

**International Society for Horticultural Science**

**Postharvest Commission**

**Postharvest Technologies for Developing Countries**

**Report on the**

**Outcomes of a Workshop  
organised on the occasion of the  
26<sup>th</sup> International Horticultural Congress  
Toronto, Canada**

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**Prepared by**

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### **Executive summary.**

1. A Workshop on 'Postharvest Technologies for Developing Countries- how can the ISHS be involved?' was attended by 60 participants immediately following a one day symposium with the same title, during the 26<sup>th</sup> International Horticultural Congress in Toronto August 2002.
2. This interactive, participatory workshop allowed vigorous and imaginative ideas to be elicited from all attendees as they considered the questions: 'what is the present situation and what opportunities are there for ISHS to be become involved?' and 'what actions can ISHS take to help?' in relation to the topic "Postharvest Technologies for Developing Countries".
3. The over-riding outcome was that each country/region/crop had unique problems that must be understood in light of local culture and tradition. Multidisciplinary teams involved in providing assistance must include expertise in sociology and be sensitive to local cultural attributes.
4. Technology and information transfer (extension activities) are key elements for improving productivity and profitability of small farmers and their communities. ISHS could provide technical and educational assistance from within its ranks.
5. The most appropriate way for ISHS to assist would be to collaborate with other large international agencies and institutions such as FAO, the World Bank, the Asian Development Bank and CGIAR centres.
6. ISHS should use its international position and reputation to lobby Governments and agencies to focus more attention on production and postharvest quality, security, safety and marketing of fruits and vegetables for small farmers in developing countries.
7. ISHS should further develop policies to enable scientists and technicians from developing countries to gain access to information, journals, and attend conferences and symposia.
8. There was a real desire for the establishment of an International Tropical and Subtropical Postharvest Research and Education Centre to serve the needs of developing countries; it might be possible to achieve this aim following the restructuring and re-orientation of CGIAR programmes in some of their centres.
9. It is suggested that the Postharvest Commission of ISHS should work together with FAO to organise a Postharvest Training Workshop for scientists and extension personnel from developing countries immediately following the Postharvest Symposium to be held in Verona, Italy, June 2004. Selected participants from developing countries would be funded to attend both the Symposium and the Workshop

## **Introduction:**

As Chair of the Postharvest Commission I have felt for a long time that the postharvest scientists and technologists who are members of the ISHS have the potential to provide their skills and knowledge to help reduce food wastage that occurs to distressing extents in developing countries.

To this end we decided to organise a thematic symposium at the 26<sup>th</sup> International Horticultural Congress, Toronto, Canada, August 2002. Most of the speakers were invited to participate and to address the broader issues relating to food preservation, food quality, food safety and food security. Our speakers provided a wide range of views that followed on logically from, and in more detail than the brilliantly provocative address by Ismail Serageldin during the opening session the previous day.

All participants were invited to attend an evening Workshop following the symposium; this was entitled ‘How can the ISHS provide Postharvest Technologies, skills and assistance to developing Countries’.

About 60 people attended the Workshop that took place over 2 hours from 6-8pm on Monday 12 August. This was a participatory workshop Chaired by Professor Wilfried Schnitzler and facilitated by Errol Hewett, Chair of the ISHS Postharvest Commission.

## **The Process:**

After a brief introduction from the Chair, explaining the role of the ISHS Co-operative Research Committee (CRC), the plan of action was outlined to the group. The audience was divided into 4 groups with approximately the same number of people in each group. Each group appointed a chair and a scribe to write down the ideas and suggestions arising from their deliberations.

Each group was requested introduce themselves to each other before exploring the question: ‘What problems did developing countries currently face with regard to postharvest issues, and what opportunities existed for ISHS postharvest members to help overcome some of these problems?’

Initially they were told that they had 20 minutes to provide some answers. However the ‘pace’ of the discussions started somewhat slowly before gathering speed and altogether 40 minutes were allocated to this first phase of the workshop.

After 40 minutes each group reported back to the entire audience. All suggestions were listed onto paper flip charts that were subsequently placed on the wall.

The groups then reconvened to address the question: ‘What concrete steps should/could the ISHS take to provide postharvest assistance to developing countries’?

This was a very active phase as all participants were encouraged to put forward their ideas and suggestions. This they did with vigour and enthusiasm. Participants were

encouraged not to be judgmental in the groups; any ideas were worthy of recording for later assessment by the entire audience.

After about 30 minutes the audience reconvened, and the group findings were presented. All of the paper sheets with the deliberations of all groups on the two separate subjects were placed onto the wall where all participants could read them.

At this stage a voting procedure was explained. Each participant was given 2 red and 6 blue adhesive paper dots. They were asked to select the most important issue for them from each of the two sessions (i.e. the current or now issues and opportunities; and the ISHS actions). They were asked to stick one red dot on what they considered the most important 'Now' issue and then allocate the blue dots to the next 3 most important issues from their individual point of view. They were then asked to do the same for the ISHS action ideas and suggestions.

Each red dot was counted as 6 points and each blue dot was counted as 2 points.

On completion of the voting the audience was invited to inspect the allocation of the dots and to comment as to whether this represented the overall views of the group. General agreement was obtained.

From group feedback this was an exercise thoroughly enjoyed by the majority of the group. It was unexpected (many people had anticipated that the workshop would involve more talks) and the entire audience warmed to the opportunity to present their own views in a small group. There was a good mixture of people from many countries from around the world, and all agreed that this was a worthwhile exercise.

The facilitator agreed to present a preliminary analysis of the results at the ISHS Postharvest Commission general meeting later in the week. In addition names and e-mail addresses of all participants were taken so that the final report and results could be sent to them after the Congress.

### **Results:**

Every idea and suggestion that was recorded during the two sessions was available to be voted for. A count was made of the red and blue dots for each subject and these were ranked in order of priority as decided by the scores. All observations that were recorded are indicated for the 'Now issues and opportunities' (Table 1), and for the ISHS Actions (Table 2). These results are shown graphically in Figures 1 and 2 respectively.

**Table 1. Current Issues and Opportunities for Postharvest Technologies in Developing Countries.** 9 September, Toronto 2002.

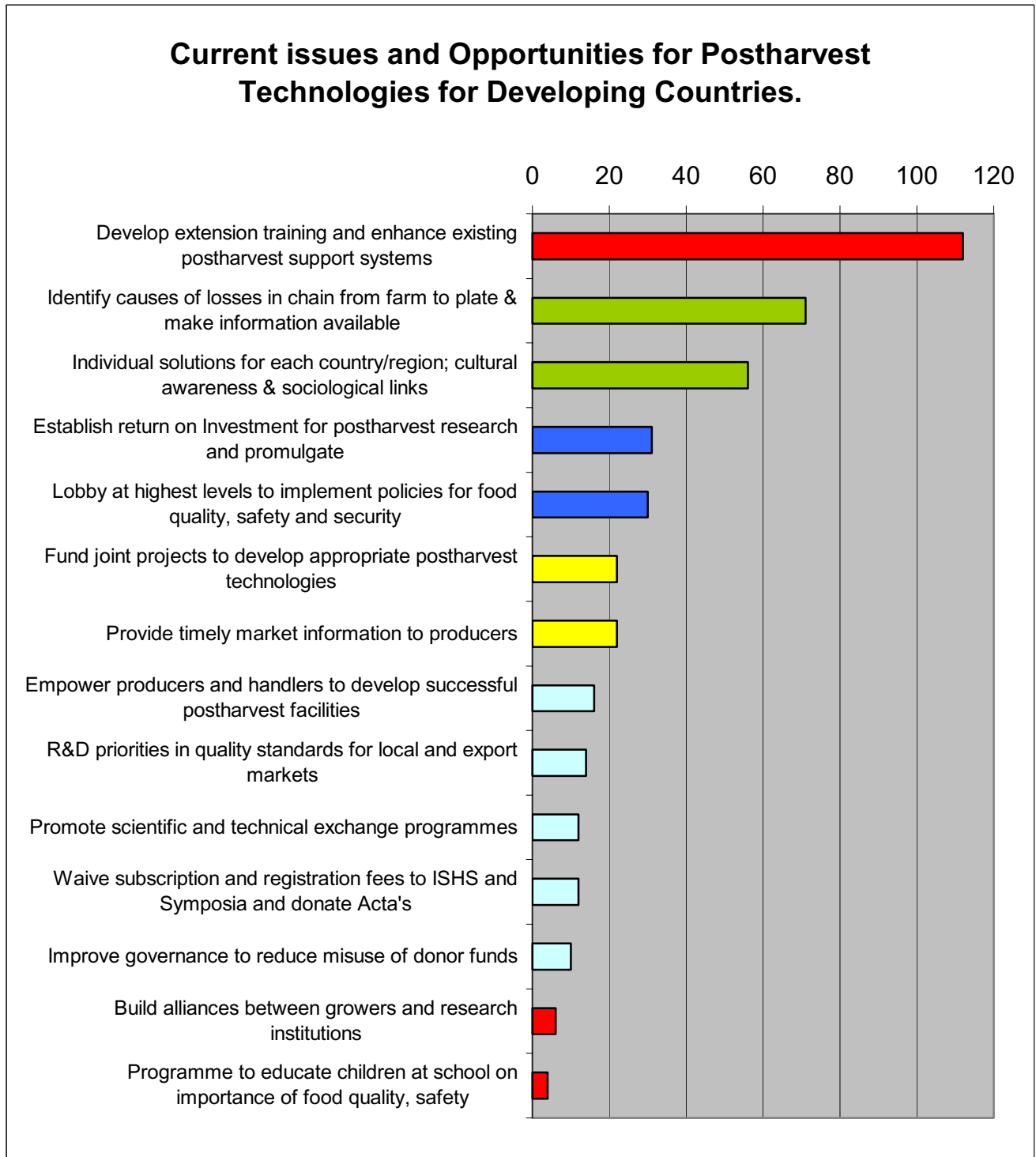
No.	Now Issue	Score
1	Develop extension training and enhance existing support systems and framework for appropriate technologies, training material, education and scholarships to improve postharvest food quality, safety and security and environmental sustainability	112
2	Identify cause of losses in entire chain from farm to plate for each crop/production area; collect, collate and make available existing information on quality and postharvest technologies and create linkages between developing and developed countries	71
3	Individual solutions for individual countries/regions; cultural sensitivity must be understood; sociological issues must be addressed	56
4	Investigate return on investment in Postharvest R&D for developing countries and make information available to donor countries and agencies	31
5	Apply pressure at highest political level at in both developing and developed countries to effect changes in food safety, security and quality R&D and Training and extension	30
6=	Provide funds for joint projects to adapt postharvest technologies for developing countries	22
6=	Provide timely information about market conditions to producers in developing countries	22
8	Develop successful postharvest facilities by empowering producers and handlers to abolish bad regulations and collaborate	16
9	R&D priorities in quality standards for local and export, handling organic produce, small scale postharvest technology	14
10=	Promote scientific and technical exchange	12
10=	Waive registration fees to ISHS and donate free journals to libraries	12
12	Improve governance to eliminate misuse and misappropriation of donor funds making money available for postharvest technology development and marketing	10
13	Build alliances between growers and research institutions	6
14=	Programme to educate children through school curriculum of importance of food preservation, quality and safety	4
14=	Develop production systems to reduce inputs of water, chemicals by appropriate greenhouse structures	4
14=	Recipient countries must make financial commitment to postharvest matters and not rely solely on donor funds	4
14=	Multinational financial assistance from developed countries to provide infrastructure to disseminate postharvest information	4
14=	Develop and introduce low level technologies for small scale farmers	4
19=	Develop small scale central markets as a transition between local and export markets	2
19=	Engage importers in the business of production, handling, postharvest and export	2
21	Improve literacy so that information provided can be used wisely	

22	Direct technology transfer and provide low cost loans to woman	
23	Reduce postharvest waste by improving knowledge and technologies	
24	Postharvest floriculture not receiving enough attention	
25	Lack of electricity means no refrigeration and more wastage	
26	Need details of perishability of all local crops with market potential	

**Major ‘Now Issues and Opportunities’.**

- Development of appropriate postharvest extension, training and education programmes emerged as the key issue related to food quality, food preservation, food safety and food security. This was allied with the realization that enhancement and augmentation of existing local efforts is critically important. Any project must take local cultural and traditional sensitivities into account and there was a strong feeling that rural sociologists should be integral members of any multidisciplinary team(s) that develop such programmes.
- A key effort is to identify the major cause of food losses for each country/region/crop and then collate this data set for use to develop a programme of action with local farmers and officials. Relevant information and experience from other countries should be made available but the solution is likely to be locally based and approved.
- Further investigations of the financial returns to the individual, the community and the country following investments in R&D and extension in postharvest should be undertaken and made available to politicians and leaders of international donor agencies and institutions so that appropriate adjustments of funding (investments) for future action can be made to achieve maximum benefits.
- Urgent need for market information to be made available in a timely and appropriate manner for local farmers so that they understand consumer requirements and can react to them. This could be coupled with the desire to have importers involved more with training and R&D and extension, so that market requirements (product quality, labeling, packaging) are understood by growers.
- R&D to promote projects on solving local problems is urgently required and this should be undertaken in conjunction with appropriate technology transfer programmes.
- Major difficulties are experienced by scientists and technicians in developing countries in obtaining scientific journals, equipment and computers, and in attending relevant conferences and symposia. ISHS needs to promote their current programmes for assisting such scientists and should explore ways to further reduce the financial burden suffered by such personnel.
- A range of issues relating to marketing, education in schools, use of protected cultivation to reduce inputs, possible funding from private overseas companies and improved literacy were also identified as issues for consideration.

**Figure 1. Issues and Opportunities for Postharvest technologies in developing Countries.** ISHS Postharvest Workshop, Toronto, August 2002.



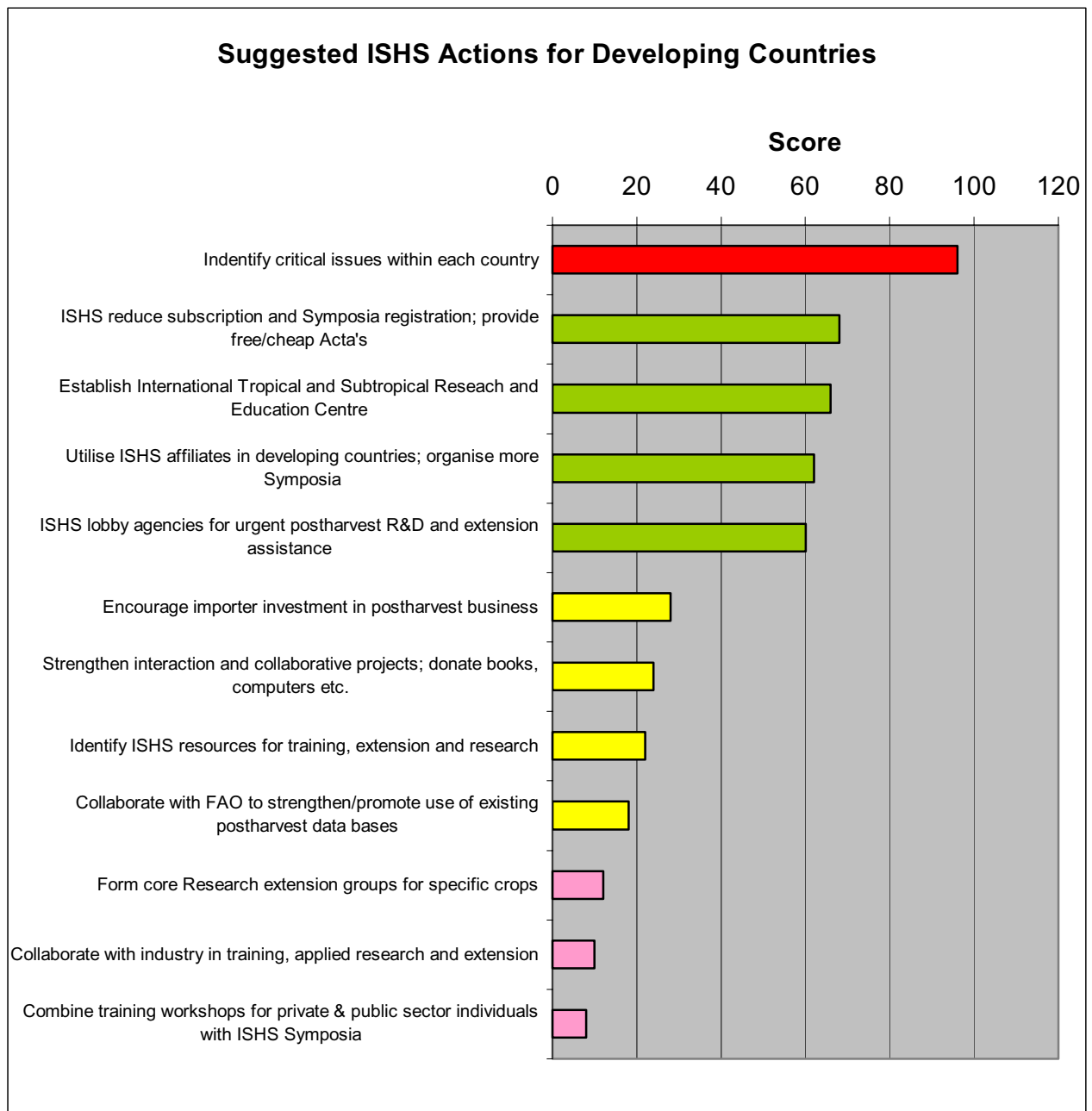
**Table 2. Suggested ISHS actions for Postharvest Technologies in Developing Countries.** 9 September, Toronto 2002.

No.	Issue	Score
1	Identify major postharvest issue within each country including training, information, scholarships, exchange programmes	96
2	ISHS markedly reduce subscription rates and Symposia fees for scientists and extension specialists from developing countries; provide free/cheap Acta's	68
3	Establish International Tropical and Subtropical Postharvest Research and Education Centre to serve postharvest needs of developing countries	66
4	Contact and utilise ISHS affiliates in developing countries especially for organising local Symposia and training sessions	62
5	Use professional weight of ISHS to lobby internationally for urgency of R&D and Extension programmes on appropriate postharvest technologies for developing countries	60
6	Encourage investment by importers in the business of production, harvesting, handling and postharvest of horticultural products	28
7	Strengthen interaction and cooperation between scientists in developing and developed countries such as networking and donating books, journals, computers and equipment	24
8	Identify resources within ISHS that could be made available to assist in training, extension and R&D	22
9	Collaborate with FAO to strengthen and promote use of existing postharvest data bases and web sites eg InPHO	18
10	Form core groups (research extension teams) for specific crops that would collaborate in obtaining funds	12
11	Collaborate with industry in training and applied research conducted in developing countries	10
12	Combine training workshops for private and public sector individuals with ISHS Symposia	8

**Major 'ISHS Actions'.**

- While ISHS has a specialist resource available within its increasing membership, it is well recognized that ISHS cannot play a dominant lead role in alleviating poverty and starvation in developing countries. Rather it recommended that ISHS should make its resources available to lead agencies and institutions in their international endeavours. ISHS should work in collaboration with organisations such as FAO, the World Bank, the Asian Development Bank and CGIAR centres.
- Clear recognition that any action must be preceded by an understanding of the specific problems experienced by any country/region/crop and that further training, education, exchange programmes must take cognizance of the local needs of small farmers and their families within the community.

**Figure 2. Suggested ISHS Actions for Postharvest Technologies for Developing Countries.** ISHS Postharvest Workshop, Toronto, August 2002.



- Strong support for the establishment of a dedicated International Tropical and Subtropical Postharvest Research and Education Centre. This could be done within the CGIAR structure but it must be serviced by personnel with specialist knowledge and skills in fruits, and vegetables and postharvest knowledge of perishable crops.
- ISHS must use its international profile and reputation to lobby Governments, agencies and institutions and private companies to make investments to develop and implement appropriate extension, R&D and educational programmes to improve food quality, safety, preservation and security.

- Strengthen interaction and collaboration between scientists in developing and developed countries by facilitating networking and creating a system for providing books, journals, equipment and computers for scientists in developing countries.
- Encourage formation of core groups of scientists/extension specialists who work together for specific crops and who would work together to obtain funding from varying sources
- Work together with FAO, and other agencies to strengthen and promote use of existing data bases and web based information on postharvest and market matters, making such information available to developing countries. A number of these currently exist (e.g. FAO data base; postharvest newsletter; INPhO) and a master list should be prepared for information.
- Organise more ISHS Symposia in developing countries; this would require assistance from appropriate convenors and Commission/Sector chairs to advise and provide leadership in organising such meetings. An alternative is to organise joint training workshops with FAO for selected personnel from developing countries, immediately after a major Postharvest Symposium. Such an arrangement would enable people from developing countries to attend the symposium, and then to have the benefit of leading postharvest scientists and teachers involved in the training programme. It is recommended that this should be planned for the 2004 Postharvest Symposium in Verona, Italy.

### **Conclusions:**

This Workshop was very successful. It was an enjoyable experience for the 60 participants who were positive about the outcomes. The opportunity to interact with a number of colleagues from many countries was appreciated, and the different perspectives presented during the Workshop were of interest and value to all.

Results from this Workshop (this report) have been sent to all participants for their information. Any comments or suggested actions by members will be welcomed.

As a result of this exercise the ISHS Postharvest Commission will be working in collaboration with FAO with the intention of organising a Postharvest Training Workshop immediately following the Postharvest symposium in Verona, Italy, June 2004.

*If you have any comments, suggestions or can offer assistance to progress any of the points raised in this report, please contact me directly at:*

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