST ListServ, Q4, Y1
- Confirm arrangements for Webmaster's management of (a) content, (b) design, Q4, Y1
- Publish material from Task Force, Q4, Y1
- Introduce new structure and design, Q1, Y2
- Extend information about ISPP (1) and about plant pathology (2) to match specifications above, Q1, Y2
- Continue to extend and improve Website and its linkages, making it more responsive and a better vehicle for carrying information designed to effect change.

Anticipated outputs

A means of communication within ISPP, and between ISPP and those who need information about plant pathology, to enhance awareness of the significance of plant diseases and their relevance to global food security. These outputs link closely with those of the Policy Group (Activity 1).

Resource requirements	USD
Registration of new URL	100
Set-up charges for ListServ	250
[Remaining costs are <i>per annum</i>]	
Fee to host server	1000
Honorarium to Webmaster *	2000
Equipment, supplies etc.	200
Travel	800

Total	4,350
* Or 1 senior professional (FEC), 2 months @ USD9600	19,200

Website development and maintenance should be a cost on the core ISPP budget.

Fundraising for ISPP will be needed to accommodate all its core budgeted functions. Appropriate sources include crop protection companies, publishers, development assistance agencies.

APPENDIX 2

Members of the Task Force



ISPP Task Force on Global Food Security

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