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The TAA towards 2010 and beyond

THE FOLLOWING ARTICLE CONCERNS THE FUTURE OF THE TAA. THE EXECUTIVE COMMITTEE STRONGLY RECOMMENDS THAT YOU READ IT AND CONSIDER THE PROPOSALS SET OUT THEREIN AND COMPLETE THE ENCLOSED QUESTIONNAIRE IN PREPARATION FOR AN ACTION PLAN TO BE PUT FORWARD FOR APPROVAL AT THE AGM LATER IN THE YEAR.

Background

Your executive committee has for some time been increasingly concerned at a steady decline in membership of the Association with a lack of younger members and the resulting implications for a sustainable future. At the December committee meeting it was therefore decided to set up a small working group (codename TAA 2010) to deliberate on the future direction of the Association in the next decade and beyond. In particular the issues considered were:

- (a) *the needs and aspirations of existing members especially those not residing near to an active regional group;*
- (b) *the type of activities, services and facilities that might appeal to potential new members (especially younger ones);*
- (c) *other issues influencing the perception of the association as a dynamic, forward thinking, influential body that has a high profile, an excellent reputation and with which more organisations and people from a wider age range want to be associated.*

The TAA 2010 working group (Prof. Mike Carr, Mr Laurence Sewell, Dr Tony Smith, Dr Elizabeth Warham and Derek Sutton (Chair)) met four times and set considerable 'homework' for members between meetings. The group consulted widely and sent a questionnaire to all (400) TAA members with known e-mail addresses. This produced an excellent (30%) response with some members giving a great deal of careful and serious thought to their detailed replies for which we thank them most sincerely. The group also referred back to several earlier TAA documents relevant to the issues involved including: The 1999 Membership Survey (Collinson et al.); The TAAF Brochure; the 1997 Career Prospects Study (Pereira et al.) and a number of TAA Newsletter articles. The recently formed TAAF Awardees Group also sent some most helpful comments and ideas.

As members are aware, the Association's affairs are currently managed by a small band of dedicated individuals who devote considerable time and effort without reward or recompense to ensure that the administration, finances, day-to-day business of management, the regional groups and services to members all run smoothly. This is all done without either a permanent office/meeting room or secretarial support. As a result one of the Association's strengths is the very low operating overhead, and relatively low subscription. By the same token however the Association is vulnerable in its dependence on [ageing!] volunteer officers and low income that constrains an ability to enhance and increase the range of activities and services particularly those that might appeal to younger people.

At the present rate of decline in numbers (a net loss of about 50 members per year) the Association membership will fall below a critical mass within a few years. It seems reasonable to suggest therefore that we have three options:

- Option 1: Maintain the status quo.** Accept the steady decline as a fact of life and that the TAA has served its purpose well but is no longer a relevant organisation following the decline in British involvement in tropical agriculture. Eventually wind up the association at the point when funds are sufficient to clear any outstanding debts (within four to five years).
- Option 2: Make some minor changes.** Initiate a number of actions to try and halt or reverse the membership trend and maintain the present level of services and activities within the limitations of the time and effort member volunteers are prepared to offer and within the limitations of our modest/low income. A membership drive has already been initiated and with a transfusion of a bit of 'new blood' into the core group of active members it might be possible to reverse the decline or at worst postpone the final demise by a few years. This would involve an increase in subscription to £25-£30.

- Option 3: Make major changes, develop a ten-year plan to expand and move boldly into the 21st Century.** Increase activities, facilities and services to an expanding membership. Establish a permanent address with appropriate secretarial and administrative support. No half measures! This would involve an increase in subscription to £50-£100. (See Proposal 13 below.)

The TAA 2010 working group strongly recommends Option 3 and as a first step has identified a number of key issues and suggested a number of preliminary actions. These have been endorsed by Exco at the meeting on 19th June and are presented below for the information of all members in a full membership consultation via the enclosed questionnaire (**to be returned by 30th October**) for presentation of an action plan for approval at the AGM on the 13th December.

TAA 2010 Working Group Proposals

1. Identity and Image of TAA

The TAA should expand from its UK image, and broaden its scope to become a professional association for people involved in or with international agriculture and rural development. It should retain the logo TAA but change its name to International Agriculture and Rural Development Association. The title might therefore appear thus:

- TAA: a professional association for people involved with agriculture and rural development world-wide. Or thus:
- TAA: The International Agriculture and Rural Development Association—a professional association for people involved with agriculture and rural development world-wide.

2. Membership

Membership should be available to all those working or interested in agriculture and rural development world-wide.

3. Professional Recognition

Develop criteria and procedures for electing members as junior or senior Fellows to reflect their contribution to tropical agriculture and rural development. This could be taken a step further by operating an award scheme with a medal and citation.

4. Specialist Networks

Set up specialist groups on particular themes or disciplines within TAA (e.g. extension and training, livestock, information technology, post-harvest tech-

nology, mechanisation, tropical pastures and rural livelihoods). This would allow members to get together at specialist meetings and or communicate informally (e.g. through the website) about work in progress and ongoing issues they or their organisations are facing and to exchange information and possibly learn from each other.

5. Overseas Groups

Identify overseas country representatives (some volunteers already identified), initially for two pilot countries or regions (i.e. East Africa and Trinidad) as a trial run, who could be encouraged to set up local TAA groups with appropriate support from TAA UK. They would be responsible for recruiting local members, collecting membership dues in national currency, arranging local programmes (at least two meetings a year), producing papers for the TAA newsletter and website pages on the TAA website, and helping TAAF Awardees and visiting members going to their country or region.

6. Journal Links

TAA should formally adopt *Experimental Agriculture* as its learned journal (operating alongside the TAA Newsletter) available to members interested and registered on a higher fee level. More consideration should be given to broaden the scope of content to include rural development, more on animal production, environment and conservation issues. Similar arrangements could be made with other journals in the future possibly through the website (see Proposal 8 below).

7. Meetings/Conferences/Annual Symposium

Broaden the scope, location and timing of meetings so that more members can participate. Ideas include joint evening meetings with other organisations (e.g. agricultural and civil engineers, biologists, irrigation specialists, etc.); meetings at weekends; an annual conference and/or junior members research symposium, and specialist network meetings. Also consider meetings overseas and renew attempts to set up a Midlands regional group.

8. Website

Expand functions of the website to include online discussion groups, the newsletter, more information on employment opportunities, links to other organisations and companies, register of consultants and lists of speakers and spokespersons (see Proposals 9 and 10 below).

Consider possibility of TAA funding online access for members to the CABI database (£4,100/yr).

9. List of Speakers

Compile a list of speakers with clear remits available to give presentations to clubs etc. as requested, with a fee rate to go to TAA funds plus travel expenses for the individual.

10. Media

Compile a list of trained spokespersons who could be approached by the media on items concerned with international agriculture.

11. Other enhanced membership benefits

Consider providing other benefits of membership such as assistance with: UK and overseas travel and organised tours, visits and other social events at reduced rates; exchange visits; training courses; purchase of books and other items at reduced rates; publication of articles, booklets and books; TAA credit card; and group health insurance.

12. Administrative Support

Consider establishing a permanent TAA address and the appointment of a part-time secretary/administrator to support the voluntary work of managing the Association by members of the Executive Committee, Regional Convenors, TAAF and others. Responsibilities would include increased services to members and assistance with newsletters and other *ad hoc* publications, active membership drive, maintaining membership database, development of promotional material including website, advertising in the Newsletter, dealing with queries, representation of the association, and advice to Executive Committee on

other activities. The office would be registered to facilitate charity fund applications and direct debit or credit card subscription payments and could be linked with a university or other organisation.

13. Membership Fees

As increased services to members will require increased funding, initiate a series of gradual annual increases in membership fees towards a tiered scale of fees. For example, students (£25), regular membership (£50) and membership plus the journal *Experimental Agriculture* (£75-£100). To be acceptable, these increases should run in parallel to significant and well-publicised enhanced benefits of membership.

The Exco would be delighted to receive additional comments, ideas, and reactions included in the questionnaire.

Do not hesitate:

complete the questionnaire today and take part in deciding the future of your Association. We look forward to hearing from you.

Derek Sutton and Elizabeth Warham

The Biennial Residential Seminar, University of Wales at Bangor

15-16 September 2001

Please see Yellow Pages (i) for 'Administrative Arrangements' including:

- Provisional Programme
- Registration details
- Registration form

The map shows the University of Wales at Bangor campus. Key locations are marked: 'ACCOMMODATION' near the Merial Site, Tidorth Playing Fields, Athletics Track, and Botanical Gardens; and 'SEMINAR' near the Merial Struts. Landmarks like Park Street and Regent Street are also indicated.

LONDON & SOUTH-EAST REGION

Seminar on Horticultural Crop Exports from Tropical Countries, 27 March 2001

Recent Developments in EU Pesticides Regulations and their Impact on Imports of Tropical Fresh Produce

David Hirst

UK Representative for COLEACP

(Committee for Liaison between the EU and African, Caribbean and Pacific States)

Harmonisation of EU Regulations on Pesticides

Background

In order to meet the needs of a growing world population, from the mid-twentieth century there has been an intensification of agricultural production. A major contributory factor in this development has been the increasing use of synthetic agricultural chemicals, fertilisers and crop protection products, enabling yields to be maximised and controlling the pests and diseases that are liable to develop in monoculture situations. This is particularly true in tropical conditions, where the pressure from pests and diseases tends to be higher and is unrelieved by a cold winter. Without the benefit of chemicals, the losses to crops would seriously threaten the capability of producers to export economically. In many cases, with current knowledge and resources, it would be virtually impossible.

Consumers in the developed world have become accustomed to increasingly high standards of quality and uniformity of fresh produce. Retailers have translated this expectation into ever greater pressure on their suppliers, for higher quality, larger volumes, year-round supplies and lower costs, to satisfy their customers' needs and to increase their own market share in a highly competitive trading environment. This could not have been achieved without the help of a whole range of agricultural chemicals.

In general, the controlled use of these chemicals, under the principles of Good Agricultural Practice (GAP), should represent no measurable hazards to human health and the environment. Wide safety margins are now built into the approval procedures and permitted residue levels. The monitoring of residues in food products, certainly in UK and other

EU countries, is strictly enforced. Those chemicals which have proved to be more hazardous in the past or which raise concerns for human health or the environment have been or are being progressively withdrawn in favour of safer alternatives.

A strong movement towards more natural means of crop protection under Integrated Crop and Pest Management systems and a resurgence of demand for organically grown produce have followed on from the recent increase in public awareness of the desirability of healthy eating. Negative publicity about food additives, pesticide residues and the occurrence of high profile 'food scares' such as, outbreaks of E. coli, Salmonella, Listeria, Dioxins, Aflatoxin and BSE, have served to highlight their concerns. There have been demands for greater controls over what goes into our food, and fresh produce has been held up as a potential danger due the residues of pesticides that are used in its production and storage.

The results of systematic random sampling carried out by the EU authorities (by the Pesticides Safety Directorate (PSD) in the UK) regularly indicate that over 70% of all samples contain no measurable pesticide residues, and of the remainder only a handful ever exceed the permitted levels, none of which have yet approached a level representing a hazard to human health. Fresh produce is in reality one of the safest forms of food we eat and also highly beneficial to our health. Nevertheless, the public misconception, encouraged by media reports, of fruit and vegetables treated indiscriminately with a cocktail of toxic chemicals before being put onto our plates is not easily corrected.

Pesticide Regulations before 1993

Until 1993, each of the Member-States in the European Union was responsible for setting its own

legislation on pesticide approvals and permitted residues, which in the UK came under the Control of Pesticides Regulations (1986) administered by the PSD of MAFF. A confusing situation developed in Europe as a whole, where inconsistencies in regulations between Member-States caused problems for exporters and importers and seriously hampered the free movement of goods across borders within the trading area.

Council Directive 91/414/EC

Against this background, in 1991 the European Commission brought out the Council Directive 91/414/EC concerning the placing of plant protection products on the market. In July 1993, under this Directive a programme was set in motion to harmonise regulations relating to pesticide approvals and residues throughout the Member-States.

There were two main thrusts to this harmonisation programme:

A review of active substances

The first objective was to complete a review of all of the 823 active substances that had been approved for use in crop protection products within the EU prior to July 1993. It was planned, vastly over-optimistically as it turned out, to complete this work by 1998. This review procedure provided for the establishment of Annex 1, a positive list of approved active substances for the EU. For new active substances, the evaluation procedure for inclusion in Annex 1 also applies once scientific data has been provided allowing approval of the product.

Setting of Maximum Residue Levels (MRLs) for crop/chemical combinations

Equally ambitious, this programme set out to establish harmonised EU MRLs for every crop/chemical combination, within the framework of a series of EC directives. The definition of MRL is the maximum concentration of a pesticide residue permitted in or on a food product or animal feed. It is expressed as milligrams per kilogram or ppm, and is generally monitored at the point of retail or, less usually, wholesale. It is not intended to represent a food-safety level and is invariably set well below any point at which human or animal health can be affected. It is related to the usage of a pesticide that gives adequate control of the targeted pest or disease within agreed parameters for safe

use, taking into account public and occupational health and environmental considerations. These considerations include the Acceptable Daily Intake (ADI) of each chemical, which is the amount that can be consumed by an individual human on a daily basis throughout a lifetime without any adverse result. Special dietary situations may also be relevant.

As the regulations classify fruit and vegetables into 126 different products, with 823 active substances to be considered, this makes a total of 103,698 MRLs to be harmonised throughout the EU. To ease the burden of this work, it has been divided among the leading member-states, the so-called Rapporteur Member States (RMS).

When data from trials of an approved pesticide are submitted for the setting of an MRL for a specific crop use, after due consideration the RMS may agree to approve an MRL. The file is then subjected to scrutiny by various committees, including the Standing Committee on Plant Health (SCPH), and after a series of such procedures a EU MRL may be allocated for the combination under review. This can take up to 3 years. If no such submission is made or the data is not considered adequate, then the MRL will be set by default at the 'Limit of Determination' (LOD), which is equivalent to analytical zero. In most cases this will preclude the use of this substance on the crop in question, since there can be no guarantee of zero residue following its use.

Import Tolerances

Where an MRL or approval for use of an active substance for crops grown in Europe does not exist, applications for MRLs for imported produce grown outside the EU may result in the granting of 'Import Tolerances' for those specific crop/chemical combinations. However, the procedures for approval of an Import Tolerance are exactly the same as for any other MRL.

Progress to date

The first stage of the review programme began in 1995 with the first data submissions. Progress has been painfully slow and, of the first list of 90 compounds reviewed, 11 have been placed on Annex 1 and 15 have been withdrawn. Decisions on the remaining 64 of the first list have still not been made. In order to speed up the procedure the

European Commission has set a revised deadline of July 2003 for these decisions to be made. It is expected that many more substances will then be withdrawn due to lack of supporting data supplied by the manufacturers. Additionally, data submission deadlines have been set for all of the other 700-plus substances and it is expected that those that are not supported will also be withdrawn after 2003. A 12-month period of grace will be then allowed for consumption of stocks and conversion to alternative means of protection.

It is forecast that only 250 to 300 of the original 823 substances are likely to survive the process. This gives rise to concerns that insufficient alternative treatments will be available to growers, thereby leading to pest and disease resistance. On current form, tropical and other minor crops will be the hardest hit. There are also likely to be economic repercussions, particularly on poorer farmers when most of the older, generic and therefore cheaper pesticides are withdrawn, as there will be no further commercial incentive for the manufacturers to support them.

Enforcement

When Member-States were responsible for their own legislation, there was a considerable variation between observance and enforcement of the rules from one country to another. In the UK the Food Safety Act was always applied rigorously and suitable penalties were imposed on the fairly rare occasions when breaches of pesticide residue regulations were discovered in the course of random sampling of products for residues. But in general it all went on quietly and without much awareness on the part of the public.

However, in recent years, the annual and now quarterly publication of the Working Party on Pesticides Report (WPPR) (now the PRC—Pesticide Residues Committee) with the names of those retailers found in breach of the regulations has brought the whole question out into the open. This so-called 'naming and shaming' policy has laid retailers open to the serious consequences of exposure for selling produce containing illegal pesticide residues and they have become highly sensitised to the risks involved. The new Food Standards Agency has added its weight to these pressures to be seen to be acting in the interests of public health.

Response to the Harmonisation Programme

In Europe

Agro-chemical companies have submitted data packages to support MRLs where the pesticide usage on a crop is sufficient to make the high costs of data generation commercially worth their while. They also have to consider whether the active substance is out of patent and whether, in the long term, it will continue to have EC approval. In the UK the Horticultural Development Council with the growers' support were sufficiently forward-looking to take advantage of Specific Off-Label Approval (SOLA) arrangements. They were able to establish some 700 MRLs for locally grown crops at a cost of about £1.5 m. Other growers, manufacturers and interested parties within the EU have taken similar action to ensure that MRLs are established for important crop/chemical combinations.

Tropical crops

Due to poor communications and a lack of understanding of the real consequences of the changes, insufficient work has been done to support the setting of MRLs for imported tropical and subtropical crops and indeed many other so-called 'minor' crops. While they may be very significant to the producer and even the producing country, many of them, including such items as pineapples, mangoes, avocados and sweet potatoes, have not attracted the attention of the chemical manufacturers as their potential return on the investment for trial work is insignificant. The growers and the countries themselves generally do not have a mechanism for co-ordinating the funds and commissioning the necessary trial work.

The result has been that MRLs have been set, by default, at LOD for a wide range of these crops. For some crops, all the MRLs for all listed active substances have been set at the LOD. This closing-off has led to reluctance of the retail sector (notably in the UK) to accept products that have been treated with pesticides that have been so closed off. In some cases products have been de-listed. Recent examples are passion fruit and carambola. This situation has become most critical for post-harvest fungicide treatments, which are essential when sea-freight is used for exports and where residues are most likely to remain on the surface of the product up to the point of retail.

Impact on Imports

The Table below gives some idea of the current volume and value of imports into the EU of some of the main items of fresh produce from the tropics. These are often grouped under the heading of 'minor crops', but many are in fact quite substantial in terms of economic importance to the producing countries and, in the case of bananas, represent a very significant trade item to the EU. The loss of key pesticides to enable the economic production and preservation of post-harvest quality of these items would be a major threat to this trade.

EU Import Statistics, 1999

	Tons	Million \$US
Avocados	88,900	140
Bananas	3,220,000	1,900
Litchis	18,587	52.5
Mangoes	114,386	127.5
Melons	163,859	134
Papayas	13,591	26
Pineapples	333,045	195
Green Beans	75,598	134

Impact on Exporters

In 1999, DFID contracted the NRI to carry out an impact study of the effects of these changes in regulations on developing countries. Their report concluded that in the African, Caribbean and Pacific (ACP) countries alone some 45 million people were dependent on horticultural exports to the EU for their livelihoods.

- The legislation changes were likely to have a range of effects:
 - A fall in export production
 - Increased production costs
 - Higher risk of crop wastage and crop failure
 - Exclusion of small growers from the supply chain
 - Exclusion of smaller countries from the export trade
- Smallholders were most affected:
 - Importers will exclude exporters relying on small outgrowers
 - Exporters will not source from smallholders where alternatives exist

- Production costs will increase (more expensive chemicals and controls)
- Smallholders may turn to local markets/subsistence as an alternative
- Workers would suffer:
 - Loss of jobs, especially in small/medium units
 - Increased seasonality of work and reduced job security
 - Reduced income
 - Social disruption

To summarise so far

The EU harmonisation of pesticide regulations was initiated with the best of intentions:

- to bring order to a confused situation
 - to enhance consumer safety assurance
 - to allow freedom of movement of trade goods within the EU
- The results so far have been:
- a bureaucratic tangle
 - lack of and inappropriate communication of information
 - bewilderment on the part of the trade
 - serious potential and actual damage to the trade and specifically to developing countries and rural poor in those countries
 - a threat to private sector investment and development aid schemes based on export horticulture
 - effective trade barriers between Europe and the rest of the world
 - reduced consumer choice in European shops

How can this be addressed?

COLEACP Pesticides Initiative Programme (PIP)

Early in 1999, during one of the regular meetings of the Pesticide Management and Food Chemicals Committee of the Fresh Produce Consortium (FPC), the PSD representative was asked to give a presentation on new developments in EU legislation. It was clear from what he said that these changes would have far-reaching effects on the trade. The UK had evidently taken steps to look after the interests of its growers and this had benefited those across

Europe. However, it seemed that nothing effective was being done to inform the producers and exporters in the developing countries. It was clear that the full impact of this legislation had not yet filtered through to them.

Further investigation revealed that there was massive ignorance of the consequences outside of Europe. While a steady drip-feed of information on the various Directives had been sent out in highly technical and 'officialese' format over a period of years, very little of this or its significance had actually reached those whose businesses and livelihoods would be most affected by it. The curtain was about to fall and the trade seemed to be totally unprepared for it.

In June 1999, a Working Group was formed with COLEACP, the FPC, NRI and Audax Audits, a consultant on pesticide residue analysis. Various representations were made to the European Commission and a number of meetings held in Brussels with DG Development, DG Trade and DG Sanco, the Department responsible for the harmonisation programme. Eventually, by early 2000, the Commission became convinced that a real problem did in fact exist. While they were adamant that no concessions could be made as to the timing or substance of the legislation and no compromise on food safety would be entertained, they asked COLEACP to prepare an action programme, funded by the Commission, that would support exporters, particularly in ACP countries, to maintain their competitive supplier status in the EU markets by helping them to comply with the new regulations.

This programme was presented in April 2000 and accepted in principle, but then had to go through a lengthy feasibility study by independent consultants. It was revised and finally re-presented and approved by the Commission in December. The European Development Fund (EDF) has agreed to support the programme to the tune of 29 million Euros over a period of 5 years. It was hoped that the programme would be underway in February this year, but more bureaucratic delays in Brussels over contractual details have extended this date to May at the earliest.

Although a Management Unit based in Brussels will administer it, the PIP is designed to operate on a 'bottom-up' system. Requests for assistance will be formulated at national/industry level through the private sector. These will be checked and adjusted as necessary to comply with the requirements of the approval body, which is the ACP Group Secretariat in the Commission in Brussels. Local 'Task Forces' representing the trade will be set up to create dialogue. Excessive public sector influence will be discouraged.

Four components of the PIP

- Information Communication component (already in progress)

Aimed to provide up-to-date information to the trade in readily accessible and digestible form on all matters relating to pesticides (e.g., round-table meetings held in Nairobi (Kenya), Ouagadougou (Burkina Faso), Kingston (Jamaica) and Brussels in June/July 2000). This will include databases of regulations, crop protocols and other essential information. It will also handle and circulate feedback information from within the trade.

- Regulations component.

This will focus on the preparation and defence of priority crop/chemical combinations to establish practical MRLs and Import Tolerances based on GAP. Identification of these priorities will be made with the assistance of national Task Forces that are already being set up. It has emerged from discussions with the RMS expert groups that a more liberal interpretation of extrapolation between similar crops with comparable GAP may be taken in the setting of certain MRLs for tropical crops. There has also been some indication that the time taken for processing procedures of acceptable data could be drastically reduced to a matter of weeks rather than years as at present, provided that consumer health considerations were not compromised. Assistance and advice will be provided to the national authorities to ensure that their national legislation is in conformation with the new regulatory requirements in the EU.

- Good Practice and Food Safety component.

- Implementation of Quality Management, Traceability systems, and codes of practice.
- Improved crop and pest management systems (ICM/IPM) mainly through the exporter associations working with private companies.
- Special attention will be given to the small-scale sector.

- Capacity-Building component.

This component operates at every level and throughout the programme, but especially through the national Task Forces and the Associations. It aims to strengthen the local pool of expertise to encourage self-sufficiency by setting up training schemes. It also aims to maintain the continuity of

the programme after the 5-year project is completed by reinforcing the local private-sector structures and enabling them to cope with future challenges to their place in the world markets.

And in the meantime?

- ❑ Producers and exporters are being advised to consult closely with their importers and to follow their guidance.
- ❑ They should review the pesticides and treatment regimes they are using, cutting out any that may entail the risk of illegal residues
- ❑ Harvest intervals should be revised upwards unless current data indicates that residues will not be found in any circumstances

- ❑ Pesticides most likely to leave residues are those with longer harvest intervals. Producers should try to use only those that have shorter harvest intervals and are least persistent.
- ❑ Post-harvest treatments are potentially the most risky. Where possible they should be avoided.
- ❑ It is to be hoped that some degree of understanding will be exercised in the enforcement of the regulations over the next few months and years until the trade catches up. The consequence of near total loss of crop protection chemicals for tropical crops is a daunting prospect indeed.



Meeting on Charitable Organisation Projects in Africa, 10 May 2001

The Association for Better Land Husbandry in Kenya

Francis Shaxson

Falling land productivity and increasing poverty are interlinked trends due in part to long-standing poor land husbandry in many developing countries. These trends however can be reversed by helping farmers to improve their husbandry of the land as their basic resource.

This problem was a major concern of some senior members of the Kenyan Government in the mid-1980s, and also of a small group of Kenyan participants and others at the 6th ISCO Conference in Addis Ababa in 1989. It was resolved to set up a small project in the field in order to put the principles of good land husbandry into practice, an initiative that could become a role model for others to study. Subsequently a focussed Workshop 'Working with Farmers for Better Land Husbandry' was held in Kenya mid-1991 and attended by some 40 national and international participants'. This workshop helped to map out a way ahead through the exchange of ideas and experiences. As a result the project, spearheaded and subsequently run by Jim Cheatle, was started in 1992 in the Kakamega District of western Kenya. Shortly afterwards another project was started in Kerugoya in the Kenya Midlands. The project is of the 'process' type rather than the 'blueprint' type. To support this initiative the Association for Better Land Husbandry

(ABLH) was set up in England in 1993 as a formal tax-exempt 'charity' entitled to receive funds from individuals and donor agencies for the development work in Kenya.

The purpose of this expanding effort has been to help farmers demonstrate to themselves, their neighbours and others that even the most deprived small farmers can begin to lift themselves out of poverty. By making better use of their own labour and skills to conserve rainwater and organic materials, so as to increase the amount and variety of crops they can produce with a very small initial cash investment, it has been possible to improve farm-families' livelihoods. It has also shown that, by taking and developing opportunities to market surplus quantities of fresh and locally processed crops, significant household cash incomes could be generated.

Initially, working with some 40 farm-families at the margins of the Kakamega Forest, one expatriate and a few Kenyan staff concentrated on helping farmers develop vegetable production from the recommended deep-dug composted beds. Farm families soon found that the increase in quality, depth and water-holding capacity of the soil in the limited areas covered by the beds had many beneficial results. These included:

¹ Papers from the Workshop are printed in *Working with Farmers for Better Land Husbandry*, 1993. (eds. N.W. Hudson and R. Cheatle). London: Intermediate Technology Publications. ISBN 1-85339-122-0. 272pp. For subsequent information see the ABLH website at www.landhusbandry.cwc.net

- ❑ An extended growing-season and reduced 'hungry gap' between seasons;
- ❑ Raised yields of the few common crops, including self-sufficiency in maize;
- ❑ Production of a greater range of crops for household use and local sales;
- ❑ Improved diet by quantity and variety, with special health benefits to children;
- ❑ Increased opportunities to generate cash income.

There has been widespread and enthusiastic adoption of these practices through farmer-to-farmer contact and, by early in the year 2000, the number of families actively using these approaches had risen to more than two thousand.

Soon it became increasingly clear that, in order to generate significant amounts of cash to enable ABLH to become self-supporting, it would be necessary to reach a wider market than just those in the local villages. It was also clear that produce for city outlets such as supermarkets would need to be of a consistently high quality, regularly delivered in good condition. To achieve this, the local farmer groups have been amalgamated into Farmers Action Associations. FAA products have been given a registered name—'Farmers Own'—in order to identify these locally produced high quality jams, chutneys, bar-snacks, etc. At the same time fresh produce has been marketed, and green beans, mini-

sweetcorn and passion fruit have been exported through collaborating commercial firms. Some FAAs have signed farming contracts for the production of significant quantities of certain crops such as soya beans. In parallel, work started in 1997 to develop certified standards for 'Organic' and 'Conservation Supreme' production. The former uses international standards, not easily achievable by small farmers, while the latter, achievable by a much larger proportion of the farming population, depends on maximum self-reliance in the use of organic materials complemented by Integrated Pest Management and Integrated Nutrient Management to safeguard and maintain plant health, crop quality and soil productivity and to provide guarantee of market quality. By early 2000 the Farmers Own Company Ltd. had been registered to spearhead the organisation and marketing aspect of this vertical integration from conservation farming to consumer-led demand. Exploratory visits have been made to several countries in search of export markets.

Since March 2000, ABLH-Kenya has been a fully autonomous registered Kenyan NGO with some 40 staff members headed by two Kenyan General Managers. It receives funds directly from two key donor agencies—the UK Government and the Rockefeller Foundation—whose long-term support (among that of others in the past, notably Ford Foundation and the Commonwealth Secretariat) has enabled this 'best-practice' project to reach its planned independence in eight years.

The Kulika Charitable Trust

Andrew Jones

The Kulika Charitable Trust was established in April 1981 to provide a scholarship resource for students from anywhere in the so-called 'developing world'. Students were sponsored for studies, mainly in the UK, in fields that would enable them to contribute to the development of their home countries. The Chairman of the Trust, Patricia Brenninkmeyer, had lived in Uganda in the 1960s and 1970s and worked as a social worker in childcare. When the political situation in the country stabilised in the mid-1970s the focus of the Trust's activities shifted to Uganda.

Today the Trust works only in Uganda, and in 1993 a daughter organisation, The Kulika Charitable Trust (Uganda), was established as an autonomous NGO. Kulika Uganda operates a Scholarship Programme for

Ugandan students, mainly offering scholarships for in-country study. These provide opportunities to study in a wide variety of areas that are important to the development of the nation. At any one time around 120 students are under Kulika sponsorship. A small number are still sponsored for study in the UK, but only in subjects that are not taught locally and where the student displays considerable potential.

Although Kulika is known widely for its involvement in agricultural training, scholarships are offered in fields as diverse as health sciences, animal sciences, engineering, education and social sciences. A separate arrangement with Leeds University and the UK Foreign and Commonwealth Office offers three scholarships to Leeds annually. In conjunction with The Open

University, the Trust is also making the OU's MSc in Development Management available to twenty or so students who are employed by local and international NGOs in Uganda.

Kulika's interest in agricultural training arose in the early 1990s through asking students who had been sponsored under the Scholarship Programme what the development priorities were for their own villages. Often the response was that, although many things were improving in the country, the plight of the smallholder farmer was still dire. What they needed was some way to enable them to improve food security and their incomes without recourse to agro-chemicals that they simply were too poor to afford. Since 80% of the population of Uganda is involved in agriculture, and 80% of those people are smallholder farmers, the scope for achieving significant impact was clear.

At that time the Trust had available to it a seven-acre farm in Berkshire, and a plan was developed to establish an experimental training programme which would involve farmers being selected in Uganda for training in the UK. So Kulika's Sustainable Agriculture Training Programme was born, and thirty-five 'Key Trainers' were trained in the UK between 1993 and 1999. Most of these farmers were already involved in some leadership capacity within their communities, and although the majority came from Uganda some also came from Kenya and Tanzania.

A curriculum, lasting a total of seven months, was developed to provide a mix of theory and practice. In 1996 the course was accredited by the University of Reading and became their Post-Experience Diploma in Sustainable Agriculture and Farmer-to-Farmer Extension. Successful Key Trainers returned to their homes and began the process of using the new techniques on their own farms and teaching neighbouring farmers. The success of some of our early Key Trainers convinced us that we had a programme with the capacity to bring about considerable change for the good in the livelihoods of smallholder farmers, and in 1997 we took the decision to establish the training in Uganda.

We decided on a 'semi-mobile' model of delivery—establishing temporary training centres initially in Masaka and Tororo districts—which would be closed after two or three years to allow new centres in neighbouring districts to open. The first courses started in January 2000 with twenty trainees in each centre. The new course lasts for ten months, of which only thirteen weeks is residential, the remainder being taught on-farm by the eight tutors working out of the two centres.

The first two groups of trainees received their certificates at the beginning of May 2001, and we now have a further forty trainees studying the course at the two centres. At the end of 2001 the Tororo centre will close and we will move to new facilities in Pallisa District. The Masaka centre will close at the end of 2002 and the training will be offered in a new location. We are very close to signing a Memorandum of Agreement with Makerere University, which will accredit the course, thereby providing the university with a direct route to farmer training which they have aspired to for some time.

Having described what we are doing, it would be reasonable for you to ask what impact we can point to in the field. During 2000 we commissioned an independent Impact Assessment of the work of the first thirty-five Uganda-based Key Trainers. This provided us with some helpful information for future planning, and also confirmed many of the positive benefits we had only heard about anecdotally. Here are just a few quotes from farmers interviewed during the study:

Prior to the training I used to spend at least 50% of my income on buying food. Sometimes, we even went without a meal. The proportion of my income that I now spend on food has reduced to less than 5%. (Farmer, Arua)

We eat chicken and fish twice a month, and for the last six months I have not bought medicine for our family. This was never the case before the exposure we got through the training. (Farmer, Mbale)

The study also confirmed that Key Trainers and their contact farmers were engaging in a wide range of experiments, particularly in pest control. Other experimentation, for instance, related to the differences in crop yield and pest resistance between organic and non-organic production on the same farm. There was evidence that social capital also improved:

Prior to the training in sustainable agriculture methods, and prior to the achievements we have made, we were treated disrespectfully. Now all that has changed. When my wife goes to ceremonies she is invited in a place of honour. We are now recognised as important people. (Key Trainer, Arua)

So, what challenges do we face for the future? First, we need to be able to demonstrate that what we are doing integrates fully with the Ugandan government's policies towards the modernisation of agriculture. On the face of it this could be quite difficult, but in fact the more we explore with government officials at national and local level, the more we are encouraged to develop our work. This is because we are able to demonstrate that farmers adopting sustainable agriculture techniques are able to increase production and

improve their food security. This is one of the key objectives of government policy. Under new government plans there will be opportunities for our Key Trainers to be contracted as formal extension workers, following the disbanding of the traditional extension services.

Secondly, the single most-asked question of us is 'What about marketing?' 'Once we have increased our production to meet our home needs, we need to have outlets for our excess produce.' These are questions we need to address seriously, and it was interesting to hear Francis Shaxson talking about the work of ABLH in Kenya, where I am sure there could be lessons learned for Uganda.

But entrepreneurship is not just about finding markets for produce, it might be about charging fees for services provided, or it might be about engaging in ancillary business ventures such as transport and carpentry. It can also be about finding produce for markets instead of the other way around.

Thirdly, people often ask us about the sustainability of our programme. What happens when we leave an area? Surely no farmer-trainer can sustain his or her

own livelihood and train at the same time? What we have found is that not only is the delivery of training sustainable, but also there is marked and often rapid improvement in the sustainability of livelihoods of trainer and target farmer alike—and that, as far as we are concerned, is what it is all about. Trainers will devise their own methodologies for carrying out their extension work. Some will be paid small sums by their contact farmers; others will accept gifts in kind, or the offer of labour on their own farms. None of the Key Trainers are paid formally and they are not 'employed' as such.

Fourthly, we want to be able to devolve responsibility for the programme in its totality to Kulika Uganda. Many challenges lie ahead in that respect, but with a highly motivated and loyal staff in Uganda we are on the way to achieving it.

We are on a mission! The numerical objective of the programme is to see 200 Key Trainers operating in the field by the end of 2004. If each of those 200 influences only 10 neighbouring farmers, that would be 2000 farmers using more sustainable methods of agriculture. The expectation is that the number will be significantly greater!

Visit to Wakehurst Place

On Wednesday, 20 June 2001, the London and South East Region held its annual visit, this year to Wakehurst Place—the 'Garden of the year 2001' and home of the Millennium Seed Bank, managed by the Royal Botanic Gardens, Kew. Members gathered in the restaurant at 10:30 a.m. for an informal get-together, before going to the Wellcome Trust Millennium Seed Bank Building, an impressive, modern structure which took 5 years to construct at a cost of £19 million. The building has two storeys, one of which is below ground and houses the energy-efficient cold store kept at -20° centigrade, where seeds can be kept in a viable state for up to 200 years. The ground floor consists of a central courtyard surrounded by areas where research is conducted, seeds are processed and the 25 staff of Kew's Seed Conservation department are accommodated, and where there are study bedrooms for visiting overseas workers and students. The facility also has a 530m² glasshouse divided into 4 zones, two of which have temperature, humidity and photoperiod control systems that enable the simulation of extreme tropical dryland climate conditions.

The world's drylands have been identified as being the ecosystem for which *ex-situ* conservation is most appropriate. Reasons for this choice are many, including the fact that most species in dry areas have 'orthodox' seeds which can withstand desiccation, seasonality in dry area makes the timing of seed collection predictable, and most species found there are herbs, shrubs or small trees with easily accessible seeds. Furthermore, drylands cover more than 1/3 of the Earth's land surface, much of which is threatened by desertification, includes many of the world's poorest countries, and supports 1/5 of its population.

The bank is linked to Kew's database 'Survey of Economic Plants for Arid and Semi-arid Lands' (SEPASAL), which identifies more than 6000 species with uses ranging from land stabilisation, hedging and nitrogen fixation to contraceptives, dyes and cooking utensils.

Phase 1 of the project was established to collect the flora of the UK, approximately 1,400 species. Ninety per cent of the 'bankable' flora was collected and stored by April 2000. Phase 2, the International

Programme started in January 2001 and its aim is to conserve 10% of the world's flowering plants (approximately 24,000 species), primarily from the drylands. This programme has benefited from discussions with most of the international organisations involved in plant genetic resources conservation, including FAO, CGIAR, IPGRI, IUCN, UNEP, UNDP and GEF. The Project is now developing partnerships with institutions in countries as diverse as Australia, Egypt, India, Kenya, Madagascar, Mexico, South Africa and the USA. The collections have as their basis the precepts of the Convention on Biological Diversity, in which resources and responsibility are shared equally by all parties.

We were kindly received by the head of the seed collection department and head of the Collections Section, Roger Smith, who gave us an excellent talk

before we split into two groups and were escorted round the facility. We then took lunch in the restaurant, and spent the afternoon being taken on a tour of part of the 180 acres of gardens and woodland which surround the Elizabethan Mansion, built in 1590 from fine Sussex sandstone. The formal gardens surrounding the Mansion were beautifully kept, and showing a lot of early summer colour. Beyond these, we were taken to see several areas with ecological collections of plants from different regions, again all well laid out and most impressive.

The TAA, and particularly those members lucky enough to have been able to attend this summer field trip, wish to thank the RBG, Kew and the staff at Wakehurst Place for a most enjoyable and instructive day. Many of us will be visiting again. **R.W. Smith**



Post-harvest PGDip/MSc courses at Natural Resources Institute

The Food Security Department at NRI offers two PGDip/MSc Programmes:

-  Grain Storage Management
-  Post Harvest Horticulture.

Sharing their professional experience, training is provided by tutors currently working in international consultancy, research and development throughout Africa, Asia and Central and South America.

Both courses are available in two modes of delivery:

-  In Attendance

A 16-week, highly intensive PGDip programme at NRI in the UK, followed by an MSc research project, usually conducted in the student's home country.

Dates: PGDip 11th March to 28th June 2002

MSc 1st July 2002 onwards

-  Distance Learning delivered via the internet to your office or home computer, enabling you to study at your convenience. Ideally suited to busy professionals. Active participation between students from around the world is encouraged through discussion group exercises, bringing a lively multi-faceted approach to problem solving. Starting dates are flexible.

For further information, please visit our web pages at: <http://www.nri.org/Training>

Or contact JOHN BRICE at:

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SOUTH WEST REGION SEMINAR

Access to Sources of Information on Natural Resources

25 April 2001 at the
Empire and Commonwealth Museum, Bristol

The Empire and Commonwealth Museum

The spring meeting at the Empire and Commonwealth Museum, adjacent to Temple Meads rail station, took place in the impressive surrounds of what was once the office of Isambard K. Brunel. Although the turnout was low, those who attended enjoyed an interesting visit and some excellent presentations by outside speakers on the subject of Access to Sources of Information on Natural Resources.

The museum director Dr Garth Griffiths welcomed the participants and gave a short account of the history and objectives of the museum. The group then split into two, one half was given a guided tour of the collection rooms and photo archives whilst the other was given a talk by Mary Ingoldby, in charge of the oral archives collections, and listened to extracts from recorded interviews. The groups then swapped places.

The museum has over 20,000 items in the paper archives, some of which have been donated by TAA members. It contains the Crown Agents Railway Archives, a large photographic archive, artefacts including costumes and a steadily growing collection of moving images as well as the oral archives based on views, anecdotes and experiences from people who lived and worked in the British Empire and Commonwealth.

Contributions are always welcome should anyone be clearing out their attic.

British Empire & Commonwealth Museum
Clock Tower Yard
Temple Meads
Bristol BS1 6QH
Tel: 0117 925 4980 Fax: 0117 925 4983
Email: collections@empiremuseum.co.uk

CABI's Information Services

Chris Ison

Sales and Training Manager, CAB International, Wallingford

CABI is an international organization based in the UK providing information and scientific services for researchers and academics throughout the world. The main areas of expertise are agriculture, forestry, veterinary medicine, human nutrition and related aspects of human health, and related applied life sciences. At the centre of CABI's Information service are two reference databases: CAB ABSTRACTS and CAB HEALTH.

Both are abstract databases with the majority of records containing summaries of the original material.

CAB Abstracts

CAB ABSTRACTS is the world's largest database covering agriculture and allied life science disciplines.

Over 95% of records in CAB ABSTRACTS have informative abstracts in English. It is published in English but covers primary material from all over the world in all languages.

Other databases in this area are AGRICOLA published by the United States Department of Agriculture's National Agricultural Library, and AGRIS published by FAO. AGRICOLA concentrates on the US literature and will have better coverage of unpublished US University Theses. It is not as international in its coverage with about 65% of the database concentrating on US and Canadian literature. Only 28% of the database has abstracts. AGRIS is also an international database but can be patchy in its coverage. It does not include abstracts as standard.

As well as the 6,500 core serial titles that are scanned each year CAB ABSTRACTS covers books, conference

proceedings, reports and published theses. Coverage of patents is low and limited to agricultural engineering, dairy technology and biotechnology. It is a research database and does not cover 'grey literature' or non-scientific material.

Primary serials are not all abstracted cover-to-cover. Instead, material is selected for inclusion in the database on its scientific value. It must report or review original research. To ensure accurate selection CABI employs qualified scientists to do the abstracting and indexing.

Subject coverage is far more than just agriculture and includes the following disciplines:

- ❑ **Crop Sciences:** All crops grown anywhere in the world for either commercial or domestic purposes.
- ❑ **Crop Protection:** Diseases and disorders of all the crops covered above. Entomology, mycology, nematology, weeds and biological control. Coverage includes papers relating to the crop as well as the agent causing the disease or disorder. There is an overlap here with BIOSIS (Biological Abstracts).
- ❑ **Forestry:** Breeding, management and harvesting of all trees grown for commercial or domestic purposes. Timber, pulp and paper, fodder for animals, firewood, etc. Coverage includes wood processing and the production of timber products, machinery, equipment, varnishes and glue.
- ❑ **Animal Sciences:** All animals bred for commercial or domestic purposes for meat, skin, fur, wool or meat. Coverage includes dairy technology, e.g., milking machines, milk processing and transport, and milk products.
- ❑ **Animal Health:** Diseases, disorders and welfare of all the animals included in Animal Sciences plus papers on zoo animals and endangered species. Coverage includes papers relating to the animal as well as the agent causing the disease or disorder. Again there is an overlap with BIOSIS.
- ❑ **Human Medicine:** Research on the five main tropical diseases as they occur in the tropics covering papers relating to the effect on the person and the treatment/prevention of the disease. Also includes papers on the causative organisms and agents.

- ❑ **Food and Nutrition in Humans:** Biology, physiology and biochemistry of nutrition in humans and papers on diet in relation to disease and disease control/prevention. Infant feeding is included.

- ❑ **Economics:** Economic and social issues relating to the agricultural trade, e.g., farm management, farm economics and national and international trade policy.
- ❑ **Leisure and Tourism:** Management of the leisure, tourism and travel industry.
- ❑ **Agricultural Engineering:** Farm machinery and equipment, animal housing and transport, test equipment, remote sensing, control equipment, etc.
- ❑ **Miscellaneous:** Sugar processing technology, biodegradation (the unwanted breakdown of products by natural organisms) and biodegradation (the useful use of living organisms to break down unwanted materials like sewage, oil spills and domestic waste).

Forty-six printed abstract journals are derived from CAB ABSTRACTS:

Twenty-five of these are main abstracts journals with broad subject coverage and 15 are specialist abstract journals covering narrower, more specialised disciplines with relevant records selected, as appropriate, from the main abstract journals. Four news and information journals are in fact specialist abstract journals with a 'front-end' containing news items, reviews, diaries of events, letters, and so on. This extra information is designed to enhance the abstract journal section. A small number of annually published bibliographies on very specialized subjects are also available. These are very much like specialist abstract journals but are published less frequently and may not always be indexed.

CAB ABSTRACTS is available online through major online vendors around the world. DIALOG is by far the most popular. Online is, at the moment, the only service providing 'pay-as-you-use' access to CAB ABSTRACTS and CAB HEALTH. This is changing with the introduction of pay-as-you-use schemes by people like SilverPlatter with their 'Search-by-Search' system. In 2001 the cost of searching CAB ABSTRACTS (File 50) on DIALOG is US\$1.90 per full record printed, typed or downloaded plus any additional system related charges. A typical search producing 25 records would cost around US\$65 or £45.

CAB Health

CAB HEALTH is a specialized medical database that complements MEDLINE and EMBASE. It is published in English, is international and covers original material in all languages from 1800 serial publications

plus books, conference proceedings, reports and published theses. It is essentially a research database but does include some clinical material.

- ❑ **Tropical Diseases:** All tropical diseases anywhere in the world as well as other diseases when they occur in the tropics. Effect on the person, cures and prevention and papers on the causative organisms. Research on parasites and parasitic diseases of humans and animals much of which is linked with tropical medicine.
- ❑ **Communicable Diseases:** All the common diseases like flu, measles and chickenpox.
- ❑ **Community and Public Health:** Social and political issues relating to health in the community. Non-communicable diseases such as cancer, heart disease, occupational health and psychological disorders are also covered.
- ❑ **AIDS and HIV:** CAB HEALTH is probably now the best database for this subject and has just included, from the beginning of 1997, the *Aids Targeted Information Newsletter* database previously published in the US.
- ❑ **Human Nutrition:** All relevant material in this area has been copied (not moved) from CAB ABSTRACTS.
- ❑ **Medicinal and Poisonous Plants:** Papers on the biochemistry, biology and physiology of medicinal and aromatic plants and the chemicals extracted from them. CAB HEALTH has two abstract journals derived from it. It is also available online through several major hosts.

Compact Discs

CABI makes both their databases available on CD-ROM, searchable with SilverPlatter software: WinSPIRS for Windows, MacSPIRS for Mac and WebSPIRS for remote Internet access.

- ❑ The titles that are produced for CABI by SilverPlatter include:
 - **CABCD**—the whole of CAB ABSTRACTS from 1973 to present.
 - **CAB HEALTH**—the whole database from 1973 to present.
 - **CAB SPECTRUM**—a series of subject specific subsets of CAB ABSTRACTS on CD. All records included in the series of SPECTRUM discs are

included in CABCD except for the pre-1973 TREECD records.

- **CAB COLLECTION**—a series of CDs published by CABI with SilverPlatter software.

SilverPlatter and their distributors throughout the world distribute the above titles for CABI. CAB COLLECTION CDs are also available direct from CABI.

- ❑ The CAB SPECTRUM series of CDs include:
 - **CABPESTCD**—all the crop protection related records.
 - **CROPCD**—all records relating to cereal, fodder and forage crops.
 - **TREECD**—forestry, forest products and agroforestry. Special CD dating back to 1939.
 - **AGECONCD**—economics and social sciences.
 - **VETCD**—animal health and veterinary medicine.
 - **BEASTCD**—animal production, animal nutrition and dairy science and technology.
 - **PlantgeneCD**—plant genetics and genetic conservation.
 - **HORTCD**—horticultural, ornamental horticulture and plantation crops.
 - **SOILCD**—soils, fertilizers (including fertilizer technology), irrigation and drainage.
 - **E-CD**—all the environmental related records from the database.
 - **PARACITECD**—parasites, parasitic diseases and parasitology.

- ❑ The CAB Collection Series:

These two titles are 'partner-published' CD-ROMs produced in-house by CABI using SilverPlatter software. They cover 1973 to present and are subsets of CAB ABSTRACTS:

- **NutritionCD**—human nutrition.
- **TOURCD**—leisure, recreation and tourism.

Subscription Options for CD ROMs

CD database are available from SilverPlatter offices and their distributors.

Collection discs can be ordered directly from CABI Publishing.

New users are only able to lease CDs but there will be a 'buy-out' option at the end of the leasing period. A

long-term lease of 5 years or more automatically secures the right to maintain the data at no additional charge. Discounts are available on the price of the CDs for users with current subscriptions to the CABI-printed abstract journals. The discount is dependent on the number of journals taken.

Discounts are also available for multiple disc leases (either multiple leases of the same disc or different discs, e.g., VETCD and BEASTCD). A fixed-fee networking surcharge applies for Local Area Networking (LANs). Special pricing is also negotiable for multi-site Wide Area Networks (WANs) and Consortia.

The CABWebs

These are a series of subject specific web sites offering not only database searching but also additional useful information and links to other relevant sites. The searchable databases are electronic equivalents of the relevant printed abstract journals and have three-year backfiles. Access to primary material is through viewable/downloadable Adobe Acrobat PDF files.

- PestCABWeb is a new web service for users with an interest in Crop Pest Management.

It provides free electronic access to subsets of the database to members of any organization that has a current subscription to the printed version of the journal. Users who have no subscriptions to the print journals may pay for electronic access to an individual title or titles.

The subsets are available as separate, one-year files, searchable using WebSPIRS. The web site includes the journal Bulletin of Entomological Research. Each article is made available for downloading as a PDF file for viewing with Adobe Acrobat Reader. There are free news, articles and hot links. It is available via the CABWeb Home Page at <http://www.cabweb.org>

- TREECABWeb is a new Internet service for users in the area of forestry and forest products. It is free to subscribers of the relevant abstract journals and users with no current print subscriptions may pay for electronic access to a required title or titles.

- AgBiotectNet is a site dedicated to anyone working in the areas of agricultural biotechnology.

CABI is developing AgBiotectNet with the Agricultural Biotechnology Support Project based at

Michigan State University (funded by USAID). It combines news items and state-of-the-art reviews with abstracts derived from the world's primary research literature.

It is available at <http://agbio.cabweb.org> or via the CABWeb Home Page at <http://www.cabweb.org>

CABI Databases—Benefits

These are the only databases with truly international coverage with abstracts on over 95% of the recorded items.

Broad subject classification codes (CABICODES) make searching broad concepts much easier.

All concepts in the original paper are comprehensively indexed using a controlled vocabulary, the CAB Thesaurus.

Plant names, animal names and geographic index terms are automatically upgraded to their higher Thesaurus terms which makes searching for broad concepts much easier. The Thesaurus is also available as an integrated search tool on all CDs and most online versions of the database.

2001 and Beyond

CAB Direct is a new searchable version of CAB ABSTRACTS but includes all records from CAB HEALTH and is accessed via the Internet. It covers 1973 to the present and is updated monthly. All 46 printed abstract journals are also available electronically for searching via the Internet. Each journal has a 10-year backfile.

Four new subject-based Web 'Communities' have been developed; two from existing CABWebs (VET CABWeb and NUTRITION CABWeb):

- nutritiongate.com is a site dedicated to human and animal nutrition.
- animalscience.com covers animal breeding, production and veterinary medicine.
- leisuretourism.com for the leisure, tourism and recreation research and information.
- organic-research.com for organic farming and sustainable agriculture.

Crop Protection Compendium

This is an information tool for anyone involved with crop pests. It includes sets of datasheets, maps and

photographs for all the pests of the major crops of the world. Keys are given to aid in the identification of the pest and the datasheets that are then presented provide all the data on biology, ecology, distribution, hosts, natural enemies, chemical control and so on. It is designed to provide an answer to a specific pest problem from start to finish. It is available on CD-ROM and will soon be accessible via the Internet.

Forestry Compendium—Global CD ROM

The Forestry Compendium provides a unique guide to the characteristics of tree species. It includes data-sheets (prepared by international experts), pictures, maps, bibliographies, abstracts, a terms glossary and user notepads. In addition there is an interactive guide to species selection based on site characteristics, management objectives and end products. The selection guide will be of particular interest to those involved in the choice of species to be included in trials undertaken during the planning of forestry plantations and other land-use systems involving wood species.

Topics in International Health

This series of educational, multimedia CDs has been developed by the Wellcome Trust (the world's largest medical research charity). The CDs are designed for use by medical and life science students, researchers and healthcare professionals. The current series includes:

- | | |
|--|--|
| <input type="checkbox"/> Malaria | <input type="checkbox"/> Diarrhoeal Diseases |
| <input type="checkbox"/> Sickle Cell Disease | <input type="checkbox"/> Tuberculosis |
| <input type="checkbox"/> Sexually Transmitted Diseases | <input type="checkbox"/> Schistosomiasis |
| <input type="checkbox"/> Trachoma | <input type="checkbox"/> HIV/AIDS |
| <input type="checkbox"/> Leprosy | <input type="checkbox"/> Leishmaniasis |
| | <input type="checkbox"/> Nutrition |

Other Products and Services

- Primary journals published by CABI include:
 - Bulletin on Entomological Research
 - Seed Science Research
 - Soil Use and Management
 - Systema Ascomycetum
- CABI Publishing also publish a series of titles on behalf of the Nutrition Society:
 - Public Health Nutrition.
 - British Journal of Nutrition.
 - Nutrition Research Reviews.
 - Proceedings of the Nutrition Society.
 - Newsletters and distribution maps of plant pests and pathogens.
 - Taxonomic guides compiled by CABI's Scientific Services.

Book publishing is growing into an important part of CABI's publishing activity. Between 50 and 60 titles are published each year within the subject scope of the Information services as detailed earlier. Books are pitched at graduate and post-graduate level.

CABI supplies photocopies of any article abstracted in CAB ABSTRACTS or CAB HEALTH through its Document Delivery Service.

Log onto the CABI web site:
www.cabi.org/publishing or contact c.ison@cabi.org

Access to Agriculture and Natural Resources related Bibliographical Databases such as CABI's and other Information Resources at the University of Wales, Bangor Library

Stephen Harling
Librarian, University of Wales, Bangor

A brief historical sketch distinguished five stages of development. The reliance upon traditional printed abstracting journals such as Animal Breeding Abstracts had been supplemented from 1985 onwards by searching the CABI database via the online DIALOG system. A librarian would act as intermediary

so there was no need for the researcher or student to have any knowledge of the complex searching techniques. This 'taxi meter' approach to payment was discouraging but searches conducted for M.Sc. students' dissertation topics were effectively subsidised and became very popular. As soon as CABI made

part of their database available on a cd-rom, Bangor's subscriptions to the corresponding printed abstracting journals were transferred to CABCD but it was not long before demand for bookings for use of this unnetworked cd-rom on a dedicated machine in the library exceeded capacity. Fortunately technological advances allowed CABCD to be networked throughout Bangor's campus from 1992 so it was then possible for researchers to access the database on their own pcs and for students to use the clusters of pcs in their departments. Since that time there has been a general movement away from networked cd-roms to web-based abstracting services. Bangor at present uses a mix of the two. As far as the CABI database is concerned, networked CABCD is still in use but it is likely that the library will migrate to the web-based CABDirect service in 2002, once certain improvements to the search mechanisms have been implemented.

It was soon found that effective direct use of the cd-roms (or web-based abstracting services) by staff and students ('end-users') required some familiarity with the search software and a general understanding of the principles of literature searching on their part. The Subject Librarian was being inundated with extra enquiries, mostly of a very repetitive nature. In 1993 the School of Agricultural and Forest Sciences (SAFS) introduced a compulsory and assessed course for all M.Sc. students on information searching skills. This was based on what became known as the 'yellow book', a handbook with a chapter on each relevant information resource, including detailed step-by-step instructions on how to access the databases and conduct typical searches on relevant subjects. Later versions of the course were produced for undergraduates and as part of a university-wide suite of transferable skills courses for research postgraduates, the UWB Graduate Programme. Sadly, although the production and availability of the 'yellow book' had considerable impact, owing to the frequent last minute changes so commonly necessary when dealing with databases and networks it eventually proved impossible to continue updating it adequately in that format and it was replaced by a series of leaflets marketed as 'miniguides'. Samples of these were distributed to the audience, together with copies of the library's SAFS subject guide, which to some extent acts as an index to the various databases and other resources available.

Fortunately it then proved possible (thanks to earlier feverish tinkering by Chris Ison of CABI and museum staff) to give the audience a flavour of how staff and

students access the databases by an online demonstration of certain features of Bangor's web-based library catalogue. Interest centred first on the gateway to abstracting and indexing services, especially the Biological and Agricultural Sciences section. This included links to various versions or subsets of the CABI database but also facilities for accessing, among other resources, Agricola (US National Agricultural Library database), Cambridge Scientific Abstracts (a large collection of databases, including Ecology Abstracts and Water Resources Abstracts), Biological Abstracts and Web of Science (Science Citation Index). There was some comment on availability of remote access from home, help screens using both the database producer's guides or homemade material (the audience saw a link to another miniguide here) and authentication schemes to prevent access by unauthorised users, where the solutions were either IP (internet protocol) addresses or the standard passwords common to several databases operated by the ATHENS access management system of EduServ at Bath. Many of the databases were those made available to the UK academic community at discounted rates by CHEST (Combined Higher Education Software Team), a negotiation agency also run by EduServ at Bath on behalf of the UK higher education funding councils; the databases are actually operated under contract by service providers such as EDINA (Edinburgh University Computing) and MIMAS (Manchester University Computing).

To realise the true potential of electronic publishing, it was desirable to go beyond mere retrieval from bibliographical databases of information about what has been published; there had to be actual electronic links from databases to full text of papers, as provided, for example, by CABDirect. Another possibility is links from databases to a detailed list of journals in stock in an individual library, as recently introduced by MIMAS for Web of Science and used at Bangor. This facility immediately reassures the searcher that the journal is available from their university library, in either electronic or printed form.

There was also some comment on organisations' homepages and broad subject gateways, although Bangor's library catalogue does not have links to these. The FAO (Food and Agriculture Organization) homepage, in particular the animal production and health gateway, was mentioned. An information searching skills refresher course linked to a second year undergraduate unit on livestock production in the tropics had been partly constructed around this gateway. BIOME, on the other hand, is the recently

introduced gateway to health, medical and life sciences information and is part of the RDN (Resource Discovery Network) funded by the higher education funding councils. BIOME exercises quality control over internet resources in agriculture and forestry and has been developed from OMNI, a biomedical gateway.

TROPAP (Tropical Forestry, Tropical Agroforestry and Temperate Agroforestry) was a rather different bibliographical database—a local model developed in-house at Bangor. Covering a subject where much published material was and is difficult to obtain, this database included parts of the personal collections of several lecturers at Bangor and represented an attempt to make material in individual collections more widely available to postgraduate students.

Returning to the Bangor library catalogue, we looked at the gateway to electronic journals, specifically the Agriculture & Forestry subject section. This included links not only to mainstream journal titles but also to series produced by research institutions which are increasingly being made available free of charge via the web. In most cases only the last few years' volumes of the journals were available electronically. The main exception was JSTOR (Journal Storage), an electronic archive of journal runs from the 1880s up to a 'moving wall' of between 2 and 8 years before the latest issue. As yet the scientific side of JSTOR has not been fully developed but it does already include a number of ecology journals.

There was also some comment on recent problems relating to provision of electronic abstracting and indexing services. Some versions of abstracting services were overelaborate, with many features unlikely to be used by end-users and cluttered and confusing screens. In some cases there was potential for confusion between easy and advanced versions and there was sometimes disappointment with poor response times achieved by web-based services as opposed to locally networked cd-roms. Designers did not seem to learn from the mistakes of others. Also the system of paying for CHEST-negotiated access to databases was unfair to medium-sized universities, most of whom were grouped in the same 'large' payment bracket as the large institutions, which are much heavier users of the same services.

Nevertheless it was felt that the electronic abstracting and indexing services of the present day were a vast improvement over what they had replaced and had been accepted very quickly by the academic community as the norm, to the extent that some

surprise was expressed that publishers such as CABI continued to produce their printed equivalents. Unfortunately the same could not be said for the progress made in the field of electronic journals.

A statement in the introduction to the Commonwealth Higher Education Management Service's 1998 survey of internet and e-mail access within universities in developing countries, 'Libraries, formerly hard pressed to meet the rising costs of paper journals, have found their burdens eased with cheaper access to a vast range of electronic journals,' was felt to be grossly premature and a confusion of theory with reality.

Some identified problems related to authentication (usernames and passwords and ip addresses), changing web addresses and communication difficulties between publishers and subscription agents. This means that the library user may often click on the link to the journal only to find that nothing happens. Access to back issues after subscription cancellation was a general worry. Access to many electronic journals came as part of a package of journals but many of the titles bundled together in this way would have been insufficiently relevant to justify an individual subscription. The levying of VAT on electronic journals (not of course payable on any printed material) meant that in most cases the price of electronic journals was higher than that of the printed versions. For this reason many producers advertised combined subscriptions (print and electronic) to present the electronic version as an add-on service which does not attract VAT but then the library does not make any saving on shelf space.

Many academics had expected electronic journals to be significantly cheaper than their printed counterparts. Some are incensed that they are expected to write papers for nothing and then commercial publishers are allowed to place barriers (cost recovery mechanisms such as subscriptions, licences and pay-per-view charges) in the way of the academic community who wish to access them. The Public Library of Science initiative aims to provide unrestricted electronic access to the published record of scientific research. According to their homepage, over 14,000 scientists from 131 countries have signed their open letter to publishers.

Development and utilisation of the electronic book has lagged behind that of the electronic journal. Although there is much potential to be exploited, there was a fear that, once again, it was by the exploitation of the universities that the publishers were looking to maximise their profits.

Access to Information for Agricultural Scientists Working in Developing Countries

Stephen Harling
Librarian, University of Wales, Bangor

Paul Smith, Lecturer at the University of Wales, Bangor sent out a questionnaire to agricultural scientists working in developing countries, especially in the national agricultural research systems (NARS). His contacts were mostly in sub-Saharan Africa but also in India, Nepal and Uzbekistan. The questions and some of the responses are listed below. All but one of the responses came from practitioners/researchers in the field. The exception from Uganda is an official response from someone in the Agricultural Research Information Service (ARIS) in Kampala, so perhaps it reflects more the views of an information professional on what is supposed to happen in Uganda than field experience!

1. Is your work severely hampered by lack of access to information or documentation, especially the international journals?

- Uganda.** Not so severely. Now have access to TEALL (electronic journals).
- Mali.** To some extent. Even where a NAR had a good and up-to-date library, researchers failed to undertake a literature review before developing a research proposal, as research managers were not demanding enough.
- Uzbekistan.** Work severely hampered by lack of information or access to documentation, especially the international journals—too expensive.
- India.** Yes. Documentation perhaps not targeted at the appropriate audience.
- Ghana.** Channels of information flow could be characterised as 'small, narrow, selective and slow' (A statement from someone doing a case study on how knowledge of cover crops is generated and flows between international researchers, national agricultural research systems people, extensionists and farmers).
- Kenya.** Access to journals much worse than previously. Cutbacks in budgets have affected information acquisition more than anything else. This is from a government-funded institution—

apparently agricultural research is not considered a strategic area of interest.

2. Do you find publishing your work (a) locally, (b) internationally, any easier than before?

- Mali.** International publication mostly achieved by collaboration with an international scientist, especially for scientists based in regional centres. Varies according to subject, as it is harder for some disciplines to find outlets for their work, e.g., farming systems research. Local publication is rare—limited to research reports (dissemination depends on funding available) and presentations at annual meetings with development organisations and other researchers. Publication in refereed journals has become a very important criterion for promotion in many NARS. Most researchers find it very difficult to write articles. They are more used to research reports. They are failing to publish the information in different forms to target the appropriate audiences owing to lack of skills, time and funding, but also perhaps due to a lack of awareness that this is a necessary stage in the process.
- Uzbekistan.** Publishing work locally has become more difficult than previously because they now have to pay, and wait at least one year. Refused publication in USA, because experimental methods differ from USA/western Europe. Easier where there is contact with international centres.
- India.** Existing publishing model perhaps not appropriate. Too much produced for the benefit of the implementing agencies. Publishing should be more concerned with sharing information between different communities.

3. Are the schemes being operated by CTA and CABI to supply free or subsidised publications working adequately?

- Uganda.** Yes. They have access to these publications through the different specialised institutes to which they are affiliated.

- Mali.** Apparently not using them. Free subscriptions to Spore (CTA), Inter-Reseaux, Harmata.
- Uzbekistan.** Do not work adequately.
- Kenya.** Receive publications from CTA. Most relevant and up-to-date, but not enough to cover their needs: would like system expanded.

4. Are you near a technical library and is it adequately stocked with books and journals?

- Uganda.** In some cases, yes. However stock consists of old books and journals.
- Mali.** Very variable. Management of libraries varies. Some good, some badly organised and difficult to find publications. Tendency of certain senior researchers and research managers to set up their own private libraries at the expense of the institute's library.
- Uzbekistan.** Libraries not adequately stocked with books/journals. Absence of international journals and those from CIS countries which were previously available. No budget to buy internationally published books or journals.
- Ghana.** In a town with 4 research institutions, crops research institute, soils..., forestry..., and university of science and technology, libraries are small and have a very small proportion of up-to-date material. At one research institute most of the stock is either at least 40 or 50 years old or irrelevant, e.g., about dairy production in the Caribbean; impressive collections of U.S. soil surveys are in Japanese. Recently other institutes have received external funding, e.g., from British Council, to start improving collections, but when the funding finishes the investment is not continued by the institute so the journal subscriptions are cancelled. Researchers have to rely on their own private collections, those of colleagues and international contacts, for up-to-date material.
- Kenya.** Cost of books high, budgets low. Good libraries located in capital and universities, where there are too many undergraduates competing for their use.

5. Do you ever feel you may be unnecessarily duplicating work done in similar regions to your own because of lack of access to appropriate databases?

- Uganda.** Yes.
- Mali.** Lack of communication (face-to-face or telephone) between researchers working in the same

scientific field but in different centres, let alone in different countries. People make great efforts to obtain funding for their research, do it for 2–3 years and that's it. However, the situation is different for those participating in international networks.

- Uzbekistan.** Yes. It is not possible to check due to having no access to databases.
- Nepal.** In many countries little or no effort is put into maintaining simple computerised management information systems to give information about what research is being done, where and by whom. Result is massive duplication of research effort and work.
- India.** Yes. Similar work done within same district, state, country, regions—also within same environments, same agroclimatic zones.

6. What proportion of scientists working in developing countries has access to (a) Email (b) full Internet facilities including World Wide Web?

- Uganda.** Email 60%. Internet including www 20%. Email in capital
- Mali.** Email 100% (often via an intermediary). Internet very few
- Burkina Faso.** Email most (often via intermediary). Internet in capital
- Kenya.** Soil Laboratory central Email address only
- Zimbabwe.** Email. Web rare except in capital (telephone costs and lack of quality lines)
- Uzbekistan.** Email 5%. Internet including Web 2%. If the main institute in a country has access to databases such as AGRIS and CABI, why do the outlying stations not also have links?
- Ghana.** Email O.K. Internet too slow to be of any use. Internet cafes also available in capital.
- Kenya.** Poor, obsolete and expensive telecommunications, especially in rural areas. Possibly 30% but so many researchers cannot use a computer.

7. What other information/publication issues need to be addressed if agricultural scientists working in developing countries are to become more effective?

Returning to some of the themes touched upon earlier: attitude towards literature searching; how to conduct a literature search in an effective way; the need to be capable of critical analysis; and, not so much whether the information is available but why what is available is not better used?

We need to consider the extent to which scientists working in developing countries refer to the literature at all in preparing research programs and projects. Literature relating to what agricultural research work has been done is given scant attention at the project planning stage. It is patently obvious that for most of the proposals submitted, the literature quoted has been given at best a cursory glance to see whether the title is appropriate to the project proposal and has not in fact been read at all, sometimes not even in the abstract. It is included to give the impression that the proposer is conversant with his/her subject, whereas the other contents of the document show clearly they are not, especially with respect to what research has been done.

(Quote from someone on receiving end of project proposals).

Understandable for people working in small research stations in remote locations, but applies equally where there are efficiently organised libraries in provincial or national capitals.

Why then is better use not made of information when it is available? Until agricultural research scientists are held accountable for what they do or why, reference to and use of available agricultural information will remain a low priority.

There is a tendency for most researchers to stop reading scientific articles once they get their higher degrees. Researchers are poorly remunerated and most are busy trying to run small shops. Interest in reading wanes rapidly in these circumstances. Researchers are being assigned political positions where they earn more—less reading required (**Kenya**).

Even if you've got the international journals, poor command of English is one of the major constraints to using material from developed countries (**Uzbekistan**). May also apply in Francophone Africa.

Access to journals, newsletters and databases from developed world (**Uzbekistan**).

There is a need to document and share information on the use of indigenous technologies by ordinary people. How in the resource poor, risk prone complex environments people are using simple technologies to achieve benefits in, e.g., food production and resulting in better environmental controls (**India**). There is plenty of documentation taking place in India but it does not seem to solve problems of food supply, etc. The same mistakes in over production combined with inadequate storage facilities and high transportation costs are made year after year.

NRI's Library: A very condensed recent history

Tim Cullen

NRI and Medway Campus Librarian, University of Greenwich

This paper is essentially anecdotal, but will inform you of the main events that have had an impact on the management and use of NRI's vast document collection. It will, I hope, also reassure those of you who have expressed concern about this very issue. Perhaps a good place to start would be to state that no stock has been disposed of since the privatisation of NRI in 1996. The terms of the transfer of the library to ownership by the University of Greenwich (which purchased NRI in 1996) state that no significant parts of the library can be disposed of without seeking DFID's agreement for a period of 10 years. This protects the collection until 2006. In my view (and I should stress that this is a personal opinion), the future of the collection is more assured within a university than it was or could have been within a small government-owned agency.

A question I am often asked is whether the collection is still a separate one. Is there still an NRI library? The answer to this is no, the collection has been merged with the stock that is required by the two University

Schools with which it shares the site in Chatham Maritime. These are the School of Earth and Environmental Sciences (SEES) and the School of Engineering, but the old NRI stock still forms by far the biggest part of the library. The new merged collection uses the University Library management package to record and issue material, it has one classification system (Dewey), one merged sequence of journals, and is staffed by one team which has members from both NRI and the University.

To arrive at this satisfactory point of affairs though, the collection and the staff have been through some times and changes that I could describe as challenging, even exciting. These have included:

- The removal of all NRI's journals to a store in King's Cross for a period of 3 months.
- Their return, but merger with 3 other sequences of titles in a vast, off-site warehouse in the Chatham Historic Dockyard.

- The bar coding and security tagging of tens of thousands of NRI books, and the conversion from one computer retrieval system and classification system (NRI's) to another (the University's).
- The complete move of the book stock of the NRI and SEES collections, twice.
- The creation of a joint map library from the University and NRI collections which now holds over 40,000 sheets.
- The sorting into order and storing of over 1 million aerial photographs that fill some 800 metres of shelf space.
- The operation of the library with 5 linear kilometres of shelving one mile distant from the main site (we have our own vehicle now).

All this occurred over a number of summers, to which we are limited for large-scale stock moves. In University term-time, the collection has to be usable by its staff and students, so it cannot be in packing cases. In addition to the moving of the many tons of paper, and a not-insignificant tonnage of metal shelving, it was necessary to merge the staff management structure and move the NRI library

purchasing operations and financial management to the University's Library Administration section in Woolwich.

The situation we have now reached is that we have one collection for all our users on the site, and we also offer (despite my apparent obsession with paper) a very impressive range of electronic products including bibliographic databases and full-text electronic journals. We open for longer hours, with fewer staff, and the collection as part of the university library is searchable on the Internet. What we are not able to maintain to the degree we once could is our accessibility to non-university users. We no longer receive DFID funding to support an enquiry service once available to outside users. NRI was once funded to support an enquiry service available to users from less developed countries. This is no longer the case, and I regret that rather negative note on which to end. I have just enough staff to handle enquiries from our own users, but am able to offer only limited help to those from outside. However, we can allow a small number of visitor access to the main collection (but not the warehouse), but we would prefer you to contact us in the university vacation periods rather than term time. If we are not moving the stock around, we will provide what help we can.

The Role of INASP

Pru Watts-Russell
Programme Officer, INASP

The International Network for the Availability of Scientific Publications (INASP) describes itself as a co-operative network of partners whose broad aim is to improve worldwide access to information and knowledge. In particular its mission is to enhance the flow of information within and between countries, especially those with less developed systems of publication and dissemination. Established in 1992 by the International Council for Science (ICSU) as a programme of the Committee for the Dissemination of Scientific Information (CDSI)/ICSU Press, the Network is run from a small though recently expanded Secretariat based in Oxford. Today its title is a bit of an anachronism as it does not fully reflect the full range of the activities that INASP has developed over the years. Those of potential interest to the TAA audience are described below:

INASP Database and Directories

Since its early days one of the main activities has been the development of a database that now contains

considerable information of relevance to the transfer of scientific information (including agriculture) to developing countries. It has succeeded in identifying a wide range of donor organisations (such as AGROMISA, CTA, CGIAR/Future Harvest organisations, CABI and NRI) and obtaining information on the services and materials that they have to offer to institutions and their libraries in the less developed parts of the world. A product of the database has been the regular publication of the INASP Directory. A new edition is to be published this year in which we expect to profile 330 organisations. Initially although a number of major South institutions were included in this directory, they were in the minority and the focus was primarily on a one-way flow of information, that is, from North to South.

To help rectify this imbalance in 1998, INASP set about extending its database coverage to take into account institutions in the South that produce the

results of research/experience and are willing to share these with similar South institutions and to interested parties in the North. Agriculture and related subject areas were considered an appropriate starting point with the result that in July that year it published a companion volume, *INASP Directory of Organisations and Networks in Rural Development: Africa* (Pilot edition). This contained 164 profiles of organisations and networks, of which the Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA) and the Ghana Organic Agricultural Network are examples at the regional and national level, respectively. Over 500 copies have now been distributed, almost entirely to institutions within the South.

Although the original intention had been to include all developing regions, human and financial constraints dictated that the scope should initially be limited to Africa, an area of the world where INASP has a greater foundation of knowledge, expertise and contacts. The Directory is out of print and now out of date, and INASP has obtained funding to update it and extend its coverage to include organisations and networks in the Caribbean and Latin America. We hope a new edition of the directory will be published in 2001 and appear not only in hard copy but on CD-ROM. Eventually we intend it should be accessible from the INASP Web site.

African Journals Online (AJOL)

A second programme through which INASP aims to assist in the dissemination of African research information (including agriculture) is its African Journals Online (AJOL). Beginning in May 1998 as a pilot project with 14 titles, it aimed to promote the awareness and use of African-published journals in the sciences by providing access to tables of contents (TOCs) on the Internet, backed by a document delivery service. Re-launched in August 2000, AJOL now features:

- Fifty African-published titles in agriculture (8), science and technology (18), health (6) and social sciences (18);
- Table of Contents (TOCs) and Abstracts (where the latter are available);
- A keyword search service;
- A photocopy document delivery service for all titles;
- A link to full text of an article/journal (if available on the Web).

To promote the service and encourage its use INASP is currently offering (but for limited period of time only, i.e., to the end of June 2001) a free photocopy service that allows any individual institution or organisation to request up to 2 photocopied articles without charge. Eventually when full charging is reinstated we hope to be in a position to remit part of the proceeds obtained from the photocopy service back to the journals concerned. At 31 December 2000, three months after its re-launch 1,150 persons had registered on the AJOL site with an average of 3,500 accessing the site every week. INASP had also received requests for photocopies of articles from over 120 individuals.

Practical Manuals

The communication of research results through journal publications is a vital process for promoting agricultural and rural development. Publication of research results in agriculture and rural development is also important for the professional advancement of researchers. Experience in Africa and other developing regions has consistently revealed low levels of performance in journal publishing in these disciplines. Apart from the absence of a wide range of comparatively well-published and managed journals in these countries, a high mortality rate for new journals is a familiar story. Seen as complementary to AJOL, INASP is shortly to put out *A Guidebook on Journal Publishing for Agricultural and Rural Development* in order to help rectify this situation. The target audience for this Guidebook is editors and publishers of journals in agricultural and rural development in the developing countries, especially those of Africa. A sister publication *A Practical Guide to Marketing and Promotion for Agricultural and Rural Development Publications* has recently been published and is designed to provide a compendium of practical advice on all aspects in these fields. It is particularly aimed to assist NGOs and small publishers. Both publications are CTA supported.

For those wishing to find out more about these and other INASP programmes and activities (which include health information provision, public library development, university library and professional association support), please refer to the INASP Web site:

<http://www.inasp.org.uk>

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Visit to the Lost Gardens of Heligan and the Eden Project

Co-organised by Ian Martin and John Russell, a total of 63 members journeyed into Cornwall and met for a fraternal visit to the Lost Gardens of Heligan and the Eden Project on 14–15 June. The restoration of the former and creation of the latter are under the energetic leadership of Tim Smit. Meeting first for lunch at the Lost Gardens, the group then gathered in steady rain on Flora's Green to hear a masterly description of the recovery work by Peter Stafford, Managing Director of the Lost Gardens. What a challenge, but what a treasure it has revealed. Even in the rain the intrepid TAA party ranged far and wide to see the varying vistas and different plants gathered here, some over 200 years ago by the Tremayne family. Largely neglected since the First World War, the Gardens are divided into 5 main areas—the Jungle, the Lost Valley, the Productive Gardens, the Pleasure Gardens and Heligan Home Farm. There is everything for the pleasure seeking gardener and the providers of sustenance both horticultural and agricultural. Even the engineer marvelled at the pineapple house heated by rotting manure. Gardens as well as buildings have been faithfully restored to their original form and use. Much remains to be done but it is already a stunner.

Quartered in Charlestown at the Pier House Hotel and T'Gallants Guest House, the group was joined by a few others staying elsewhere and Eden Project guests. A gargantuan dinner was enjoyed after which Ian Martin and Joanna Readman told us about the philosophy behind the venture and how it all started, and gave us a foretaste of what we would be seeing at the Eden Project. The Project is not just to show people but also to educate and familiarise them with the marvels and productivity of the habitat so that they understand the ecosystems that provide for our existence in nature.

Arriving at the Eden Project and adorned with the necessary badges, we were given a brief talk before setting off independently to explore and enjoy the geodesic Humid Tropic and Warm Temperate Biomes. This can best be described as a reunion for many of the party with plants and agro-ecological zones that they have seen for real in far-off places. The inspiration, thought, skill and care which has gone into the venture is stupendous and there is more to come. There will be further biomes and the present ones are only just showing the coming together of the plantings into the complimentary collections of species representative of the different ecological

zones. The structures and the engineering were wonderful to behold and would make an absorbing visit for the civil, environmental and agricultural engineers.

A buffet lunch was prepared for the group by Carol Searle at the Watering Lane Nurseries. The visit here was specially arranged for the TAA party. The curator, Ian Martin, described how these nurseries have received, learnt to grow and prepared many of the plants later placed in the biomes. Peter Thoday spoke on the development of the site for the Eden Project and the chain of events which led to its imitation and creation. He referred to the vision and energy of Tim Smit saying that while he was unhappily on sick leave following a back operation, heavens knows what he will be dreaming up while away from the Project! Linda McDonald, European Representative of Future Harvest, the publicity arm of the CGIAR (Consultative Group on International Agricultural Research), then spoke about the work of her organisation. It aims to educate both the decision-makers and the general public about the importance of food production and the role of international agricultural research for the world's poor and the environment. Many listeners were relieved to hear that at last the separation of research and the farmer is being addressed.

Then followed an absorbing tour round the nurseries led by Ian Martin. Fielding a constant barrage of questions, he provided a very full picture of just what has been involved in preparing plants for the Eden Project. The Project is not just a static display but a developing and moving one with a constant need for critical thought, preparation, learning and support by all concerned as it moves forward with improved content and presentation of knowledge.

The TAA were entertained on a fellow scientist basis with complimentary entry to both the Lost Gardens and the Eden Project. The Eden Project welcomed constructive criticism and ideas and they were certainly forthcoming from the group. It can only have added to the readily apparent vision and success of the Project. If you have not been to the Eden Project go as soon as you can and keep going. Take a passport photograph with you as one entry fee gives you a year's passport.

Our sincere thanks to Ian Martin and John Russell and all the other persons at Heligan and the Eden Project for all the work which went into this very successful visit and the inspiration to all who took part.

G.L. Taylor-Hunt

IPM in Guyanese Rice Production

Jamie P. Sutherland

Introduction

In terms of global rice exports Guyana's 250,000 tonnes per annum is a drop in the ocean, but it is vital to this small country's economy which is almost totally dependent upon agricultural exports. Furthermore, Guyana and its neighbour Suriname are the only two rice-exporting countries in the ACP Region. The extensive use of pesticides is a major cause of the increasing cost of rice production and decreasing profitability for the farmers. Too often farmers will apply insecticides on a calendar basis, very often when no pest is present in the crop (Ralph & Rivas, 1993). This attitude has prevailed largely because of agrochemical companies brainwashing farmers into thinking that only a sterile insect-free crop will give higher yields. Paradoxically, when insecticides are not used, yields are often higher. Therefore a more cost-effective integrated pest management programme needs to be adopted by Guyanese rice farmers. IPM does not state that pesticides should be banned, nor does it dictate that biological control must be used, but it is more of an attitude to pest control which best meets the local conditions, with a judicious eye on cost. Over the past two years I was working as a research entomologist

for the Guyana Rice Development Board (GRDB) undertaking research into rice entomology and attempting to get the IPM message across to rice farmers and extension personnel. The following is a summary of my findings.

Present Status of Rice Pests in Guyana

In excess of fifty invertebrates have been identified as being field pests of rice in Guyana (Kennard, 1976) and a further fifteen are known to be post-harvest pests. These pests attack the crop from the time of sowing through to harvest and beyond, often causing significant economic losses. However, most of the invertebrates found in rice never reach damaging proportions or may actually be beneficial to the crop. The indiscriminate use of insecticides over the last three decades has undoubtedly had a severely detrimental effect on many of these beneficial groups.

Current Control and Options for Improvement

The table below shows an indicative list of current pest management practices and options for improvement.

PEST	CURRENT CONTROL OPTIONS IN ORDER OF IMPORTANCE	OPTIONS FOR DEVELOPMENT
Paddy bug (<i>Oebalus</i>)	Monocrotophos sprays Removal of alternative hosts Synchronous planting Use of pyrethroids	Conservation of natural enemies Development of environmentally friendly Alternatives e.g. biopesticides Classical biological control
Leaf miner (<i>Hydrellia</i>)	Use of pyrethroids Monocrotophos	Conservation of parasitoids Alternatives to monocrotophos and pyrethroids Promotion of cultural practices Resistant varieties
Stemborers (<i>Diatraea</i>)	Biological control Monocrotophos	Safer alternative insecticide Conservation of natural enemies
Armyworm (<i>Spodoptera</i>)	Pyrethroids Monocrotophos	Conservation of natural enemies
Rice water weevil (<i>Helodytes</i>)	Pyrethroids	Alternative to pyrethroids Biopesticides
Plant hopper (<i>Sogatodes</i>)	Resistant varieties, Pyrethroids	Conservation of natural enemies

In terms of economic losses the paddy bug is by far the most serious pest, costing the rice industry some US\$5M per annum. Therefore research over the past two years concentrated on this pest.

Research

Monitoring

Monitoring is a vital component of any IPM programme. Paddy bugs were recorded by weekly sampling in both dams (levées) and meres over four seasons. There were consistently more paddy bugs caught in dams than in fields, which highlights the importance of dams as a reservoir and refuge for paddy bugs and therefore illustrates the necessity for farmers to control alternative weed hosts. This is especially true for the months of December–January and July–August when bug populations are highest on the dams.

Light trapping was also undertaken nightly at the research station, but was found to be a poor indicator of paddy bug abundance. Much of the increase in trap catches occurs towards the end of each cropping season (weeks 14–23 and 37–47), presumably when bugs are moving from harvested rice in search of new host plants.

Novel insecticides

The insecticide thiamethoxam was comprehensively investigated as a potential replacement for monocrotophos. In initial trials, the recommended field rate of 100 g/ha⁻¹ gave excellent control of paddy bug (92.3 %). The advantage of this neonicotinoid is that it has a low avian and mammalian toxicity (LD₅₀ rat oral > 5,000 mg/kg) and is considerably safer than monocrotophos (LD₅₀ (rat oral) of 17–20 mg/kg). It is also relatively 'soft' on beneficial insects, making it highly suitable for incorporation into an IPM programme. However, their use carries with it a high price tag.

The use of natural and easily biodegradable crop protection inputs such as neem-based products could be a useful component of an IPM strategy, as neem is known for its low toxicity against beneficial insects (Pluke et al., 1999). Neem seed kernel and several commercial formulations were screened in the laboratory and field for their efficacy against paddy bug but only gave a mortality of between 35 and 40% in the laboratory and were ineffective in controlling numbers in the field.

Biological Control

A number of parasitoids are known to attack paddy bugs at various stages of the life cycle. The egg parasitoid *Telenomus podisi* and the tachinid parasitoid *Beskia aelops* are the principal natural enemies of the paddy bug. Paddy bug egg masses collected during early April 2000 yielded significant numbers of the scelionid wasp *T. podisi*. Wasps were reared in the laboratory for a year and preliminary life history data collected. Field parasitism by the tachinid *B. aelops* was as much as 2.57% of the population occurring mostly in mid-January to late-March and again in August to early-September. Given the low natural parasitism rates of paddy bug by *B. aelops* prospects for the bio-control of paddy bug using *B. aelops* are slim. However, this investigation provided essential background information on the field abundance of this parasitoid.

Training and Information Dissemination

Training is vital to the success of any IPM programme. Seminars were delivered to a variety of farmer groups across all the rice-growing regions of Guyana. Approximately thirty farmers were present at each meeting that took the form of a programme of several interrelated topics. Research findings were also disseminated to farmers at field days held towards the end of every season where some 400 rice farmers would be in attendance. A television interview outlining the IPM programme was given for the Six o'clock News and the work was also given newspaper coverage in the national press. Indirect means of reaching out to farmers were also used, that is, newspaper advertisements on paddy bug management, leaflets distributed at seminars and field days, and sections in a *Farmers' Handbook* on safe pesticide use and insect pest control.

Conclusions

The introduction of IPM systems can take many years to implement. This must incorporate both a 'top-down' and 'bottom-up' approach, with government involvement (i.e., the passing of an 'IPM law') from the outset and also farmer involvement in a participatory form, i.e., farmer participatory research (FPR). This requires a well-trained extension service that is willing to adopt and disseminate novel ideas and techniques to farmers.

One of the best examples of successful IPM in rice has been the FAO project in Indonesia that began in 1986 and banned the use of 57 formulations of insecticides

and made IPM training available to all farmers (Wardhani, 1992). Nationwide, insecticide use dropped by 60% and rice production and yields actually increased. If IPM is to be equally successful in Guyana it will depend upon a dramatic shift in thinking, particularly regarding pesticide use.

The establishment of the Pesticides and Toxic Chemicals Control Act (2000) will assist in the regulation of imports of insecticides into Guyana and restrict access to those pesticides which have potential hazard to humans, wildlife and non-target insects. Efforts in biological control and IPM will be wasted unless the PTTC Act is effective in reducing the use of pesticides and particularly the wholesale pesticide-dependence in the rice industry. The prohibitive cost of the available alternative insecticides and the very low price for monocrotophos means that until these highly toxic insecticides are banned only then will farmers switch to using the newer pesticides. Rice cultivated using alternative methods of pest control, such as biocontrol in place of insecticides, would carry a much higher premium as an export commodity especially to the European Union, and therefore this approach should be investigated.

The Extension Service needs to be strengthened and in particular the links between research and extension need to be improved. Training in effectively diagnosing problems in rice, efficient reporting back to scientists and improved communication with farmers (e.g. the Farmer Field School approach) needs to be provided for extension officers.

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Postscript from the Editor

Dr Sutherland worked in Guyana for two years (1999-2001) where he was a VSO Volunteer and TAAF Awardee. He is now a Research Fellow at the University of Southampton on a project investigating the environmental consequences of transgene movement from GM oilseed rape into wild and weedy Brassica species.

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He wrote an excellent 37-page terminal report, and the following comments are taken from a review by Neil Morton.

'The report is the final one of his two-year placement and as such describes the background, justification and objectives of his placement, the technical background to the pest control problems that he was asked to tackle, and comments on success in achieving these and other objectives such as counterpart training and farmer education.

'In a period of two short years, during which coincidentally the levels of the main pest were particularly low, it was not possible to draw significant conclusions from any investigative work in IPM. He made some progress and has left an introductory database for whoever may take up the work after him.

'Of particular interest is the apparent gap that seems to exist between the rice growers and the research and extension services. It appears that the growers are only acting on the basis of the recommendations of the agrochemical dealers.... The aspect of selection of suitable insecticides, both on the basis of IPM and of human health, is thus one that needs to be urgently taken up and examined by the relevant authorities. Dr Sutherland mentions this.

'Another important aspect mentioned...is the inability/unwillingness of DFID to make relatively modest funding available to support publications that sometimes are a very beneficial product of the work of UK-funded assignments. This is quite unlike GTZ and the Dutch, with the consequence that, with the exception of very old items, the leaflets/books often found in research stations and scattered throughout libraries and extension offices are invariably published by them and are the result of the work of their nationals. These are often the only extant pieces of literature on a subject area in a country. The UK effort is forgotten. It seems very strange that DFID does not recognise this. At the outset in planning assignments, or through some other scheme, it would maximise the investment in the work carries out if a budget existed to support such publications. Perhaps the TAA could bring this up somehow?

'The staffing and funding scenario that is painted for the research station will not make for progress in solving the problems of Guyana's rice. Recognising this background, I feel the assignment of Dr Sutherland was particularly valuable, and that the results of his efforts were especially creditable. He and VSO should be congratulated.'

Letter

Early Soil Survey: Can You Help?

I have been asked to write an account of early contributions to soil and land resource survey in British overseas territories. Friends have already supplied much helpful information on the 1960s and 1970s. I am now particularly seeking material on work before 1960, especially the early pioneers. Do readers have biographical or obituary notices on soil or other land resource officers, or work carried out, in the British Empire in the 1930s to 1950s? (I believe an obituary of G. W. Milne exists, but cannot locate it.)

Anthony Young

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Book Reviews

The Dead President's Country: behind the façade of North Korea

by William Steeb

ISBN: 981 04 3019 1, 2000 US\$15.00 (pbk), AgBé Books: www.agbebooks.com; Fax: (+322 688 0 886)

Another development novel from William Steeb: last time it was about China, this time a story about the strange and highly secretive land of North Korea. Jack Brooks is a journalist posing as a tractor executive setting up a project to sell modern tractors to the North Koreans. In order to evaluate exactly what is needed, Brooks persuades party officials to take him all over the country up as far as the Chinese border in the north. Much of the story is told through the eyes and mouth of his lovely interpreter, Miss Kim, who persuades Brooks (among other things!) to help her escape to the West with the aid of some of Kim's relatives in South Korea. Also in Pyongyang are a motley group of well-meaning aid workers, who help to explain the mysteries and unique (?) experience of working in the DPNK.

More racy than William Steeb's previous book on China, but with the usual cynical take on the bureaucracy of the aid agencies, it is an entertaining and serious look at development and life in North Korea. The book does not directly address the issue of 'rogue states', nor does it clearly indicate whether reunification of the two Koreas is imminent, and what effects this could have. Until things do change, most of us will probably have to rely on William Steeb and stories like this to give us an insight into life in North Korea. Peter Goldsmith, Newcastle

MUSALOGUE: A catalogue of Musa germplasm. Diversity in the genus Musa (E.

Amaud and S. Sharrock, compil.)

by Daniells, J., C. Jenny, D. Karamua and K. Tomekpe

ISBN: 2-910810-42-9. IPGRI, 2001

This loose-leaf publication, presented in a ring-binder, is a second edition of the catalogue and is sponsored by IPGRI, INIBAP, CTA and Cirad-Flhor. The authors come from QDPI, Australia, CIRAD-Flhor, Guadeloupe, NARO, Uganda and CRBP, Cameroon, respectively.

The publication is arranged in two sections, the first covering the wild species in the sections Eumusa, Australimusa, Callimusa and Rhodochlamys and the second covering the diversity of the cultivated bananas, particularly the two main groups: the East African Highland bananas and the true Plantains.

Each of the 178 entries in the catalogue consists of a photograph and a morpho-taxonomic description of the plant. There are also useful sections on diversity in the genus, on classification and origin of diversity, on descriptors, together with a good listing of references, a glossary and an index. The quality of the photographs and the printing is excellent. The catalogue will be of interest to all concerned with bananas and plantains, whether they are botanists, growers or traders. Unfortunately there are some omissions, due to the lack of a photograph or a description based on the IPGRI descriptors, but the loose-leaf format should permit their inclusion at a later date.

Roger Smith

HACIENDA VICTORIA HYBRID COCONUT SEED GARDEN: DEVELOPMENT OPPORTUNITY

Wanted: A development-orientated or non-profit organisation to purchase and operate a hybrid coconut seed garden in Costa Rica.

Coconuts are an important economic component of the agro-ecosystem in much of coastal Central and South America. Millions of poor people depend upon them for their livelihoods, both directly as producers, traders and consumers or indirectly due to the benefits to tourism brought about by their aesthetic value in the coastal resorts. The coconuts continue to be under threat from Lethal Yellowing, the killer disease caused by a phytoplasma. The coconuts in much of the region were also decimated by hurricane Mitch a couple of years ago. Luckily, hybrid coconuts (MAPAN) produced by crossing Malayan Dwarf palms with Costa Rican Pacific Coast Tall palms show a high level to the disease and are available in the region.

The following summary shows that a unique, commercial, seed garden in Costa Rica is threatened with extinction by slow acceptance of the product resulting in intermittent cash flows. The Seed Garden is therefore on offer to a suitable NGO, development, or non-profit organisation prepared to take it on. The market to be tapped is enormous and includes the whole of the Atlantic coast of Central and South America, together with export opportunities to Florida and the Caribbean.

Any interested parties, and any TAA member with suggestions of potential new operators for the Garden, may contact

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Summary

In the early 1980s a group of investors, advised by a well-respected British tropical agricultural advisory group, identified a need for improved coconut planting material in Latin America and the Caribbean. That need is fuelled by the continuing spread of Lethal Yellowing disease that threatens to destroy 50–90% of the common coconut palms in the region. The only effective counter is by replanting with resistant varieties.

The founder company, SACRAC Ltd., established Hacienda Victoria seed garden on a 42-hectare farm near Guapiles in the Atlantic zone of Costa Rica in 1985. Costa Rica was chosen as the location because of the country's infrastructure, political stability and

agro-climatic conditions. Hybrids were chosen for their superior yield, precocity and LY resistance. There are presently 5,000 mother palms, mainly Malayan Yellow Dwarf (MYD). Pollen is collected from selected Costa Rica Pacific Tall palms to produce the MAPAN hybrid, which is equivalent to the

MAYPAN produced in Jamaica. No pests and diseases of quarantine importance have occurred at Hacienda Victoria and the common complaints that affect all coconuts have been controlled. The first generation seed parents have been substantially replanted with the best seedlings from selected, precocious, prolific mother palms.

Since 1990 Hacienda Victoria has sold planting materials to 14 countries in the region, 83% to Honduras and Mexico. Shipments have been mainly as seednuts, sometimes as plants and once as pollen. Percentages of germination and legitimacy have been in line with industry standards. Field performance of MAPAN has been good to excellent and hybrid vigour has been demonstrated. Resistance to LY, reported from the countries where the disease is active, has been in the order of 90%. The first hybrid to be produced, MAREN, has performed similarly, and the seed garden has the flexibility to produce different hybrids as and when necessary.

Hacienda Victoria is an advanced technical accomplishment, despite relatively high labour costs in Costa Rica, price inelasticity and slow acceptance of a new product in Central America. The biggest constraint to profitability has been intermittent cash flow. This unique resource is threatened with extinction at the end of the year, which represents setback and delay for existing and future coconut plantings in the region. The package of land, equipment, inventory and infrastructure, already in place, affords intrinsic value. Trained personnel are available and hybridisation could be restarted quite quickly, with first harvests fifteen months later. Interim seed garden operating costs can be largely offset by sales of MYD as seed and drinking nuts, and Pacific Tall seednuts and pollen can be sold to offset resumption of pollen processing rehabilitation costs.

A development orientated or non-profit organisation should be able to operate the seed garden viably, on at least a break-even basis, and recover its initial outlay in a few years. The seed garden, the only supplier in the region of LY-resistant certified hybrid coconut seed in commercial quantities, is an eminently valuable resource that is located in a country free from that devastating disease, an essential consideration for LY-free countries.

Richard Illingworth ☞

TAAF Awardee Update

James Lomax—Kenya

It is over 3 months since I joined the Smallholder Dairy Project at the International Livestock Research Institute, Nairobi to take up the reins of a nutrient flow and soil fertility project in Embu, Eastern Province. This project is a part of the Consultative Group on International Agricultural Research (CGIAR) System-wide Livestock Programme which is a 'unique vehicle for enhancing the contribution of animal agriculture to the CGIAR's objectives of increasing food production, eradicating poverty and protecting the environment'.

While manure is commonly used by farmers to improve soil fertility, many questions surround its use, which has been under-researched in the past. Is the manure produced by the typically small dairy farm sufficient to meet the shortfall of nutrients required for cropping? Are cattle housing conditions conducive to the efficient collection and recycling of manure? Can manure be improved by adding other organic materials, such as leaf clippings? Are inorganic fertilisers used in conjunction with manure? And to what crops is manure applied and how—by broadcasting before the season or by placing strategically during it? Research on these topics aims to identify the key points at which interventions could lead to greater efficiency.

As part of a broader effort to study farm nutrient balances, a survey on manure use was conducted on 260 households on the three major agro-ecological zones of the highlands in which dairy cattle are raised—the tea, coffee and maize zones. The survey distinguished aggregated farms with all their land around the homestead, from non-aggregated farms with one or more plots away from the homestead. The reason for the distinction is that, owing to the difficulties of transporting manure, land holding patterns maybe the most significant factor affecting manure application. The survey also divided farms according to whether or not they had cattle—the main manure producing animal. In addition, the farmers were ranked for their wealth (1=very poor, 4=wealthy) and asked whether or not they used inorganic fertilisers.

Preliminary findings suggest that non-aggregated holdings are a major disincentive to manure use. Whether or not they raised cattle, 85–90% of farmers with aggregated holdings applied manure, compared to only 58–68% with non-aggregated holdings.

Surprisingly, whether or not a farm kept cattle had little effect on manure use, since farmers barter manure with each other; few farmers bought manure. Up to 90% of aggregated farms without cattle applied manure. Most of the farmers using manure were in wealth category 2 (poor) which contained the majority of farmers. This suggests that little manure is used by the very poor, few of whom own cattle. It has however been hypothesised that small farms with cattle have more fertile soil than larger farms or farms without cattle. This hypothesis, often found to be the case elsewhere, will be tested in the next phase of the project in which animal housing conditions, alternative uses of manure (e.g. for vegetable plots) and the effectiveness of applications on crops such as maize and napier grass will be examined.

My present work is the analysis of the dataset and writing up the final results with a view to publishing at the end of my 6 months here. The first three months have been spent clearing up discrepancies in the data and conducting a few of my own dry matter content experiments on manure to determine the capacity of the vehicles used that were stipulated in the data. I have travelled to Embu many times to meet and discuss the project with colleagues from the Kenya Agricultural Research Institute and also to visit a cross section of farms participating in the survey from the 4 wealth categories. The farm visits were most interesting, have really brought my studies to life and have enthused me even more in smallholder farming in the tropics.

Peter Stedman— Malawi

Support to Neno Smallholder Macadamia Association (SUNESMA)

As a SAFAD volunteer I have been responsible for supporting the Project Officer Mr. B.A. Kauta. All planning and administrative activities have been completed jointly in an attempt to strengthen the long-term project staff and increase the sustainability of the project. Both members of staff and specialist trainers have carried out field activities depending upon the topics.

Description of Activities

The Logical Framework developed at the project's inception describes four desired outputs:

- Support to seven macadamia nurseries
- Macadamia culture and soil conservation programme
- Develop complimentary Income Generating Activities (IGAs)
- Establishment of Macadamia Association and facilitation of market linkages

My work has been based upon achieving the specific indicators for each of the outputs.

Clubs

All members the seven macadamia nurseries had to be trained in basic nursery care so that a labour system could be devised where each one had responsibilities within the nurseries. A few farmers from each have been trained in approach grafting and the care of grafted seedlings to ensure successful propagation. Rootstock nuts have also been planted in each nursery. The project has introduced apple, hermaphrodite papaw and improved mango seedlings into the nurseries.

Donations from the UK have made it possible to purchase some grafted trees from Namin'gomba Tea Estates. This has boosted the numbers that will be planted in November/December 2001. It is hoped to attract further donations of this type.

A distribution system has been established for grafted seedlings; each member that achieves certain criteria is eligible for an equal share in all trees within the club. Money from the sale of trees supports a revolving fund for the purchase of rootstocks, nuts or grafted seedlings. It is hoped to make the trees affordable to all members and greater emphasis will be placed on the eligibility of a member, through good agronomic practices on their farm and regular attendance of meetings, rather than their ability to pay cash for a large number of seedlings.

The other main criteria for eligibility are the payment of a membership fee, regular attendance at training sessions and group activities. One of the biggest challenges this year has been to get farmers to operate together rather than as individuals. The project will fail if this is not achieved. The only way to encourage group activities is to assure farmers that they will benefit as individuals from such activities.

Soil Conservation and Agro-forestry

Training in soil conservation and agro-forestry techniques has been undertaken throughout the year. A farmer is eligible to receive grafted seedlings if he or she implements the techniques on the farm. Each farmer intending to plant trees has to construct marker ridges on their fields and align the planting ridges to these. To achieve this, they have had to work together as a line level requires three people to use it properly. They have also been multiplying Vetiver grass in the nurseries for planting on the marker ridges.

To improve soil fertility farmers have been encouraged to use nitrogen-fixing *Tephrosia* as an inter-crop with maize. Uptake of this idea has been low because *Tephrosia* does not provide a saleable crop, unlike beans. However this perception has slowly changed when demonstration plots have revealed excellent results in maize yields, and the visual impact of green flowering plants in the middle of the dry season has been significant. Bees are strongly attracted to the *Tephrosia* blooms, and this has aroused interest and given confidence that it will be widely planted next year.

Deforestation is a growing problem in Neno, the area that provides much of the charcoal for Blantyre. The project has encouraged reforestation and the planting of indigenous species that harbour the natural predators of the pests, such as the Stink Bug, that attack macadamia nuts. Estates only spray when pests and predators reach an unfavourable ratio. The management of pests will be a problem in the future and the ability of smallholders to adopt estate techniques is non-existent. An alternative method has to be found, possibly mimicking the natural system by rearing pests within the orchards.

Income Generating Activities

Group IGAs for this year will lead to individual IGAs next year. In November and December each group planted groundnuts and soya beans in a group plot. Farmers were not keen to do this until they realised that next year the multiplied seed would be distributed amongst themselves. Project staff have stressed to members that the project is not over-endowed with funds and so it is either a case of all working together or the project operating with a fraction of the farmers.

In December 2000 staff carried out a Participatory Rural Appraisal (PRA) survey to establish benchmarks

for the project and identify the IGA choices for each group. Since that time IGAs have been set up within each of the groups. These include the raising of Black Astrop chickens for egg production, guinea fowl rearing, beekeeping, irrigation for vegetable production and seed multiplication for use in an oil press. This micro-credit extension is charged at 30% p.a. interest, much below the commercial rate. Repayments are made into a revolving fund that is retained by the group. Each of the groups have signed for the loan which means that if one member defaults the other members have to make up the shortfall. The criteria for eligibility for the loans are the same as the criteria for trees.

IGAs are meant to be complimentary to macadamia production. Soya and groundnuts will be used in chicken and guinea fowl feed, which will provide cash to buy trees and manure. The chickens and guinea fowl within the macadamia orchard will keep the trees manured and also control the grass. Beekeeping around the macadamia orchards ensures pollination of the trees and income from the honey.

Association Forming and Marketing

The Association exists in name only as it was a prerequisite of funding for an association to be established. It is hoped that it will begin to function in a limited form later this year. Each of the clubs has elected a committee, has a constitution and a bank account containing membership fees. The secretary, treasurer and chairman of each group have undergone leadership training. Each of the clubs is responsible for its own meetings and organising its own system of labour for watering, weeding, grafting, etc. It is felt that soon these clubs will be able to come together into the association and elect an executive. One of the main problems with an association run by smallholders is that there is the potential for the abuse of position and the misappropriation of funds. Any financial inconsistencies will lead to the collapse of the project and so it is imperative that the association is regulated by some external body, at least until it is proved transparent and is working to its potential.

There are some trees that are already in production and some that will begin bearing during the lifetime of the project, but most will not. This means that a mechanism for collection, limited processing and marketing has to be set up to meet future demands.

Over the last six months links have been made with Namin'gomba tea estate which has agreed to purchase all the nuts that can be supplied from Neno. The limited bargaining capacity of smallholders means that it has been necessary to try to find an organisation that can represent the smallholder and insure that they are treated equitably.

Future Work

It is imperative that the postharvest processing, mainly reducing nut moisture content, is established early and adopted by all farmers. This means that drying and storage techniques must be adapted to the smallholder situation. There are possibilities for central locations or for individual storage. Mr B.A. Kauta will be sent to Namin'gomba for training on all aspects of macadamia production and processing and it is hoped that he will then be able to provide the expertise that is missing from the project.

The ongoing development of complimentary IGAs will continue and it is hoped to seek assistance from other organisations in the introduction of dairy cattle. There is no dairy production in the area and besides from the nutritional benefits there is a large market that is only supplied by long-life or powdered milk, both of which are very expensive and therefore not widely used.

The next SAFAD volunteer, Clare Welsh, wants to focus some of her activities upon the women macadamia farmers and to identify IGAs that they would like to participate in separately from the men who mainly dominate the groups.

Personal Experience

I cannot express how much the last nine months have meant to me. I feel I have finally been able to put into practice all the things that I have learnt. The experience is priceless and I feel there is so much more that I can give to and receive from the project and the people I work with.

The potential of Neno is equal to that of Thyolo or Mulange, the major estate areas of the country. I see it as a challenge to ensure that the smallholders of this area are fully equipped to take advantage of the eventual development of the area and to try and instil in them the importance of the preservation of their natural resources.

Margaret Pasquini— Nigeria

The effects of urban waste as a soil amendment in peri-urban agriculture around Jos, Nigeria

Introduction

Research for my PhD is concerned with the re-utilization of urban waste as a fertiliser in peri-urban agriculture around the town of Jos in Nigeria. I have looked at dry season irrigated farming around the Delimi River (north of Jos), focusing on vegetable production. In this area the soils are very poor but farmers have developed a successful agricultural strategy. Fertility is maintained by application of various organic and inorganic fertilisers, and a very interesting amendment is refuse ash, derived from burning the town's waste. Nowadays, tipper trucks collect the waste from the town and transport it to the fields where it is burned, the non-biodegradable waste sorted and removed, and the ash spread on the fields. There is a need to assess fully the effects that this practice has on the soil, and also determine whether there are any health risks associated with it.

My work does not simply concentrate on the physical effects of this novel material on the soil. The project recognises that this information needs to be integrated with the surrounding socio-economic factors affecting the use of urban waste. It is important to understand what farmers are doing, why they are doing it, and how the existing practice can be improved through farmer participatory research

Fieldwork

My fieldwork period started in mid-August 2000. As I was following irrigated farming I had to be present for the end of the rainy season/beginning of the dry season, and stay in Nigeria until the end of the dry season (April-May 2001). Difficulties occurred. The rainy season ended late and was particularly heavy and the following rains arrived heavy and early. This meant that I did not start fieldwork until the end of October/beginning November, and in April the first storm with hail destroyed farmers' crops.

I planned to carry out a survey, in collaboration with the University of Jos, to give guidance for my field trials. Initially there were not enough farmers to survey over the whole area and therefore the survey was done after the field trials were set up. Farmers

were interviewed about their use of fertiliser and urban waste ash and their motivations for their fertiliser strategy. I planned for farmers to be involved in deciding which strategies should be tested but met with no active interest, and in the end decided to simply monitor what was going on and take soil samples from different farms. Soil samples were collected at different times, the first when the field was prepared (before fertilisation) and then a week after each fertilisation. One final sample was collected when the dry season ended and all crops harvested.

Interviews and survey work

My fieldwork did not exclusively revolve around field trials. I talked to farmers about the farming systems, especially on fertilisers and the use of urban waste ash. The discussions raised many problems that farmers face in their work, ones that are more urgent and pressing than soil fertility. It is important to integrate a physical science project with surrounding socio-economic data. My initial interviews were aimed at understanding fertiliser use and farmer motivation, but I also needed to know why the farmers were using them in the first place. My last set of interviews dealt with cropping patterns.

Challenges in the field

Problems arose with some farmers because they expected to share their information in exchange for material benefits. Problems were also encountered in the collection of market information on the availability and prices of items such as seeds and pesticides.

An important point to mention is quality of data. My project was monitoring farm operations but the farmers did not always follow their daily operational plans. For example, a farmer would apply fertiliser days before the pre-determined application date and there was no way of knowing exactly how much was used, or I was not informed if ash was going to be applied until after the event had occurred. Therefore precise measurements were not always possible.

Thanks

I would like to thank the TAA for their very generous support of my fieldwork stay in Nigeria. The TAA's contribution was very much needed, and it helped me carry out all my plans successfully without needing to make budget cuts that would have significantly 'crippled' my data collection. My final thanks goes to Mr Keith Armstrong, my TAA contact, who responded to my e-mails with very useful comments and advice.

