

APPPC Regional Workshop on Phytosanitary Irradiation Treatment
25 February – 1 March 2019
Hanoi, Viet Nam

Concept Note

1. Background

Phytosanitary irradiation has been used commercially for quarantine purposes since the 1980s, but has attracted increasing interest as a treatment to replace use of fumigants such as methyl bromide and other chemicals, such as fenthion. Irradiation leaves no undesirable, chemical residues, can be applied quickly and has fewer adverse effects on the quality of food stuffs than do some other phytosanitary treatments. Irradiation is not a new technology, for example having been used to kill bacteria and extend the shelf life of foods since the 1950s. There is abundant scientific evidence that irradiation of commodities for human consumption is safe and effective (e.g. it is accepted by the WHO, FAO, the European Community Scientific Committee for Food, the USDA and Food Standards Australian New Zealand FSANZ)).

Within the Asia-Pacific region, many National Plant Protection Organizations (NPPOs) are keenly interested in the application of irradiation to imported or exported goods. However, many technical specialists are unfamiliar with the technology, the management of pathways that include irradiation, and the respective roles of NPPOs and other national regulatory agencies. In many countries, agencies responsible for food safety are in the process of applying their regulatory frameworks to commodities which have been irradiated, are modifying their frameworks or are developing mechanisms to ensure that their roles integrate with sister-regulators responsible for trade, quarantine and nuclear safety. Some consumers remain unnecessarily wary of irradiated commodities. There is a real risk that regulatory inconsistencies with regard to irradiation combined with a lack of familiarity and confidence could constrain emerging opportunities for trade in agricultural commodities in the Asia-Pacific region and beyond. For example, irradiation is an ideal treatment for many horticultural commodities which could be sent by air to new, high value markets, but regulators, retailers and consumers in these markets all need to be comfortable with the treatment.

Several workshops in the Asia-Pacific region over the past two years (e.g. in Brisbane, Australia in 2016 and Bangkok, Thailand in 2017) and bilateral trade negotiations have highlighted the challenges and opportunities for wider application of adoption of phytosanitary irradiation. This is against a backdrop of a substantial body of technical literature describing global, best practice in the performance of phytosanitary irradiation (including publications of the International Atomic Energy Agency (IAEA), and relevant ISO standards), international phytosanitary standards (including APPPC RSPM 9 and ISPM 18), ongoing innovation in the technology, and a highly motivated, private sector, comprising producers, traders and firms which deliver irradiation services.

The proposed activity aligns with the major role of the APPPC to assist members in the development of plant protection measures, develop and implement regional standards, and

develop plant protection systems through capacity building (APPPC strategic objectives 1 and 3). The activity will also contribute to three of the IPPC's four strategic objectives for 2012 – 2019. Phytosanitary treatments such as irradiation are a means to prevent the spread of pests through international trade and contribute to global and regional food security (IPPC Strategic Objective A). The activity will also promote harmonized, phytosanitary measures based on international standards (principally ISPMs) (IPPC Strategic Objective C) and, through training and sharing of experiences, develops phytosanitary capacity within APPPC member countries (IPPC Strategic Objective D).

A proposal for an irradiation treatment workshop was endorsed at the biennial session of the APPPC in Rotorua, New Zealand, in November 2017. This Concept Note expands on the objectives and content of such a workshop and provides additional, organizational details.

2. Objectives of the workshop

The objectives of the workshop are unchanged from those set out in the summary of the proposal endorsed by the APPPC biennial session, viz. to provide delegates with a sound understanding of how to prepare and consider irradiation treatment proposals, apply irradiation as a phytosanitary measure and verify compliance. The workshop will draw on existing irradiation material, including IPPC, APPPC, ISO and IAEA standards and best-practice documentation, as noted in the endorsed proposal.

The workshop programme will include each of the components described in the Project Details section of the endorsed Project Proposal. However, it is now clear that the body of finalized protocols for irradiated commodities in the region may not be sufficient to sustain some of the sessions envisaged in the original, 'three phase' proposal.

3. Expected outputs

Promote competence and confidence in:

- assessing proposals for market access that include phytosanitary irradiation;
- developing market access proposals, work plans and regulatory arrangements for export pathways which include phytosanitary irradiation.

Develop understanding and awareness of:

- principles of phytosanitary irradiation;
- important operational aspects of import and export pathways which include phytosanitary irradiation;
- international standards and best practice resources;
- food safety and quality matters associated with phytosanitary irradiation.

Share information on:

- roles and responsibilities of regulatory agencies in APPPC member countries; and
- current initiatives, capacities and challenges with regard to phytosanitary irradiation in APPPC member countries.

APPPC Regional Workshop on Phytosanitary Irradiation Treatment
25 February – 1 March 2019
Hanoi, Viet Nam

Tentative Programme

Day 1 (Monday)		
Time	Activity	By
08.30-09.00	Registration	
09.00-09.10	Opening session Welcome by Hosting country Welcome remarks by APPPC Executive Secretary	
09.10-09.20	Presentation: Purpose and scope of workshop	Workshop coordinator
09.20-09.40	Introductions: Participants and resource persons introduce themselves, giving institutional affiliations, roles and responsibilities.	All workshop participants, presenters and facilitators
	<u>Session 1: Introduction to phytosanitary irradiation</u> <i>Objectives of session:</i> <ul style="list-style-type: none"> • <i>Participants familiar with basic principle of ionising irradiation, history of use globally;</i> • <i>Presenters, facilitators understand technical and English language skills, work roles of participants.</i> 	
09.40-10.10	Presentation: Introduction to phytosanitary irradiation (including history, principles, types of irradiation; history of phytosanitary irradiation)	International irradiation specialist
10.10-10.30	Group photograph and housekeeping	Workshop coordinator

10.30-11.00	<u>Morning tea</u>	
	<p><u>Session 2: International and national standards and systems, alternative treatments</u></p> <p><u>Objectives of session:</u></p> <p><i>Participants understand international standards and best-practice resources applicable to phytosanitary irradiation or are aware of these standards and resources;</i></p> <ul style="list-style-type: none"> • <i>Participants understand how national regulatory agencies can work together to integrate international standards into national frameworks relevant to phytosanitary irradiation.</i> • <i>Participants broadly familiar with other options for management of phytosanitary risks; pros and cons of different kinds of treatments, including advantages and disadvantages of irradiation; benefits of having multiple treatment options.</i> 	
11.00-11.30	Presentation: International standards and best practice, including IAEA and IPPC standards and resources	International irradiation specialist
	Presentations: Coordination of national standards with international standards - country examples, including description of roles of regulatory agencies in each country:	
11.30-11.45	Australia	DAWR irradiation specialist

11.45-12.00	Thailand	Thai irradiation specialist, or representative of Thai National Bureau of Agricultural Commodities and Food Standards (ACFS) or Department of Agriculture (DoA0
12.00-12.30	Presentation: Overview of pre-harvest management and post-harvest treatment options, including pros and cons of irradiation, need for alternative measures to meet commodity, pest, market and commercial requirements [Alternatively, this could be run as a short (30-minute), facilitated, discussion exercise in small groups, with the groups reporting back after lunch.]	Post-harvest treatment specialist
12.30-13.30	<u>Lunch</u>	
	<p><u>Session 3: Country reports</u> <u>Objectives of sessions 3 and 4:</u> <i>Presenters, facilitators and participants broadly familiar with:</i></p> <ul style="list-style-type: none"> • <i>agencies in APPPC member countries responsible for regulation of import/export pathways that include phytosanitary irradiation;</i> • <i>trade-related capacity and initiatives relevant to phytosanitary irradiation; and</i> • <i>constraints and objectives of commercial providers of irradiation services.</i> 	
13.30-15.00 [15 minutes each]	Presentations (country reports): China, India, Indonesia, Republic of Korea, Japan, Thailand	Country representatives

15.00-15.30	<u>Afternoon tea</u>	
15.30-16.30 [15 minutes each]	<p><u>Session 4: Country reports (continued), providers of irradiation services</u></p> <p>Presentations: Perspectives from providers of irradiation, including: commercial considerations, single purpose vs. multipurpose facilities; choice among cobalt/caesium/electron beam/X-ray technologies; working with regulatory agencies:</p> <ul style="list-style-type: none"> • Australia • Thailand • Viet Nam • India 	
16.30-17.30 [15 minutes each]	Presentations (country reports, continued)	Country representatives
17.30-17.45	Wrap up of Day 1, including collation of topics and issues from country reports and presentations by irradiation providers	Workshop coordinator
Day 2 (Tuesday)		
	<p><u>Session 5: Food safety and consumer acceptance</u></p> <p><i>Objectives of session:</i></p> <p><i>Participants familiar with:</i></p> <ul style="list-style-type: none"> • <i>international standards and best-practice resources (especially Codex, IAEA) applicable to safety of phytosanitary irradiation;</i> • <i>scientific rigour of assessments performed by FSANZ and lists of food commodities for which FSANZ has approved irradiation;</i> 	

	<ul style="list-style-type: none"> • <i>example of how food safety regulations can be applied in developed (Australia) and mid-level (Thailand) APPPC member countries; and</i> • <i>global trends in consumer acceptance of irradiated products.</i> 	
09.00-09.15	Presentation: International standards and best-practice resources	International irradiation specialist
09.15-09.45	Presentation: Food safety assessment by FSANZ, approved lists of products	FSANZ analyst
09.45-10.00	Presentation: Developing a modern regulatory system for irradiation of food products in Thailand	Representative of Thai Food and Drug Administration (FDA)
	Presentations: Ensuring product quality: presentations on recent research on effects of irradiation levels, other handling conditions, product variety and maturity:	
10.00-10.15	Thailand	Thai DoA
10.15-10.30	Viet Nam (Plant Protection Department, Ministry of Agricultural and Rural Development)	(MARD)
10.30-10.45	Presentation: Consumer acceptance: what have we learnt from surveys and experiences?	International irradiation specialist
10.45-11.05	<u>Morning tea</u>	
	<u>Session 6: Food safety and consumer acceptance (continued)</u> <u>Objective of session:</u> <ul style="list-style-type: none"> • <i>Participants understand how to develop and implement an effective communication strategy targeting commercial decision makers and consumers with information on</i> 	

	<i>phytosanitary irradiation.</i>	
11.05-11.15	Participants divided into groups and advised how session will work	Workshop facilitator
	<p><u>Exercise</u> Participants work in small groups, each with facilitator, to prepare an information strategy for food products which have been subjected to phytosanitary irradiation. Groups will be encouraged to:</p> <ul style="list-style-type: none"> ○ choose a product of interest to countries represented in the group (e.g. a kind of fresh fruit, vegetable or herb); ○ identify which community sectors should be targeted (e.g. importers, wholesale distributors, supermarket buyers, consumers, restaurant owners); ○ what information should be communicated (especially how much technical information); and ○ how this information should be provided (e.g. mass media, point of sale). ○ Each group then reports on their strategy to the entire workshop. 	
11.15-12.15	Group discussions	
12.15-12.30	Reporting	
12.30-13.30	<u>Lunch</u>	
	<p><u>Session 7: Dosimetry</u> <u>Objectives of session</u> <i>Participants understand or are aware of:</i></p>	

	<ul style="list-style-type: none"> • <i>technical aspects of dose mapping;</i> • <i>rationale for generic doses; and</i> • <i>likely trends in data requirements.</i> 	
13.30-14.00	<p>Presentation: Dose mapping - theoretical and practical considerations, including effect of radiation source, temperature, humidity, target density and arrangement, conveyor characteristics; relevant standards, calibration of dosimetry systems; equipment, consumables, software</p>	International irradiation specialist
14.00-14.10	<p>Presentation: Maximum and minimum doses, IPPC standards, data requirements in the future</p>	International irradiation specialist
14:10-14.40	<p><u>Exercise</u>: Participants work in small groups, each with a facilitator, to assess samples of dosimetry data, such as might be provided with a market access application. At least one data sample to demonstrate effective, irradiation of product and at least one sample to be deficient in some respect or demonstrate imperfect irradiation of product.</p> <p>Group discussions</p>	
14.40-15.00	<p>Reporting on exercise</p>	
15.00-15.30	<p><u>Afternoon tea</u></p>	
	<p><u>Session 8: Export, import pathways</u> <i>Objectives of session</i></p> <ul style="list-style-type: none"> • <i>Participants able to assess a market access proposal which includes phytosanitary irradiation.</i> 	

	Presentation: Designing export pathways utilising phytosanitary irradiation and associated assurance systems - case histories:	
15.30-15.45	Thailand	Thai DoA
15.45-16.00	Viet Nam (Plant Protection Department)	MARD
	<u>Exercise</u> : Participants work in small groups, each with facilitator, to assess market access proposals which include phytosanitary irradiation. Proposals to be based on real, simplified or dummy proposals. Proposals to include a simple, one-pest scenario, in which the pest can be managed using irradiation, and multi-pest scenarios, in which there are several pests of biosecurity concern and not all can be managed by irradiation.	
16.00-16.40	Group discussions	
16.40-17.00	Reporting on exercise	
17.00-17.05	Wrap up of Day 2	Workshop coordinator
Day 3 (Wednesday)		
	<u>Session 9: Export, import pathways (continued)</u> <i>Objectives of sessions 9 – 12:</i> • <i>Participants capable and confident in developing assurance systems for export pathways.</i>	
09.00-09.30	Presentation: Designing export pathways utilising phytosanitary irradiation and associated assurance	DAWR irradiation specialist

	systems: Australian case histories	
	<u>Exercise</u> : Participants work in small groups, each with facilitator, to design an export pathway that includes phytosanitary irradiation, an appropriate assurance system, and a work plan to operationalise exports. Each group will be assigned a scenario based on a particular product or group of products, a series of pests, an exporting country and an importing country. Some groups will work independently on one scenario and other groups will work independently on a different scenario.	
09.30-10.30	Group discussions	
10.30-10.50	Reporting on exercise	
10.50-11.05	Summary of best practice in designing pathways, assurance systems and work programmes	DAWR irradiation specialist
11.05-11.25	<u>Morning tea</u>	
	<u>Session 10: Export, import pathways (continued)</u>	
11.25-12.25	<u>Exercise</u> group discussions (continued)	
12.25-12.55	Reporting on exercise	
12.55-14.00	<u>Lunch</u>	
	<u>Session 11: Export, import pathways (continued)</u>	
14.00-14.15	Presentation: Auditing facilities and systems – light-hearted presentation on experiences of auditing systems and	DAWR plant health specialist

	facilities at home and abroad, but also including a very general introduction to auditing styles, including auditing based on checklists and auditing more flexible styles	
	<u>Exercise:</u> Participants work in small groups, each with facilitator, to design a checklist or set of questions which could be used as the basis for an audit of an irradiation facility or export pathway that includes irradiation. The checklist or set of questions will be used on the following day during the site visit to an irradiation facility.	
14.15-15.30	Group discussions	
15.30-16.00	<u>Afternoon tea</u>	
	<u>Session 12: Export, import pathways</u> (continued)	
16.00-16.20	Reporting on exercise	
16.20-16.40	Groups reconvene to finalise their checklists or set of questions, and approach to auditing, based on preceding reporting and discussion	
Day 4 (Thursday)		
09.00-17.00	Study visit to irradiation facility	
Day 5 (Friday)		
	<u>Session 13:</u> <u>Objectives of session 13:</u> <ul style="list-style-type: none"> • <i>Participants have practical checklist or set of questions which could be used in an audit of an irradiation facility.</i> • <i>Participants aware of current trends</i> 	

	<i>and research related to phytosanitary irradiation.</i>	
09.00-09.30	Review of site visit and mock audit	International irradiation specialist
09.30-10.00	Presentations: current research topics	
10.00-10.30	Panel discussion: Q&A, future directions and developments	
10.30-11.00	<u>Morning tea</u>	
11.00-11.30	Presentation of certificates	
11.30-11.40	Workshop wrap-up	
11.40-12.40	<u>Lunch</u>	