

SATNET Asia Regional Training Programme
Postharvest Management and Market Linking for
Vegetables and Fruit in South Asia

**26-28 November, 2014, ICRSISAT Campus,
Patancheru, India**



The Network for Knowledge Transfer on Sustainable Agricultural Technologies and Improved Market Linkages in South and Southeast Asia (SATNET Asia) aims to support innovation by strengthening South–South dialogue and intraregional learning on sustainable agriculture technologies and trade facilitation. Funded by the European Union, SATNET facilitates knowledge transfer through the development of a portfolio of best practices on sustainable agriculture, trade facilitation and innovative knowledge sharing. Based on this documented knowledge, it delivers a range of capacity building programmes to network participants.

SATNET Asia is implemented by the Centre for Alleviation of Poverty through Sustainable Agriculture (CAPSA) in collaboration with the AVRDC – The World vegetable Centre, the Asia Pacific Centre for the Transfer of Technology (APCTT), the Food Security Centre of the University of Hohenheim and the Trade and Investment Division of UNESCAP.

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Executive Summary

The South Asia Regional Training on the postharvest management and market linking for vegetables and fruit was held from 26-28 November 2014 on ICRISAT Campus, Patancheru, India. The training was organized under the Network for Knowledge Transfer on Sustainable Agricultural Technologies and Improved Market Linkages in South and Southeast Asia (SATNET Asia) programme by the Asian and Pacific Center for Transfer of Technology (APCTT) in partnership with the World Vegetable Center AVRDC.

The aim of the training was to share knowledge and best practices related to the following aspects:

- 1) Innovative low-cost techniques and best practices that can reduce the postharvest loss of fruits and vegetables
- 2) The ways and means for effectively linking small-scale farmers with markets
- 3) Hands on training on equipment for evaluation of postharvest quality of fruits and vegetables

A combination of interactive sessions, case studies, hands on training, group exercises and a field visit led to the following outcomes:

- Participants had an opportunity to discuss their specific national context of post harvest loss and scenario related to current market linkages in their respective countries and received .
- Participants were made aware of the issues regarding post harvest loss and how to reduce postharvest loss through the following methods: minimum waste, best pre- and post harvest practices, pest and disease management, quality factors and measurements, value chain approach, ICT application and processing techniques
- Participants gained knowledge on various market mechanisms and ways and means to effectively use of these platforms for increasing revenue generation
- Participants had the opportunity to visit processing facilities and receive hands on training on postharvest and quality evaluation instruments and procedures related to fruits and vegetables.

Postharvest Management and Market Linking for Vegetables and Fruit in South Asia

26-28 November, 2014, ICRSISAT Campus,
Patancheru, India

1. Introduction

Post-harvest losses are a significant threat for small-scale agricultural producers who depend on agriculture for their livelihood, as it undermines the economic benefits of crop production. In South Asia out of 125 million farm holdings, more than 80% is small scale with an average size of 0.6 hectares (IFAD). According to the Food and Agriculture Organization of the United Nations (FAO), between 15 - 50 percent of agricultural produce is lost between harvesting and marketing in countries in the Asia Pacific region. FAO estimates that post-harvest losses can be halved with a more efficient supply chain, making food available for an additional about 1 billion people.

Reducing postharvest losses therefore has far-reaching benefits including enhancing food security and economic growth. Fruit and Vegetables produce especially offer many opportunities to alleviate poverty, generate employment. Firstly fruits and vegetables are rich in nutritional values. Secondly fruit and vegetables already represent a large share of the household income. In addition it produces four times more jobs than other agricultural activities and contributes to greater gender equality and empowerment of women who often play an important role in postharvest activities for fresh and processed products. Thirdly it makes diversification into high-value crop production less risky and more attractive, enhances productivity and competitiveness of fruit and vegetable industries, increases opportunities for export, and sustains economic growth.

Moreover global, regional and national trends are also in favour of fruit and vegetable. Due to global increase in income, demographic shifts, trade liberalization and consumer preferences demand for fruit and vegetables is rising. Consumers nowadays are looking for more nutritional, quality produce and speciality packaging. However consumers also want products that are certified, traceable, labelled and branded. In order for small scale farmers to gain from these trends it is essential that they are able to produce safe and quality fruit and vegetables. This will require knowledge of the nature of the produce and market, appropriate technological interventions and marketing at the right time, quantity, quality and price.

In this context, this three-day training program titled postharvest management and market linking for vegetables and fruit was organized by the Asian and Pacific Centre for Transfer of Technology (APCTT) based in New Delhi, India in partnership The World Vegetable Center (AVRDC)-South Asia office based in Hyderabad, India.

A total of 16 participants were trained in this regional training programme. The participants for this regional training were chosen from a diverse group of stakeholders including national agricultural scientists, extension workers, farmer federations, government officials and private sector representatives involved in the horticulture sector in Afghanistan, Bangladesh, Bhutan, India, Nepal and Pakistan.

2. Programme

Below is the summary of the workshop

Day 1	Day 2	Day 3
<ul style="list-style-type: none"> • Introduction • Welcom and introduction to, ICRISAT, APCTT, SATNET Asia and AVRDC • PART I County presenations on post harvest losses and internventions • PART II Vegetable and Fruit Quality • Part III Technologies and best practice for fresh produce 	<ul style="list-style-type: none"> • PART III (follow) Technologies and best practice for fresh produce • PART IV Technology Technologies and best practice for processed produce • Part V Linking small farmers with markets 	<ul style="list-style-type: none"> • PART VI Visit to the Fruit Research Station, demonstration of postharvest and quality evaluations instruments and hands on activity on evaluation • PART VI Closure

3. Key Learnings

3.1 Post harvest

AVRDC estimates the post-harvest loss of vegetables and fruits are about 30 per cent for India, 8 - 25 per cent for Bangladesh, 25 - 30 per cent for Nepal, 15-40 per cent for Pakistan and 16-40 per cent in Sri Lanka.

Factors affecting post-harvest food losses vary widely from place to place and become more and more complex as systems of marketing become more complex. In addition pre harvest management affect post-harvest returns in quality and quantity and can result in the rejection or downgrading of produce at the time of sale.

Some aspects of pre harvest management that influence post-harvest loss are: water supply (irrigation), soil fertility (use of fertilizers), cultivation practices (pruning), quality and type of seeds and the use of agro chemicals (pesticides and herbicides).

The key causes are of post-harvest losses are poor pre & post-harvest management, improper harvesting and handling, lack or improper packaging, transport, storage and processing facilities, inadequate post-harvest technologies and product development services, as well as complex and fragmented marketing systems.

3.2 Current postharvest losses and market linking

3.2.1 Postharvest losses and interventions in Afghanistan

In Afghanistan postharvest losses are divided in two categories: technical and non-technical. On the technical side, there is a lack of knowledge at farmer level about post-harvest activities such as handling (poor crop management practices and pest control). Furthermore there is lack of adequate knowledge on quality standards and food safety and processing (canning, freezing, drying, and juicing) and marketing (poor extension services, communication, coordination and linking).

On the non-technical side there are various causes of loss due to poor and inadequate cold storage, packing houses, processing factories, tools, equipment for processing, transportation facilities and high transportation cost and lack of refrigerated trucks.

With regards to the marketing there is too much focus on price instead of quality. In addition, the farmers lack adequate channels of information on overseas market opportunities for their produce. Other constraints include lack of (electronic) communication facilities and trading links, poor roads and infrastructure, limited air-freight capacity and limited access to markets.

3.2.2 Postharvest losses and interventions in Bangladesh

Postharvest loss in Bangladesh represents about 20-40% in fruits and about 8-25% for vegetables. The main losses occur right after harvest during handling and transport. Major causes of postharvest losses are lack of appropriate knowledge on handling and storage, inadequate sorting and grading, no or improper washing, inappropriate packaging, transportation problems, rough handling at loading and unloading, lack of packing houses and cold storage facilities and lack of improved pH technologies. In the entire supply chain, maximum losses occur due to poor packaging and inappropriate transportation system.

Problems with regard to market linking can be divided into two categories 1) poor market systems, infrastructure and value chain linking, such as complex and fragmented markets; lack of appropriate supply chain organization and management; poor marketing information, initiatives and farmer-market linkages 2) lack of best practices in postharvest management, such as lack of awareness and knowledge on the quality and environmental issues, food safety issues, poor packaging, processing, transportation, infrastructure, storage.

Current interventions comprise of harvest machinery, hot water treatment plant, changing of packaging material, changing of sorting and grading, new processing technologies, cold chain management technology, development of associations among farmer groups, strengthening grower-exporter linkages, quality awareness, ripening and shelf life extension techniques.

3.2.3 Postharvest losses and interventions in Bhutan

Major postharvest losses in Bhutan happen during harvesting, transportation, manual sorting and grading, and packaging. Furthermore there is loss during storage due to physiological weight loss as well as pests and diseases. Fruit losses vary between 20-50% and vegetables loss varies around 5%-30%.

Some past and present interventions include educating orchard owners and harvesters, introduction of harvesting equipment and proper use of the tools, providing subsidies for hiring of tools and equipment, provide sorting and grading machine as well as pack houses, regular monitoring and guidance, change of packaging material, enforce quality production and proper postharvest

management as well as providing training on these aspects and introducing new market opportunities for quality products.

3.2.4 Postharvest losses and interventions in India

In India, postharvest loss account for 30% and in particular, in the horticulture sector the loss is estimated to be between 5-39%. The total postharvest loss is worth about US\$ 32.7bn annually. Major losses are caused by the lack of adequate food processing units, modern cold storage facilities (lack of capital and power supply) and a callous attitude towards tackling the grave issue of post-harvest losses, especially during transportation. India has over 10 % share of global fruits and vegetable in production, but less than 5 % of the production is being processed.

Technical reasons for postharvest loss include, but not limited to, not following best practices, lack of equipment and poor maintenance, poor sorting and grading and facilities, plant diseases, environmental genetic traits and biochemical aspects such as maturity and lack of non-availability of quality plant and seed material and lack of availability of adequate technical assistance related to postharvest treatment.

With regard to market linking, farmers lack adequate channels for market information and understanding of supply and demand (commercial awareness), inadequate marketing systems, lack of access to big markets (due to lack of awareness on overseas market requirements such as traceability) and lack of sufficient infrastructure.

Past and current interventions include farmer trainings on commercial awareness, capacity building of farmers, implementation of scientific systems such as traceability, creating networks of cooperative societies and NGOs to support smallholder farmers.

3.2.5 Postharvest losses and interventions in Nepal

Major causes of postharvest in Nepal are due to improper harvesting, poor sorting and grading, lack of sufficient infrastructure, improper storage facilities, lack of appropriate facilities for handling, packaging and transportation. The access to production and postharvest handling technologies is also poor. In general volumes are low, seed quality is low as well as the produce. About 20-35% of fruits, 15-30% of vegetables and 15-20% of potatoes are lost, mainly at loading, transportation and retail level.

With regard to market linking, there is unorganized marketing channels and marketing practices, lack of business planning and management practice and inadequate market information and pricing mechanism.

3.3 Methods to reduce post harvest loss reduction for fresh fruits and vegetables

There are many aspects that need consideration in order to improve postharvest quality of fruit and vegetables and reduce losses. In the following section a summary of the different methods presented in the workshop is provided below:

3.3.1 Minimum wastage approach to postharvest losses,

Reducing waste is one of the top issues that needs to be addressed in order to decrease losses. In SE Asia physical losses range from 15-25%, while quality losses range from 10-30%, which represents one in three kilos.

Wastage is mainly due to lack of adequate storage facilities, low levels of processing, huge quantities of underutilized crop residue and by-products, poor infrastructure and rough handling. Investment to reduce postharvest loss could be modest and technology should make this reduction more feasible and less expensive.

There are three types of food waste: avoidable food waste (69%, such as leftovers), potentially avoidable (20% such as old fruits for jams etc.) and unavoidable food waste (20% such as banana skins) that can be reduced via the path way of : “Prevent, Reduce, Reuse, Recycle, Recover and Dispose “. This can be achieved by better planning, improved storage, smaller portions, stock rotation and intelligent packaging. One question posed during the training require attention by the horticultural practitioners. Should the food industry be a demand driven market, or market driven demand?

3.3.2 Best pre- and post harvest practices

Best pre and post-harvest practices need to be in place. The key factors that influence the physiological processes, such as browning or pests and disease are to be controlled, which affects marketability and consumption of the produce. Examples of interventions include harvesting at the optimum maturity level, handling the produce with care during harvest and packaging and having temperature controlled storage and transportation.

3.3.3 Pest and Disease management

Pests and diseases are a significant cause of postharvest loss. Factors such as commodity type, the stage of maturity and ripeness, treatment of disease control, handling methods and hygiene and what kind of postharvest environment influence the occurrence of pests and diseases need to be analyzed and controlled. Diseases can be reduced by controlling all the different aspects at the different moments. For instance moulds can be avoided by reducing moisture content. In contrast leaving crops to dry in the field might increase risk of pests attack.

3.3.4 Quality factors and measurements

Quality factors and measurement need to be in place to meet safety and quality indicators in order to be accepted in the domestic and international markets. For instance some reasons for rejection are the use non permitted pesticides, contaminants, post harvest deterioration etc.

Quality is measured on the basis of colour, appearance (shape, colour etc), flavour (taste and aroma), texture, nutritional value and safety (pesticides or microbial load). These aspects can be easily measured via physical properties, chemical and sensory attribute. The latter can be done either subjectively via vision or feeling or objectively via an instrument. For instance a penetrometer can measure texture. Some of the measurement factors such as appearance, size and shape of produce are influenced by pre-harvest practices such as cultivar, maturity, production inputs and the growing environment. This stresses the importance of good pre-harvest management practices. However, the quality of the produce is affected by a whole range of factors in the supply chain, including harvest, storage, packaging, processing and transportation aspects.

In addition it should be noted that consumers tend to choose product based on sensory measures which are not always objective, but do influence the marketability. In the present context, nutritional value is also increasingly becoming important.

3.3.5 Value chain approach

The market demands consistency and reliability of supply, reduced liability, improved bulb packaging and cold chains. Very good supply chain based approaches can therefore be able to reduce postharvest losses.

A simplified supply chain looks as following (see figure 1) 1) suppliers, research and development and finance, 2) inputs, 3) farmers, 4) traders 5) processors and manufacturers 6) retail and exporters 7) consumers.

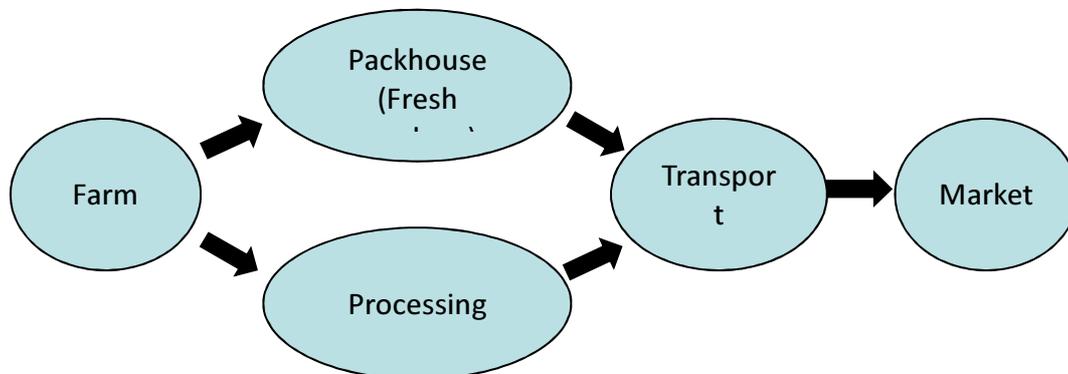


Figure 1: Simplified supply chain for fresh and processed fruits and vegetables

Losses can be reduced at the level of the supply chain from farmer to collector; to trader to retailer through 1) supply chain analysis via loss assessment, quality assessment, nutritional food safety indicators, data analysis and validation 2) research and development to develop technologies and strategies for reducing postharvest loss 3) technology dissemination and capacity building of farmers (workshops, training material, hands on experience) and in socioeconomic research 4) monitoring and evaluation of the impact.

There are also opportunities. For instance farmer associations operating in clusters can make it possible to collect their produce and make use of (refrigerated) transport to directly supply a packaging house for cleaning and packaging and transportation for shipping (inter)nationally. Other opportunities can be in the use of new technologies, such as electronic traceability and ICT applications.

3.3.6 ICT application to reduce postharvest losses

Information exchange and pre and post harvest best practices is essential to improve quality and reduce losses. However information exchange and quality to farmers is poor. One solution that could bridge this gap is an ICT platform, such as the e-short model.

This platform links users to universities where they can exchange information about current farm practices and level of post harvest loss. In addition farmers can find information on the latest farm technologies, modifications and recommendations. All this information can be consolidated and then disseminated for research and development, which can be useful for policy makers and markets. Who in term can feed the system with specific information or demands. Additionally it has a voice based application in the local language of the farmer. The objective of this applications is to find solutions for problems in a more practical way and in lesser time. Currently this system is being piloted with four different types of crops.

3.3.7 Processing

In India less than 4% of the total fruits produced is processed, of this 20% is meant for export, the rest is for defense, institutional sector and domestic consumption. Post-harvest processing is beneficial for farmer and consumer for the following reasons. It increases the total value of agricultural produce and

creates employment opportunities. Through processing, more and easy-to-use food is available while preserving the nutrients. Furthermore processed food is easier to transport, it improves quality of life of fruits and vegetable and increase export trade and foreign exchange. Thus processing of fruit and vegetable is a better utilization of resources.

However it should be noted that not every fruit and vegetable could be processed. Some types or sort of fruit and vegetables of for instance banana's are better suited for processing, and others are better suited at different stages of maturity. In the training the main principles of preservations were provided along with methods to assure quality, such as the internationally accepted practices such as Hazard Analysis & Critical Control Points (HACCP).

3.4 Linking small farmers with markets

Smallholders are only marginally integrated with markets and as a result of that, higher food prices do not translate into high farm gate prices. On the contrary, gaining better prices depends on the farmer's ability to connect to markets and sell. Challenges in marketing are lack of information in prices, high transaction costs and credit constraints. In addition demand for higher value and processed food, new quality and safety standards and the rise of supermarkets are challenges that smallholder farmers need to adjust to. The main skills that need to be developed are

- (a) market linkages for goods and services,
- (b) internal and bridging social capital, and
- (c) professional business and technical management capacities.

In addition to these skills, there is a need for effective support and financial services, alliances with other chain actors and an enabling environment. Moreover organizing famers into groups will allow competing more effectively.

Some solutions to improve marketing for small holder farmers are strong market integration from retail outlet to farm, helping farmers to get access to credit, quality inputs, technical guidance and reducing risks of deficient market demand and adverse price fluctuation. For instance a farmer friendly information network can provide complete package of information on latest agricultural technologies, demand in national and international markets, export procedures and support schemes.

4. Workshop evaluation

The evaluation of the workshop was conducted based on two different approaches including (i) General feedback and (ii) Knowledge, Attitude and Practice questionnaire. The criterion of evaluation was based on the following ratings: excellent, good, fair and poor. The general feedback included content and process related feedback. This evaluation report focuses on the general part and will serve as a basis for improvement of similar training in the future.

Sixteen evaluation forms were received from the participants out of 16 this includes 2 female participants to assess the workshop according to its dissemination of knowledge, quality and innovation. Overall the workshop was rated as good on average. About 50% of the participants assessed it as good to excellent, the other 50% as good. However when directly asked for an overall rating 69% of participants assessed the workshop as excellent and 31% of the participants as good (See table 1)

4.1 Usefulness of the Content and Quality of Processes and Logistics

Participants were given evaluation forms to rate the usefulness of the workshop content and quality of processes on the scale of “Excellent to Poor”.

Overall, on average out of the 25 workshops 64% were rated as good and 36% as excellent. As can be seen from table 1. topics on market linkage (17 & 18), post harvest management technologies (11 &12) and quality and measurement (6) were rated by the majority as excellent. Furthermore workshops on food processing (14 & 15), good practices, quality assurance systems (8 &16), value chain approach (4) and demonstrations and hand on training (20, 21,22,23, 24) were rated as good by the majority. Topics on minimum waste (3), quality assurance (8) and disease management had the highest fair ratings.

With regard to the process and logistics, the majority of the participants rated this as excellent. However the participants rated the topic of knowledge sharing processes as 50-50% excellent to good.

4.2 Impact

When asked directly how much the participants will be able to use the new information, 69% thought most of it, 19% thought about half and 6% rated it as either a little or all. Key learning for the participants were in order of high ranking: Postharvest losses, management and technologies as well as best practices (44%), Value chain approach to reduce post harvest (44%), Value addition through processing (44%), quality control and measurement (31%) , market linkage etc. (25%) and ICT tools (19%).

In response to what participants thought they would improve or change, participants mentioned that they will either improve or create a training module or programme to train farmers or workers on the new information (31%), assess and improve value chain (12%), set up a farmer association, use post harvest technology to add value and increase market linkage (6%).

In response to what participants thought they would adopt or apply, most wanted to add value through best practices: either technology, better handling, storage or packaging (44%), apply value chain approach to reducing postharvest losses (31%), train farmers (19%), improve market linkage (12%) or form a farmer association (6%).

With regard to further dissemination or training, participants were planning on training farmers (44%), extension workers (19%), scientists (12%) and students and NGOS (6%).

4.3 Aspects to be improved in the future

Some participants were missing more regional examples of processing and market linkage, more practical exercise and information on occupational safety and cold storage.

5. Future outlook and Recommendations

Reducing postharvest losses and increasing market linkage is essential in alleviation of poverty and food security, as well as gender empowerment. Capacity workshops on best postharvest practices,

techniques, quality control, value chain and market are therefore very valuable tools to increase farmer's capacity. Participants in this workshop included national agricultural scientists, extension workers, policy makers and key stakeholders. Most of them are planning to disseminate the knowledge learned to farmers. In order to measure the impact of the workshop, monitoring and evaluation will need to be in place. Which farmers the participants will reach and what will the impact be? Additionally, there are other challenges that need to be addressed such as poor infrastructure, access to finance and market, trade barriers, as well to technology and information services. Thus workshops like these are very valid, but they are first steps that need to be taken to ensure sustainable poverty alleviation and food security.

Annexes

Annex I: Workshop Evaluation- South Asia Regional Training on Postharvest Management and Market Linking for Vegetables and Fruit in South Asia

		Excellent	Good	Fair	Poor
Content	Topic 1: An overview of SATNET Asia project	81%	6%		
	Topic 2: Country Presentation: Postharvest losses of Vegetables & Fruits in South Asia: Magnitude, Causes & Interventions	38%	56%	6%	
	Topic 3: Minimum wastage strategy for postharvest produce	44%	37%	19%	
	Topic 4: Value chain approach to reducing postharvest losses	31%	69%		
	Topic 5: ICT applications in reducing postharvest losses	50%	50%		
	Topic 6: Vegetable quality factors and measurements	69%	31%		
	Topic 7: Fruit quality factors and measurements	50%	44%	6%	
	Topic 8: Quality assurance systems	19%	62%	19%	
	Topic 9: Management of physiological changes in fresh produce	50%	44%	6%	
	Topic 10 Disease management in postharvest environment	38%	31%	31%	
	Topic 11: Postharvest technologies and best practices in vegetable value chains	81%	19%		
	Topic 12: Postharvest technologies and best practices in fruit value chains	63%	37%		
	Topic 13: Processing as value addition: nature and importance	44%	50%	6%	
	Topic 14: Vegetable and fruit variety and maturity for processing and raw material handling	44%	56%		
	Topic 15: Processing techniques for vegetables and fruit	38%	56%	6%	

		Excellent	Good	Fair	Poor
	Topic 16: Model SME cases: good practices in vegetable and fruit processing chains	38%	56%	6%	
	Topic 17: Importance, nature and prerequisites for linking small farmers with markets	62%	38%		
	Topic 18: Model cases of making markets work for small farmers	63%	31%	6%	
	Topic 19: General discussion and way forward	44%	50%		
	Topic 20: Walk-through/overview of laboratory and field programs and facilities, including mango value chain development	38%	56%		
	Topic 21: Fruits exporter's experience sharing	31%	63%		
	Topic 22: Demonstration of eSHORT program	44%	50%	6%	
	Topic 23: Demonstration of postharvest and quality evaluation instruments	44%	56%		
	Topic 24: Hands-on activity on quality evaluation	44%	56%		
	Topic 25: Cultural Study	50%	38%		
Process	Agenda and flow	75%	19%		
	Facilitation, feedback and discussion	81%	13%		
	Knowledge-sharing processes (e.g. group work, peer review, group review, role playing exercises etc.)	44%	44%		6%
Logistics	Pre-training communication	69%	31%		
	Meeting facilities	69%	31%		
	Accommodation	75%	25%		
	Food	75%	25%		
Overall	Rating overall	69%	31%		

Annex II: Programme of Activities

Time	Activity	In-Charge/Speaker
25 November 2014 (Tuesday)		
13:00-23:00	Arrival; conduct to ICRISAT	AVRDC Team c/o Secretariat Head (Rehana)
19:00-20:30	Dinner	
26 November 2014 (Wednesday)		
07:00-08:00	Breakfast	
08:00-08:30	Registration	Rehana and Neeraja; AVRDC and APCTT staff
08:30-09:00	Pre-training assessment	Rehana and Neeraja; AVRDC and APCTT staff
SESSION 1: INAUGURAL SESSION		
09:00-09:15	Training overview and introduction of participants, resource persons and training staff	Dr Jun Acedo, Postharvest Specialist
09:15-09:30	Welcome to ICRISAT	(c/o Rehana, pls invite DG Dar)
09:30-09:50	AVRDC welcome and introduction of its programs	Dr Warwick Easdown, Regional Director
09:50-10:10	APCTT welcome and introduction of SATNET Asia	Dr Krishnan S Raghavan, In-Charge, Technology Transfer Services Group
10:10-10:15	Group picture	AVRDC and APCTT staff
10:15-10:45	Coffee break	

Annex III: List of Participants

COUNTRY REPRESENTATION	NAME OF THE PARTICIPANT	DESIGNATION & ORGANIZATION	EMAIL & MOBILE CONTACT	PARTICIPANT/S PEAKER/ STAFF
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