

SUBMISSION IN RESPONSE TO A1115 RE: IRRADIATION OF BLUEBERRIES & RASPBERRIES

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August 10, 2016

Submission re Application A1115: irradiation of Blueberries and Raspberries.

We oppose the irradiation of blueberries and raspberries. We, therefore, call on you to reject Application A1115 for the irradiation of Raspberries and Blueberries and to ensure that it is not approved.

We recommend that FSANZ reject proposal A1115 on the following grounds:

- FSANZ has put the public at risk by failing to ensure that the minimum radiation dose recommended in this application and its draft amendment is the minimum recommended for the purpose of the application. The application and FSANZ's draft amendment call for the minimum dose of 150Gy. The Secretariat for the International Plant Protection Convention's International Standard for Phytosanitary Measures for the uses of irradiation for the pests targeted by this application cites the minimum dose of 100Gy. Other approaches to the use of irradiation for these pests cite even lower minimum dose ranging from 50Gy. To irradiate food at a higher dose than is required to achieve the purpose of the irradiation unnecessarily puts the product and the public at risk.
- Furthermore, FSANZ has failed in its responsibility to provide the public adequate information re the irradiation of blueberries and raspberries by misrepresenting the "technological need" for this process. Irradiation is not required as a substitute for post-harvest treatment with Dimethoate and Fenthion. These products are not used on blueberries and raspberries in Australia and New Zealand.
- While mandated to protect the public from deceptive and misleading practices around food, FSANZ in fact is misleading the public by premising this proposed approval and past approvals on the basis of existence of mandatory labelling for irradiated foods. FSANZ has assured the public that they have the capacity to choose between irradiated and non-irradiated foods as mandatory labelling regulations are in place. However, these regulations are the subject of a review, about which FSANZ states "FSANZ expects to complete the review by late 2016, at which time FSANZ will provide a report to the Forum. The Forum may then request that FSANZ undertake further work or provide more advice. If the Forum asks

FSANZ to consider making amendments to Standard 1.5.3, then this will occur through FSANZ's formal legislative processes, including public consultation." CFS pg 10

- We, furthermore, have concerns about FSANZ's impartiality or neutrality as regulator. FSANZ appears to act as both the regulator and promoter of food irradiation. FSANZ has based much of its assessment on research conducted by and/or material provided by the applicant as well as on previous general assessments on irradiation. There is a paucity of research provided specifically regarding the irradiation of blueberries and raspberries. FSANZ has exaggerated acceptance of irradiation and misrepresented the need for irradiation of these fruits and downplays or dismisses any potential risks associated with it.
- Finally, we highlight the clear conflict of interest involved with the applicant acting as a member of the decision-making authority in the application. The Applicant, the NSW DPI is a department of the NSW state government. The NSW state government sits on the FSANZ Ministerial Council and, therefore, acts as an adjudicator on this application. This is a gross conflict of interest.
- Irradiation of blueberries and raspberries would further adversely affect the nutritional value and safety of significant components of the Australian and New Zealand food supplies. Combined with fruits and vegetables already approved for irradiation, this proposal would constitute a further reduction in the nutritional value and safety of the human food supply in both countries.
- Irradiated pet food was responsible for the death and injury of a significant number of cats in Australia, leading to its ban. Until the mechanisms of these adverse health impacts are fully explored and understood, and negative impacts on humans and other species are absolutely ruled out, no irradiated foods should be allowed to enter the human food supply.
- The nutritional and safety assessment process lacks scientific rigour, relying heavily on research submitted by the applicant and previous FSANZ approval documents which relied heavily on unpublished scientific research produced by and for the relevant applicants.
- FSANZ also ignores the numerous alternatives to irradiation that exist for achieving the stated phytosanitary goals of A1115.
- No other countries (or states) expressly require the blueberries and raspberries so approval of A1115 cannot be claimed to be a mechanism for harmonization of trade regulations.

We call on FSANZ to adopt option 2 and reject A1115 which seeks permission to irradiate blueberries and raspberries. The grounds for our recommendation are:

- the safety and nutritional integrity of irradiated foods is not established;
- A1115 offers no credible benefits to Australians or New Zealanders;

- if A1115 were approved, the Australian and New Zealand public would be unfairly and unnecessarily exposed to further risks, costs and hazards;
- exporting irradiating blueberries and raspberries may expose local growers to greater competition from imported produce, further reducing or wiping out local production;
- if further fresh foods were approved, only full, honest irradiated food labelling would support public confidence in the wholesomeness of Australian foods and the integrity of the food industry itself.

As a matter of urgency, and in the public interest, we call on FSANZ to:

- **Decline approval for the irradiation of blueberries and raspberries**
- **Refuse any further irradiation approvals *and to***
- **Cancel all previous irradiation approvals.**

Application A115 fails to prioritise public safety and to prove a technological need

Failure to apply internationally accepted minimum radiation dose

While in no way an endorsement of irradiation of these products, we hope to minimise the risks to quality of these fruits if irradiation is approved and to advocate consumer-focused decisions on food production. FSANZ is mandated with making regulatory decisions about food production for the benefit of the Australian and New Zealand public. It is of utmost importance that decisions on food production are made with consumers' best interests as a priority ensuring minimal impact of potentially quality depleting technology. Practices which prioritise industry or global trade over benefit to the public are unacceptable.

The IAEA and CODEX Standards identify the minimum dose level as the level at which the "technical purpose is achieved."

"When defining the process, the minimum dose level is the dose at and above which a defined technical purpose is achieved, and the maximum dose level is the dose beyond which quality is impaired in some way (e.g. structural integrity, functional properties or sensory attributes are adversely affected, or wholesomeness or consumer safety are compromised)."
Manual Of Good Practice In Food Irradiation Sanitary, Phytosanitary And Other Applications
International Atomic Energy Agency Vienna, 2015 Page 42

"For the irradiation of any food, the minimum absorbed dose should be sufficient to achieve the technological purpose and the maximum absorbed dose should be less than that which would compromise consumer safety, wholesomeness or would adversely affect structural integrity, functional properties, or sensory attributes." General Standard For Irradiated Foods Codex Stan 106-1983, Rev.1-2003 P1

The minimum dose proposed in A115 is higher than required for the treatment of the targeted pests. This application seeks to irradiate blueberries and raspberries between 150Gy- 1kGy

As a pest neutralisation treatment, irradiation at various doses has been accepted as part of international phytosanitary protocols. The minimum dose for efficacy for the intended purpose is part of those protocols.

We question the rationale of the requested dosage of radiation exposure for these products. Both FSANZ and the applicant refer to International Phytosanitary Measures as rational. Frequently cited are ISPM 18 and ISPM 28. ISPM 18 permits/recommends the use of irradiation for various pests. The estimated minimum dose for fruit fly ranges from 50Gy- 250Gy. ISPM 28 (part 7) is a generic measure for fruit fly which generically calls for minimum dose of 150Gy. However, ISPM 28 has annexes which are a "prescriptive part" of the measure, which are relevant to the two fruit fly species identified by the applicant as warranting irradiation: the Queensland fruit fly (*Bactrocera tryoni*) and the Mediterranean fruit fly (*Ceratitis capitata*) – and cite the lower minimum dose of 100Gy.

ISPM 28 Phytosanitary treatments for regulated pests PT 5: Irradiation treatment for *Bactrocera tryoni*. Adopted 2009; published 2016 gives guidance for **Irradiation specifically to control Queensland Fruit Fly:**

“Scope of the treatment

This treatment applies to the irradiation of fruits and vegetables at 100 Gy minimum absorbed dose to prevent the emergence of adults of *Bactrocera tryoni* at the stated efficacy. This treatment should be applied in accordance with the requirements outlined in ISPM 18 (Guidelines for the use of irradiation as a phytosanitary measure).

Treatment description

Name of treatment: Irradiation treatment for *Bactrocera tryoni*
Active ingredient: N/A
Treatment type: Irradiation
Target pest: *Bactrocera tryoni* (Froggatt) (Diptera: Tephritidae)
Target regulated articles: All fruits and vegetables that are hosts of *Bactrocera tryoni*.

Treatment schedule

Minimum absorbed dose of 100 Gy to prevent the emergence of adults of *Bactrocera tryoni*. There is 95% confidence that the treatment according to this schedule prevents emergence of not less than 99.9978% of adults of *Bactrocera tryoni*.
Treatment should be applied in accordance with the requirements of ISPM 18.” (ISPM 28 Phytosanitary treatments for regulated pests PT 5: Irradiation treatment for *Bactrocera tryoni* Adopted 2009; published 2016, p1.)

ISPM 28 Phytosanitary treatments for regulated pests PT 14: Irradiation treatment for *Ceratitis capitata* Adopted 2011; published 2016., provides guidance on **Irradiation specific to Mediterranean fruit fly control:**

Scope of the treatment

This treatment applies to the irradiation of fruits and vegetables at 100 Gy minimum absorbed dose to prevent the emergence of adults of *Ceratitis capitata* at the stated efficacy. This treatment should be applied in accordance with the requirements outlined in ISPM 181 (Guidelines for the use of irradiation as a phytosanitary measure).

Treatment description

Name of treatment Irradiation treatment for *Ceratitis capitata*
Active ingredient N/A
Treatment type Irradiation
Target pest *Ceratitis capitata* (Diptera: Tephritidae) (Mediterranean fruit fly)
Target regulated articles All fruits and vegetables that are hosts of *Ceratitis capitata*.

Treatment schedule

Minimum absorbed dose of 100 Gy to prevent the emergence of adults of *Ceratitis capitata*.
ISPM 28 Phytosanitary treatments for regulated pests PT 14: Irradiation treatment for *Ceratitis capitata* Adopted 2011; published 2016

Both these measures target adult fruit fly emergence, with a minimum dose of 100Gy. Both refer to application in accordance with ISPM 18. ISPM 18 identifies a much lower minimum does (50Gy) than the generic minimum assigned to ISPM 28 (150Gy).

ISPM 18: Fruit flies (Tephritidae) suggests an irradiation dose range for a variety of pests and describes the recommended processes around irradiation. The generic minimum dose range for fruit flies in general, identified from research “reported in scientific literature” to “prevent adult emergence from 3rd instar 50-250” is 50-250 Gy. See chart below.

APPENDIX 1: Estimated minimum absorbed doses for certain responses for selected pest groups

“The following table identifies ranges of minimum absorbed dose for pest groups based on treatment research reported in the scientific literature. Minimum doses are taken from many publications that are in the references listed below. Confirmatory testing should be done before adopting the minimum dose for a specific pest treatment.

To ensure the minimum absorbed dose is achieved for phytosanitary purposes, it is recommended to seek information about the Dmin for a particular target species and also to take into consideration the note in Appendix 2.

Pest group	Required response	Minimum dose range (Gy)
Aphids and whiteflies (Homoptera)	Sterilize actively reproducing adult	50-100
Seed weevils (Bruchidae)	Sterilize actively reproducing adult	70-300
Scarab beetles (Scarabidae)	Sterilize actively reproducing adult	50-150
Fruit flies (Tephritidae)	Prevent adult emergence from 3rd instar	50-250
Weevils (Curculionidae)	Sterilize actively reproducing adult	80-165
Borers (Lepidoptera)	Prevent adult development from late larva	100-280
Thrips (Thysanoptera)	Sterilize actively reproducing adult	150-250
Borers (Lepidoptera)	Sterilize late pupa	200-350
Spider mites (Acaridae)	Sterilize actively reproducing adult	200-350
Stored product beetles (Coleoptera)	Sterilize actively reproducing adult	50-400
Stored product moths (Lepidoptera)	Sterilize actively reproducing adult	100-1,000
Nematodes (Nematoda)	Sterilize actively reproducing adult	~4,000” (pg15)

Under ISPM 28, the generic minimum dose is 150Gy: **“Treatment schedule:** Minimum absorbed dose of 150 Gy to prevent the emergence of adults of fruit flies.” (International Plant Protection Convention PT 7-1)

The applicant states: “The treatment adopted for both *Bactrocera tryoni* (Qff) and *Ceratitis capitata* (Medfly), the two pests of economic significance in relation to Australian blueberry and raspberry, is irradiation with a minimum absorbed dose of 100Gy. So this is the international standard postharvest phytosanitary treatment for these pests and the future export of Qff and Medfly hosts, such as raspberry and blueberry, to fruit fly sensitive markets may depend on the fruit having been irradiated pre-export.” (Application to amend the Food Standards Code, Standard 1.5.3 pg 115)

The application requests a minimum dose of 150G. Interstate trade protocols and ASEAN trade recommendations cite 150Gy as the minimum dose in generic irradiation approvals. However, aligning with current trade protocols is not a rationale for approving a higher than necessary dose of irradiation to any food.

“The use of irradiation for phytosanitary purposes for domestic trade was approved by all states and territories in Australia in 2011, under the national Interstate Certification Assurance (ICA) Scheme as Operational Procedure Number 55 (ICA 55). ICA 55 applies to all insects, excluding only Lepidoptera that pupate internally, and to all fruits and vegetables for which FSANZ has approved the use of irradiation, and conforms to the principles of ISPM 18 and 28.

ICA 55 also sets the minimum doses required as follows –

- 150 Gy for fruit flies of the family Tephritidae.
- 300 Gy for the mango seed weevil.
- 400 Gy for all pests of the class Insecta except pupae and adults of the order of Lepidoptera.”

“A model protocol using irradiation as a quarantine treatment was developed for ASEAN nations to access the fresh fruits and vegetables market in the US, EU and inter-ASEAN trade (ASEAN(undated) No. 2). A Harmonized Regulation on Food Irradiation for ASEAN, Food Handling Publication Series No.3 (ASEAN (undated) No. 3), in Annex 1 Class 2 food: fresh fruits and vegetables, for quarantine control, provides for the treatment of food by ionizing radiation with technological dose limits, minimum 0.15 kGy and maximum 1.0 kGy. One of the objectives of the harmonised regulation is to overcome quarantine barriers to trade.” (Application to change Food Standards 1.5.3 p 122)

FSANZ is able to amend Food Standard 1.5.3 to include lower minimum doses as per recommended by international phytosanitary guidelines. It is inappropriate for FSANZ to impose higher than technologically proven minimum dose levels of radiation on the Australian and New Zealand public. FSANZ must reject this application as it fails to ensure that the minimum radiation dose recommended for its purpose is adhered to.

A1115 fails to prove a “Technological Need” for irradiation:

FSANZ refers to the phasing out of Dimethoate and Fenthion as a rationale for approving irradiation of blueberries and raspberries, however, the chemicals are not used as post-harvest treatment for these fruits.

“Permitting the irradiation of these fruits will allow increased domestic and international trade as there are rigorous requirements in place for an appropriate and efficacious treatment for fruit fly for quarantine purposes. In the past, phytosanitary measures for these foods have primarily involved the use of the chemicals dimethoate and/or fenthion. However, since the use of dimethoate and fenthion for this purpose has been restricted, other options such as irradiation need to be considered.” (Food Standards Australia New Zealand [16–16] Call for submissions – Application A1115 Irradiation of Blueberries & Raspberries ,29 June 2016 p 3)

The Applicant, NSW DPI clearly states: **“Unlike other fruit and vegetables, blueberry and raspberry have been unaffected by the restriction or cancellation of the use of dimethoate and fenthion for phytosanitary purposes, as these chemicals were not used on these fruits as a postharvest phytosanitary treatment.”** (Application to amend the Food Standards Code, Standard 1.5.3 section 5.1 pg 115)

Methyl bromide is, however, permitted on these fruits. Concerns about this chemical’s impacts on ozone have justifiably led to international recommendations on the reduction of its use. However,

FSANZ does not mention Methyl bromide in its Call for Submission nor in its Supporting Documents; the reduction of Methyl bromide is not cited as a rationale for use of irradiation in Australia and New Zealand. The use of Methyl bromide for disinfestation purposes is not under threat. Therefore, the rationale of requiring alternative pest control methods for blueberries and raspberries has not been justified in this application or FSANZ's support of it.

We support the transition away from toxic or environmentally hazardous chemicals and food processing techniques. We disagree, however, with the promotion of irradiation as an alternative. Irradiation as a process as generally practices is a nuclear industry requiring the transportation, use and storage of radioactive materials. It is not without environmental or workplace risk. There are known and accepted impacts on food quality through exposure to ionising radiation. There is no research suggesting that there is broad acceptance of irradiation by the public. Finally and foremost, the posing of the issue as irradiation versus chemicals is duplicitous as irradiation will not be used as a substitute for chemicals but in conjunction with them. Irradiation is used solely as a post-harvest treatment. Food producers who rely on chemical treatments in their production may opt to irradiate after harvesting – there is no assertion that irradiation would replace the use of chemicals in the soil preparation, planting and growth phases of food production.

It is not acceptable for Australian food producers and regulators to suggest there is a need for irradiation, while failing to implement whole of systems approaches that minimise impacts on the environment, health and quality of produce.

Irradiation as an “alternative” to chemicals

FSANZ extrapolates main points from the Application to change Food Standards 1.5.3 to produce an Executive Summary presented to the public in as part of the consultation process. The points included by FSANZ would appear to be those accepted or undisputed by FSANZ – therefore, can be seen to represent FSANZ's position- at least in this case where FSANZ supports the application.

“There is growing awareness within the horticulture sector of the need for alternative treatments to insecticides due to consumer concerns about chemical residues and the potential occupational health and safety issues associated with the use of chemicals in the supply chain.” (From the Application to Exec Summary pg 3)

Irradiation is not an “alternative” that would allay consumers who are concerned about health, ethical or environmental impacts of food processing – nor is it free from occupational health and safety issues – as it is a nuclear industry. In fact, despite the recent industry push, supported by FSANZ, to promote irradiation as an ‘alternative’ to certain pesticides, irradiation remains little known and unpopular with the public.

“The most recent study done in Australia involving customers perceptions of food irradiation was commissioned by AUSVEG and carried out in 2012 (TKP Market Research Consultants, AUSVEG Study #4158, March 2012 (TKP 2012)). This survey came about due to the phasing out of dimethoate and fenthion, the two chemicals used on produce to control Qff and the need to gauge consumer perceptions of alternate methods including irradiation; chemical dips, cold disinfestation and fumigation were the other alternative methods. As discussed earlier in this document, dimethoate and fenthion are not used on raspberry and blueberry for phytosanitary purposes and irradiation is the only alternative treatment to the presently-used methyl bromide for raspberry and blueberry.

The study found that there was generally low awareness of the problem of fruit fly and of the methods of control. The use of chemicals was seen as a fact of life but, given the choice,

consumers would minimise chemical use. Education was found to create discomfort; when consumers were provided information about treatment methods and then asked to consider these treatments they had to consider something they don't usually think about. A little exposure to names and method can create suspicion and when people claimed they will not purchase fruit or vegetables treated in a particular way it is likely to be overstated. Targeted information was recommended and the use of scientific name and terminology may be alarming.

In this study the overwhelming response to irradiation was a lack of understanding and attitudes to it were mixed from positive to negative to "not sure what to think". The lack of need to use chemicals and lack of residues was seen as a positive however the perception that vitamins and nutrients would be depleted and the perceived possible ingestion of toxic substances were major concerns. For some subjects the elimination or eradication of microorganisms and bacteria was an advantage with the benefit that the produce would have a longer shelf life. Overall cold disinfestation (at 63% preferred) was the most strongly preferred phytosanitary method with irradiation (11% preferred) being preferred at a similar rate to chemical dips and sprays (10%) fumigation (6%) or no treatment (10%). . It should be noted that they found that the use of methyl bromide was seen as unacceptable due to its ozone depleting activity. A systems approach was seen as "good practice" but time consuming and expensive. The fact that food irradiation has been used overseas for many years was generally seen as having a positive effect as it demonstrated a track-record of safe use. The name "irradiation" caused concern but no more than the chemical options. The requirement to label irradiated foods causes suspicion especially as it is the only treatment method the consumer is made aware of. The study recommended the need for a public education program about food irradiation to inform the public of the issues and increase the acceptance rate of this phytosanitary method."

(Application to amend the Food Standards Code, Standard 1.5.3 pg 129-130)

Rather than insisting that Australian reticence to consume irradiated products is a problem that needs to be overcome, Australia needs to harmonise non-toxic or less toxic trade practices.

Australia has approved irradiation as an interstate trade protocol and accepts Methyl bromide. The applicant's rationale, identified in FSANZ's executive summary "that the lack of harmonisation of a "systems approach" leaves. Clearly, harmonising a "systems approach" would be the rational trajectory of this argument. While advocating a systems approach, we also note that ISPM have recommendations – that do not require irradiation - on reducing use of Methyl bromide in food production.

"Reducing Volumes of Methyl Bromide Use as a Phytosanitary Measure

The reduction of methyl bromide emissions can be achieved through the use of reduced dosages of methyl bromide as a phytosanitary measure or decreased treatment frequency. In addition, existing methyl bromide use should be analysed carefully to determine if the treatment is appropriate and necessary.

The following approaches may, where appropriate, be pursued to reduce the use of methyl bromide as a phytosanitary measure:

- inspection-based fumigation instead of mandatory fumigation (i.e. to detect and identify the quarantine pest of concern)

- avoidance of unjustified re-fumigation with methyl bromide (i.e. re-fumigation should be used only when a quarantine pest situation is evident)
- improvement of treatment facilities as appropriate to maximize efficiency of fumigation, thus reducing replenishment or re-fumigation requirements
- increasing exposure time with a view to reducing dosage, where technically feasible
- compliance with phytosanitary requirements for exporting commodities
- avoidance of application in situations where efficacy is doubtful or marginal
- re assessment of doses and exposure times in order to reduce them
- use of optimal temperatures when fumigating
- use of appropriately sized treatment facilities
- evaluation of pest risk and treatment efficacy (through a pest risk analysis) to determine if a more appropriate dose or alternative treatment is possible.

3. Physically Reducing Methyl Bromide Emissions

Contracting parties should aim to minimize or eliminate the release of methyl bromide to the atmosphere by physical means. This may be achieved by upgrading facilities as appropriate to increase efficiency of methyl bromide application to improve:

- methyl bromide emissions control, e.g. by recapture, and/or reuse or destruction, through the use of leak-proof chambers and containment/capture bubbles, etc.
- fumigation performance, e.g. by use of bioassay controls where appropriate in lieu of concentration ? time products, use of higher temperatures during fumigation through supplemental heat when necessary combined with air circulation, pressure testing etc., reduction of leakage
- gas circulation, e.g. by use of a carrier gas such as CO₂
- gas and temperature monitoring including proper calibration of equipment.

“The following are examples of phytosanitary measures that may be implemented independently or in conjunction with other phytosanitary measures to replace methyl bromide as a phytosanitary treatment when equivalent...:

CPM Recommendation ICPM-5/1 APPENDIX 1 **EXAMPLES OF potential PHYTOSANITARY TREATMENTS TO REPLACE OR REDUCE METHYL BROMIDE**

List of articles fumigated	Examples of potential phytosanitary treatments to consider to replace or reduce methyl bromide
Commodities	
Bulbs, corms, tubers and rhizomes (intended for planting)	Hot water, pre-plant quarantine soil sterilization (steam or chemical), pesticide dip, or a combination of these treatments
Cut flowers and branches (including foliage)	Controlled atmosphere (CO ₂ , N ₂) + combination treatment, hot water, irradiation, phosphine, phosphine/carbon dioxide mixture, pyrethroids + carbon dioxide, ethyl formate + carbon dioxide
Fresh fruit and vegetables	Cold treatment, high-temperature forced air, hot water, irradiation, quick freeze, vapour heat treatment, chemical dip, phosphine, combination of treatments
Grain, cereals and oil seeds for consumption including rice (not intended for planting)	Heat treatment, irradiation, ethyl formate, carbonyl sulphide, phosphine, phosphine + carbon dioxide, controlled atmosphere (CO ₂ , N ₂)

List of articles fumigated	Examples of potential phytosanitary treatments to consider to replace or reduce methyl bromide
Dried foodstuffs (including herbs, dried fruit, coffee, cocoa)	Heat treatment, carbon dioxide under high pressure, irradiation, ethyl formate, ethylene oxide, phosphine, phosphine + carbon dioxide, controlled atmosphere (CO ₂ , N ₂), sulfuryl fluoride, propylene oxide
Nursery stock (plants intended for planting other than seed), and associated soil and other growing media	Hot water, soil sterilization (steam or chemical e.g. methyl isothiocyanate (MITC) fumigants), pesticides dip, phosphine, combination of any of these treatments
Seeds (intended for planting)	Hot water, pesticide dip or dusting, phosphine, combination treatments
Wood packaging materials ^[2]	Heat treatment (contained in Annex 1 of ISPM No. 15). Further alternative treatments may be added in the future.
Wood (including round wood, sawn wood, wood chips)	Heat treatment, kiln-drying, removal of bark, microwave, irradiation, MITC/sulfuryl fluoride mixture, methyl iodide, chemical impregnation or immersion, phosphine, sulfuryl fluoride
Whole logs (with or without bark)	Heat treatment, irradiation, removal of bark, phosphine, sulfuryl fluoride
Hay, straw, thatch grass, dried animal fodder (other than grains and cereals listed above)	Heat treatment, irradiation, high pressure + phosphine, phosphine, sulfuryl fluoride
Cotton and other fibre crops and products	Heat treatment, compression, irradiation, phosphine, sulfuryl fluoride
Tree nuts (almonds, walnuts, hazelnuts etc.)	Carbon dioxide under high pressure, controlled atmosphere (CO ₂ , N ₂), heat treatment, irradiation, ethylene oxide, ethyl formate, phosphine, phosphine + carbon dioxide, propylene oxide, sulfuryl fluoride
Structures and equipment	
Buildings with quarantine pests (including elevators, dwellings, factories, storage facilities)	Controlled atmosphere (CO ₂ , N ₂), heat treatment, pesticide spray or fogging, phosphine, sulfuryl fluoride
Equipment (including used agricultural machinery and vehicles), empty shipping containers and reused packaging	Controlled atmosphere (CO ₂ , N ₂), heat treatment, steam, hot water, pesticide spray or fogging, phosphine, sulfuryl fluoride
Other items	
Personal effects, furniture, crafts, artefacts, hides, fur and skins	Controlled atmosphere (CO ₂ , N ₂), heat treatment, irradiation, ethylene oxide, pesticide spray or fogging, phosphine, sulfuryl fluoride

(Recommendation CPM-3/2008 – Replacement or reduction of the use of methyl bromide as a phytosanitary measure. <https://www.ippc.int/core-activities/governance/cpmrecommendations/replacement-or-reduction-of-the-use-of-methyl-bromide-as-a-phytosanitarymeasure>)

We recommend that the industry concern to lessen Methyl bromide's environmental impacts consider these processes and transition towards whole of systems approaches as also described by international plant protection protocols. Australia should be aiming to harmonise a whole of systems approach that is less reliant on chemicals and post-harvest techno-fixes.

The Fruit Fly Systems Approach described below and recommended under ISPM and can target multiple fruit fly species.

Systems approach for pest risk management of fruit flies (Tephritidae)

International Standards For phytosanitary Measures Ispm 35 2012: Systems approach for pest risk management of fruit flies (Tephritidae) Produced by the Secretariat of the International Plant Protection Convention

Adopted 2012; published 2016. These recommendations for integrated pest control systems do not mention irradiation.

“In practice, FF As may be applied to one or more hosts or target fruit fly species in the same fruit production area....

... “Measures applied at the different stages to prevent fruit fly infestation may include:

Pre-planting

- selecting planting sites with low pest incidence of target fruit fly species (e.g. areas of low pest prevalence, areas unsuitable because of geographic location, altitude, climate)
- selection of less susceptible fruit species or varieties
- sanitation
- managing hosts other than the crop
- intercropping with non-fruit fly host plants
- growing host fruit during specific periods when the pest incidence of target fruit fly species is low or temporally absent.

Growing period

- flowering control and timing fruit production
- chemical control such as insecticide bait treatments, bait stations, male annihilation technique, and biological control such as natural enemies
- physical protection mechanisms (e.g. bagging fruit, fruit fly protected structures)
- sterile insect technique
- mass trapping
- management of non-commercial hosts within the production area (e.g. elimination or replacement of other host plants by non-host plants where appropriate)
- monitoring and survey of the target fruit fly species e.g. using traps or fruit sampling
- sanitation (i.e. collection, removal and appropriate disposal of fallen fruit from the orchard or
- removal of mature fruit from the tree)
- fruit stripping.

Harvest

- harvest at a specific stage of fruit development or time of the year
- safeguarding activities to prevent infestation at harvest
- surveillance including fruit cutting
- sanitation (e.g. safe removal and disposal of fallen fruit).

Post-harvest and handling

- safeguarding activities to prevent infestation, for example chilling fruit, refrigerated transport, processing in screen
- protected packing rooms, warehouses and transit conveyances, using cold storage, wrapping of fruit
- monitoring for target fruit fly species absence by trapping in and around packing houses
- sanitation (e.g. removal of fruit with signs of infestation (culling) in packing houses)
- sampling, inspection (e.g. by fruit cutting) or testing
- treatments that are not considered sufficiently efficacious as a single measure
- packing requirements (e.g. using insect-proof packages)
- ensuring traceability of lots.

Transportation and distribution

- safeguarding activities to prevent target fruit fly species infestation
- treatments that are not considered sufficiently efficacious as a single measure (prior to, during
- or after transport)
- distribution limited geographically or seasonally to areas where or periods when target fruit fly species cannot establish or where suitable hosts are not present

Measures applied to several or all stages

- community awareness programmes to generate support from the public
- movement control of host fruit and other pathways into the area (e.g. requirements for production sites or islands)."

(International Standards For Phytosanitary Measures Ispm 35 2012: Systems approach for pest risk management of fruit flies (Tephritidae) Produced by the Secretariat of the International Plant Protection Convention Adopted 2012; published 2016, p 6-7)

Furthermore, IPPC has also set international standards providing guidance for establishing areas of low pest prevalence which identifies the target pests of the order Diptera, family Tephritidae, of the genera...Bactrocera, Ceratitis"... which are the target pests for this application – amongst others. (International Standards For Phytosanitary Measures ISPM 30 Establishment of areas of low pest prevalence for fruit flies (Tephritidae) Produced by the Secretariat of the International Plant Protection Convention Adopted 2008; published 2016 p 5). There are also protocols in place for the development of pest free zones and non-irradiation treatments for fruit fly.

FSANZ must not deceive the public by asserting that there are no options for industry other than irradiation. There are numerous methods for reducing Methyl bromide use that do not require irradiation. The applicant has not proven a technological need to irradiate blueberries and raspberries. FSANZ must reject A1115.

Many of our concerns have been addressed in previous responses to food irradiation applications. As FSANZ has relied heavily on its assessment of A1092 the irradiation of 12 specific fruits, we include our response to A1092 as Annex 1 below.

As mandatory labelling of irradiated food is currently not guaranteed, as it is under review, we attach our submission to the Review of Labelling as Annex 2 below.

Here we briefly address a few points already highlighted in our prior submissions (attached as per above) and their manifestations in this application process.

We are gravely concerned about FSANZ's role as "promoter" and adjudicator on this technology. This is expressed through statements about the process that are indefensible as well as duplicitous. "No food technology has ever been as extensively studied with respect to food safety as food irradiation." (A115 Executive Summary pg 3) The public expects a certain modicum of neutrality when presented with material to which it is invited to respond. FSANZ's review of A115 frequently dismisses research indicating the diminishing of vitamin or nutrient content in food or suggesting that they are on par with other food processing techniques – despite the fact that, if approved, these foods will be irradiated and then subjected storage, cold treatment, cooking and other processing.

The Australian Department of Agriculture is more frank in its admission that irradiation can have undesirable impact on food quality.

"It is now well established that irradiation does affect certain vitamins and other nutrients and does produce peroxides and other radiolytic by-products, some of which may be toxic and/or carcinogenic, and that these effects are dose related."

"The available scientific evidence supports the use of irradiation as a biosecurity treatment for pet food only in exceptional circumstances. It is not supported for those products likely to be consumed as a significant proportion of an animal's diet (e.g. kibble)." –

<http://www.agriculture.gov.au/.../questions-and-answers>

While FSANZ frequently refers to the safety of food irradiated up to 1kGy, the fact is that herbs and spices are already approved for 2kGy- 30kGy of exposure. While FSANZ attempts to distance the problems with irradiation of cat food from issues with food citing unproven species specificity and the higher radiation dose used on pet food, promotion of irradiation as a decontamination treatment would likely see the prescribed radiation level to be higher than 1kGy – as seen by this use for herbs and spices. The potential for higher levels of radiation exposure must be considered as part of the bigger picture when regulating food irradiation.

FSANZ's documents exaggerate the acceptance and "need" for the use of irradiation. While numerous countries have approvals for the use of irradiation, the process is neither widespread nor widely accepted by consumers.

For example, the Summary included in FSANZ's call for submissions grossly exaggerates the amount of food approved for irradiation in Canada, listing:

"Onions, Potatoes, Wheat, flour, whole wheat flour, Whole or ground spices and dehydrated seasonings, Fresh Beef to control microbial decontamination, Frozen ground beef to control microbial decontamination, Poultry to control microbial decontamination, Shrimp and Prawns to control microbial decontamination, Mangoes (Disinfestation)" with a footnote stating "2 In Canada, permission to irradiate beef, poultry, shrimp, prawns and mangoes are still in the process of Final Approval." (FSANZ Call for submissions – Application A1115 Irradiation of Blueberries & Raspberries Exec summary 29 June 2016 pg P 5)

Health Canada is currently conducting public consultation on the irradiation of beef for microbial decontamination. To describe that as "in the process of Final Approval" is simply untrue. The

Canadian government did not approve the irradiation of mangoes, poultry, shrimp and prawns and these are currently not under consideration.

“After the public consultation in 2002, Health Canada’s proposal to permit the sale of irradiated mangoes, poultry, shrimp and prawns and ground beef did not advance to Canada Gazette, Part II and therefore the foods that were included in the proposal were not approved for irradiation. Recently, however, Health Canada received a request to reconsider the previous submission to irradiate fresh and frozen raw ground beef with a few minor modifications to the proposed irradiation conditions.” www.hc-sc.gc.ca/fn-an/security/irridation/faq_food_irradiation_aliment-eng.php

As cited above and attached in Annex 1 and 2, while there are irradiation approvals in numerous countries, it is not widely used. There is generally little consumer acceptance of irradiated food. FSANZ must not misrepresent the global situation as a way to appease local consumers concerns.

Our concerns are further elaborated in the Annexes below.

Conclusion

Irradiation is a tool of global agribusiness to facilitate the trade in food. While promoted as an “alternative to pesticides” or to “protect” local markets from pests – ie fruit fly - It is antithetical to supporting local markets as it opens the door for imports that can produce produce much more cheaply, it can impact on the reputation of local produce - ie clean, green Aussie food and it extends the shelf life of already vitamin and nutritionally depleted food, it is a nuclear industry - and it is part of a system that diminishes the control local food producers have over local food markets.

At best, scientific opinion around irradiation remains divided about the safety and quality of irradiated food. Irradiation is acknowledged to change the structure of food; the radiation is ionising radiation -which by its nature changes molecular structures. It is widely acknowledged. Indeed, the test for irradiation is the presence of radiolytic products and free radicals.

Numerous scientific studies have shown potential health risks associated with irradiating food. In fact, in 2008 -2009 up to one hundred Australian cats developed neurological disorders linked to the consumption of irradiated cat food. The risk to humans has not been ruled out.

Irradiation is not necessary for quarantine purposes of pest management as both radiation-free and chemical-free options exist.

Once exposed to high levels of ionising radiation, these fruits prized for their natural goodness can no longer be considered “fresh” – they will appear fresh, but in fact be “processed.

We are not confident that consumers will be able to distinguish between irradiated and non-irradiated food as labelling requirements are under review. There is no assurance in this application that labelling requirements will remain. Irradiated food must be labelled “treated with radiation” or “irradiated –’

Our submission clearly establishes that A115 must be rejected as:

- Public health has not been guaranteed or prioritised as A115 calls for a higher than recommended minimum radiation dose for the treatment of the targeted pests.

- Irradiation is not technologically justified as the current treatment method is not under threat. Blueberries and raspberries are not treated with Dimeothoate and Fenthion. Numerous alternatives exist if the applicant wishes to decrease their use of Methyl Bromide.

We look forward to your response re our submission.

Thank you,
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Annexes are below.

Submission

Comments re: Application A1092:

Irradiation of specific fruits: apples, apricots, cherries, nectarines, peaches, plums, honeydew, rockmelon, strawberries, table grapes, zucchini and squash

prepared by

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**Supported by
Gene Ethics
Friends of the Earth
MADGE
GM-Free Australia Alliance**

Executive Summary

We recommend that FSANZ reject proposal A1092 on the following grounds:

- Irradiation of apples, apricots, cherries, nectarines, peaches, plums, honeydew, rockmelon, strawberries, table grapes, zucchini and squash would adversely affect the nutritional value and safety of significant components of the Australian and New Zealand food supplies.
- Combined with fruits and vegetables already approved for irradiation, this proposal would constitute a major reduction in the nutritional value and safety of the human food supply in both countries, yet A1092 is being assessed in isolation from its total dietary context.
- Irradiated pet food was responsible for the death and injury of a significant number of cats in Australia, leading to its ban. Until the mechanisms of these adverse health impacts are fully explored and understood, and negative impacts on humans and other species are absolutely ruled out, no irradiated foods should be allowed to enter the human food supply.
- The Queensland government has a clear conflict of interest by being both the applicant for A1092 and, as a member of the Legislative and Governance Forum on Food Regulation, being one of the final arbiters of the decision on its own application.
- The nutritional and safety assessment process lacks scientific rigour, relying heavily on unpublished – non-peer-reviewed research submitted by the applicant.
- The Legislative and Governance Forum on Food Regulation (the Forum) has been derelict in its duty to canvass all potential management, chemical and technical replacement options to follow the final phase-out of fruit fly insecticides. These chemicals have been under APVMA review since the mid-1990s because of their known toxicity to humans. A thorough process to review all fruit fly control options should precede any further approvals to irradiate fresh fruits and vegetables.
- FSANZ also ignores the numerous alternatives to irradiation that exist for achieving the stated phytosanitary goals of A1092.
- The Forum and FSANZ have been derelict in their duty to protect the public health and safety, by failing to facilitate the much earlier and more timely phase out of highly toxic dimethoate and fenthion in which fresh fruits and vegetables were dipped to control fruit fly larvae.
- In its cost/benefit statement, FSANZ inflates the claimed benefits of approving A1092 while diminishing the impacts of the known hazards, risks and costs of irradiating apples, apricots, cherries, nectarines, peaches, plums, honeydew, rockmelon, strawberries, table grapes, zucchini and squash - impacts that the whole community will bear.
- Labelling requirements are weak and there is no way to visually distinguish between irradiated and non-irradiated foods. Thus shoppers depend on the integrity and comprehensiveness of irradiation labelling.

- As there is no simple, reliable and affordable test for irradiated foods, it is difficult for state and local authorities to monitor them in the marketplace and to enforce the labelling requirements.
- Despite the assessment's claims that the public has the right to know and decide what foods to buy, the future labelling of all irradiated foods is not assured, as the Forum has commissioned FSANZ to review (with the intention of terminating) all labelling requirements on irradiated food products. The "review" is expected to commence this year (2014).
- Despite FSANZ' claim, there is no reliable and contemporary evidence that the Australian and New Zealand public are aware of, or will consent to, the widespread irradiation of the fresh fruit and vegetable supply;
- No other countries (or states) expressly require the irradiation of apples, apricots, cherries, nectarines, peaches, plums, honeydew, rockmelon, strawberries, table grapes, zucchini and squash, so approval of A1092 cannot be claimed to be a mechanism for harmonization of trade regulations.

We call on FSANZ to adopt option 2 and reject A1092 which seeks permission to irradiate apples, apricots, cherries, nectarines, peaches, plums, honeydew, rockmelon, strawberries, table grapes, zucchini and squash. The grounds for our recommendation are:

- ☐ the safety and nutritional integrity of irradiated foods is not established;
- ☐ the application and the assessment are flawed in the ways we discussed above;
- ☐ the technological need for this irradiation has not been established;
- ☐ irradiation is not the only effective option for fruit fly control that exists or is used now;
- ☐ the assessment has no cost/benefit analysis of other phytosanitary measures;
- ☐ FSANZ must ensure a whole systems approach is used that would guarantee - or at least make accessible – other approaches to quarantine solutions;
- ☐ A1092 offers no credible benefits to Australians or New Zealanders;
- ☐ if A1092 were approved, the Australian and New Zealand public would be unfairly and unnecessarily exposed to further risks, costs and hazards;
- ☐ exporting apples, apricots, cherries, nectarines, peaches, plums, honeydew, rockmelon, strawberries, table grapes, zucchini and squash may expose local growers to greater competition from imported produce, further reducing or wiping out local production;

- ☐ if further fresh foods were approved, only full, honest irradiated food labelling would support public confidence in the wholesomeness of Australian foods and the integrity of the food industry itself.

As a matter of urgency, and in the public interest, we call on FSANZ to:

- ☐ **Decline approval for the irradiation of apples, apricots, cherries, nectarines, peaches, plums, honeydew, rockmelon, strawberries, table grapes, zucchini and squash**
- ☐ **Refuse any further irradiation approvals *and to***
- ☐ **Cancel all previous irradiation approvals.**

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2. Introduction

FSANZ's Food Regulation Review Process has a clear, legislated mandate to protect public health and safety. This mandate is also reflected in the UN *Codex Alimentarius*, where protection of public health and safety is paramount, and issues of free trade and food promotion are also secondary.

FSANZ consideration and approval of Application A1038 to allow the irradiation of persimmons and A1069 for the irradiation of tomatoes and capsicums revealed serious shortcomings in the process of safety assurance. The major areas of our concern we raised in our submissions related to the lack of objective standards for safety and risk assessment, the processes used to determine these, and the quality of dietary modelling used to predict likely consumption patterns. Our legitimate concerns and representations were ignored.

Similar flaws are apparent in FSANZ's assessment of Application A1092, which combined with irradiated tomatoes and capsicums represents quantum leap in risk to public health because of the much large per capita intake of the proposed fruits by the Australian and New Zealand public.

We therefore recommend that Application A1092 be **rejected** on the basis that:

1. Public health and safety has not been adequately demonstrated by the scientific data available and therefore **cannot** be guaranteed
2. The technical data that the nuclear industry and the Queensland Government submitted are an inadequate basis for a robust assessment
3. Claims for commercial and economic benefits from approving A1092 are **erroneous** and **unsubstantiated**
4. Claims for consumer acceptance of irradiated foods are **biased** and **unsubstantiated**.

We also recommend that the appropriate, precautionary public health response to official advocacy for irradiation technology and its sterilized products is to:

- ☐ Initiate a **moratorium** on the irradiation of all foods in Australia and New Zealand, and the importation of irradiated food products, until independent and competent experts have fully explored the aetiology of the toxic effects observed in cats that ate irradiated animal feed
- ☐ Maintain this **moratorium** until the demonstrated increase in allergenicity associated with irradiation has been specifically and experimentally discounted in apples, apricots, cherries, nectarines, peaches, plums, honeydew, rockmelon, strawberries, table grapes, zucchini and squash and other food approved for irradiation

- **Overhaul** FSANZ assessment protocols used to evaluate the safety of irradiated foods, to incorporate these new understandings of potential toxicity in mammalian species (Specifically, leukoencephalomyelopathy and allergenicity)
- Place the onus for addressing these **safety concerns** on the applicant government, and the nuclear and horticultural industries which utilize food irradiation.

Though labelling is not the subject of Application A1092 per se, the promise of labelling is used to suggest that shoppers will have their right to know met and will have the option of avoiding irradiated food if they so choose. The assessment fails, however to inform the public, that the requirement for mandatory labelling for irradiated food is soon to be reviewed – with the clear bias towards its removal.

In correspondence to Senator Nick Xenophon, Health Minister Fiona Nash has stated that the purpose of the review of mandatory labelling is to *“assess whether there are better ways to communicate the safety and benefits of irradiated food to consumers.”*

In correspondence with Food Irradiation Watch, Victorian Minister for Agriculture and Food Safety Peter Walsh stated

“The review [of mandatory labelling requirements] has been requested to assess whether this is a more effective approach to communicate the safety and benefits of irradiation to consumers. The FoFR noted that improving consumer confidence in irradiation will reduce disincentives for increased uptake and broader application of the technology by industry.” (Dec 18, 2013)

A plan to increase “uptake” is not an acceptable rationale for the removal labelling in a democracy – particularly one in which the market is meant to be based on informed consent of consumers. Irradiation labelling, in fact, needs to be more stringent and more tightly monitored and controlled. The current labelling regime is inadequate as it leaves a majority of irradiated foods either unlabelled or deceptively labelled. For instance, irradiated apples, apricots, cherries, nectarines, peaches, plums, honeydew, rockmelon, strawberries, table grapes, zucchini and squash will not require individual labelling.

We call on policy-makers to amend Food Standard 1.5.3 to require irradiated is all labelled as such and that non-packaged irradiated foods such as fruit and vegetables are individually labelled. Labelling must include the words **“irradiated”** or **“treated with radiation”** or **“treated with irradiation”**.

Our call for strict labelling is made in the public interest, to satisfy everyone’s right to know that foods were made or processed using technologies specified in Food Standard 1.5. This does not signify our support for food irradiation.

The scientific evidence on irradiated foods is, at best, divided and unresolved in its conclusions on their safety. New research and real-life experience in Australia suggests that irradiation can have serious health impacts, at the very least on domestic animals. The precautionary principle should, therefore, be rigorously applied. No monitoring or long-term studies have been

conducted on the human consumption of irradiated foods yet a clear health impact has been demonstrated in cats in Australia.

The onus is on the irradiation industry to prove food irradiation safe. This Queensland Government application and FSANZ assessment fail this test.

3. Overview of Concerns

On August 28, 2014, Food Standards Australia New Zealand (FSANZ) announced a six week public consultation for Application A1092, an application made by the Queensland government for approval to irradiate apples, apricots, cherries, nectarines, peaches, plums, honeydew, rockmelon, strawberries, table grapes, zucchini and squash.

Herbs, spices, herbal infusions and nine tropical fruits, persimmons, tomatoes and capsicums had been approved for irradiation in Australia and New Zealand. Pet foods, medicinal goods, and seeds and grains for animal consumption may also be irradiated. These are not classified as “food” under Australian law as they fall under different regulations and require no labelling.

We oppose the irradiation of apples, apricots, cherries, honeydew melons, nectarines, peaches, plums, rockmelons, strawberries, table grapes, zucchinis and scallopinis (summer squashes).

- We have unresolved concerns about the wholesomeness of irradiated food as well as the environmental and social impacts of irradiating our food, especially our fresh fruit and vegetable supply.
- We are alarmed at apparent regulatory bias expressed through the lack of scientific rigour applied to FSANZ's assessment of irradiated food.
- We do not believe that the applicant has proven there is a technical need for the approval of irradiation of these fruits.
- We question the benefit of irradiation as a market access tool for producers and we believe that any perceived benefits for consumers are outweighed by the costs.
- We have further concerns that despite constant re-iteration throughout FSANZ draft approval that irradiated food is labelled, FSANZ' document fails to mention that it will conduct a “review” of mandatory irradiation labelling this year – with the Ministerial Forum's explicit intention of removing the mandatory labelling requirements.

While acknowledging in its assessments and fact sheets that irradiation may deplete vitamin and nutritional content, FSANZ has so far justified irradiation approvals on the basis that the approved foods made up a minimal part of the Australian and New Zealand diet.

But that will dramatically change if irradiated apples, apricots, cherries, nectarines, peaches, plums, honeydew, rockmelon, strawberries, table grapes, zucchini and squash are approved as these foods along with tomatoes and capsicums are regularly consumed as a core part of the diet by many members of the Australian and New Zealand public.

At best, scientific opinion around the safety of food irradiation remains divided. There is little data to support any claim that irradiation has been proven safe as no long term studies of the human consumption of irradiated foods have been conducted. FSANZ concedes that irradiation induces both vitamin and nutritional depletion, and changes to chemical make up in treated foods. These invisible impacts occur on top of any changes/depletion due to storage, cooking, and processing of these foods.

Despite FSANZ's support and proponents' claims, irradiation has not been proven safe, as no long-term studies of consumption of an irradiated diet have been conducted. Indeed, SD1 states clearly "consumption data are not available." (SD1 page3)

"The USA is the second greatest user of food irradiation by volume after China. No consumption data are available, but the amounts sold into the retail trade are known approximately. As the foods have been retailed for several years in a few thousand retail outlets (Eustace & Bruhn 2006), it may be presumed that retailers are actually selling most of the product." (SD1 page3)

Safety cannot be "presumed." With "no consumption data available" a scientific statement as to the safe consumption is –let alone the safe consumption for 30 years – is unprovable – and unacceptable.

The whole approach to scientific substantiation in this proposal is concerning, especially with regard to its over-generalisation of the very meagre 'safety' studies to date and the consequent misrepresentation of the potential impact of this expansion of irradiated foods on nutrition and public health. Some of our concerns elaborated further below are:

- The paucity of published accounts of the effects of irradiation on the integrity of folate. The proposal states that only impacts on vitamin C and beta-carotene are relevant. The applicant should provide DIRECT, PUBLISHED and PEER-REVIEWED evidence that folate integrity is maintained.
- The failure to address the food component category collectively known as flavonoids. These various compounds are found almost exclusively in vegetables and fruits and have been linked to risk reduction/prevention of a range of cancers and coronary heart disease. This application provides NO evidence that flavonoids are not modified when exposed to irradiation.
- The failure to address new research indicating that irradiation has the potential to modify the tertiary structure of proteins, representing the risk of generating allergenic epitopes. FSANZ and the applicant have still not adequately addressed this concern in either the application or the various responses.
- FSANZ has not adequately dealt with the misinterpretation of the results of dietary intake studies.

Finally, and of most concern, is the process by which the application and all the issues it raises are being considered. The applicant is the Queensland Government, which also participates as a member of the Forum in the health and safety assessment of the application. This clear conflict of interest casts substantial doubt on the Forum's and FSANZ capacity to protect the public health of all Australians and New Zealanders. This uncertainty undermines consumer confidence.

Between 2008 and 2009, approximately 100 Australian cats developed neurological disorders which led to their paralysis and, in some cases, death. The cause was identified as the

consumption of irradiated cat food imported from Canada. As a result, irradiated cat food is now banned in Australia.

These cases of harm to animals are clear evidence that irradiation may also have negative health impacts on humans. The European Food Safety Authority has stated that an impact on humans cannot be ruled out. As no robust scientific evidence has ruled out this possibility all irradiated foods should be excluded from the human food supply immediately.

FSANZ has suggested that the impact of irradiated food on cats was species-specific, however FSANZ now acknowledges that the US Food and Drug Administration (FDA) is also investigating the possibility that consumption of irradiated food led to the serious consequences for dogs. Species-specificity is an assumption made by FSANZ– not a scientific fact. Research indicating potential neurological impacts on cats, was produced prior to the irradiation of cat food for the Australian market. Despite known risks, regulators allowed irradiation to take place, recommending irradiation as a quarantine measure. It was irresponsible for the regulators to promote irradiation in light of the known risks – a similar situation involving other animals, including humans, cannot be ruled out.

Exposing food to ionizing radiation disrupts its molecular make-up, producing free-radicals and potentially other toxic chemicals such as benzene and formaldehyde.

Ionising radiation also creates new chemicals called “radiolytic products”, some of which do not usually occur naturally in food. The impacts of these have not been adequately studied. One, 2-ACBs, has recently been found “to promote the cancer-development process in rats, cause genetic damage in rats and cause genetic and cellular damage in human and rat cells.”

“Irradiation destroys and disrupts vitamins, proteins, essential fatty acids and other nutrients in food – sometimes significantly. It can destroy up to 80 percent of vitamin A in eggs and 48 percent of beta-carotene in orange juice.”

Irradiation produces free radicals in food and has been linked to health problems such as nutritional deficiencies, immune system disorders, and genetic damage.

Another concern is the risk of irradiation being used to mask poor production practices and breach of standards. Irradiation can kill most bacteria in food, but it does not remove the faeces, urine, pus and vomit that often contaminate meat or the pests, faeces, or other matter that may contaminate herbs, spices, or fruit and vegetables. Re-irradiation is also permitted under revised Standard 1.5.3 to deal with post-irradiation contamination and is inadequately monitored.

Application A1092 suggests that irradiation is necessary to kill fruit fly larvae, in particular Queensland fruit fly, to enable increased trade of apples, apricots, cherries, nectarines, peaches, plums, honeydew, rockmelon, strawberries, table grapes, zucchini and squash grown in areas that are potentially fruit fly infested.

This use of irradiation as a “phytosanitary” measure enables corporations to transport and trade food at the expense of the public health, a cost that we all bear. This is important to note in A1092 as several of the proposed fruits are not grown – or not grown in significant quantities –

in Queensland. It can be presumed, therefore, that this Application is to facilitate the importation of irradiated produce from overseas or interstate.

Globally, approval of irradiation for phytosanitary purposes is the exception –not the norm. Irradiation is not a substitute for a holistic fruit fly management plan and promotion of irradiation as an “alternative” to chemical use is disingenuous. Irradiation is a post-harvest “treatment” that it will be used on top conjunction with other chemicals/pesticides in “conventional” agricultural mass production.

Providing shoppers with nutritionally depleted and potentially harmful foods to protect and expand interstate or overseas trade is unacceptable.

Aware that members of the public see irradiation as a “high risk, low benefit” technology, FSANZ repeatedly seeks to legitimise the process by stating that a technological “purpose” for irradiating food has been established. In fact, a technological “need” for irradiating food does not exist. The many other alternatives for fruit fly treatment must be thoroughly explored before resorting to irradiation but this process has not been undertaken.

3. Flawed Assessment and Regulatory Bias

Australians and New Zealanders expect our food regulator to be scrupulous, stringent and non-biased in its assessment of new foods under Standard 1.5. Research shows that the public have faith in the government to look after public interest. FSANZ is also expected to adhere to internationally recognised standards of peer-review for the science it relies upon when making decisions and present relevant science with honesty and integrity.

But in this case FSANZ has let the public down by basing its assessment on evidence tainted with a pro-irradiation bias- relying on research conducted by the applicant for its main assessment of nutritional impacts of irradiation, and concluding that based on previous information presented by the applicant no further dietary assessment should be required.

Earlier this year, FSANZ published a report “Nutritional impact of phytosanitary irradiation of fruits and vegetables (February 2014). This report is primarily a literature review which draws heavily for current validation on unpublished research conducted by the proponent of this application.

FSANZ bases much of its assessment of this Application on the findings of the above report, non-independent – non-peer-reviewed investigations and its previous assessment of Application A1069 for the irradiation of tomatoes and capsicums. That assessment was also based on unpublished research that the applicant submitted. The standards set for scientific rigour are well below what the scientific community would expect from our regulator: at least peer-reviewed by independent experts.

FSANZ is mandated to ensure that new food processing and treatment systems and processes are safe. So we expect FSANZ to reject this application until the scientific basis for the applicant’s claims has survived the rigours of academic and scientific peer scrutiny.

Detailed Comments re Safety, Dietary Modelling and Consumer Preference

The public is asked to assume the risks of irradiation for the benefit of a few minor operators who want to trade freely in fruits and vegetables. This application places the health and safety of millions of citizens below the interests of the Queensland Government and its backers, even though they have many other options for managing fruit fly.

For instance, while treatments may vary according to desired outcome, some of the alternatives currently in use include:

- Cold storage
- Cold treatment
- Heat/steam, vapour treatment
- Hot water dips
- Atmospheric control with oxygen, carbon dioxide or nitrogen
- Physical disinfestation, i.e. cleaning or washing
- Hygienic and safe production management practices
- Pest exclusion zones
- Early harvesting
- Organic production and handling methodologies

5a. Dietary Modelling

FSANZ's approval of earlier applications (herbs, spices, tropical fruits, persimmons) were justified partly on the basis of the relatively low intake per capita of these foods. But the present application and the recent approval of tomatoes and capsicums represents a quantum leap in the risk to Australian and New Zealand public health, given the very high levels of intake of these foods. Dietary modelling indicates that the inclusion these 12 fruits in the already excessive list of allowable foods is a substantial increase in what amounts to an experiment on the effects of intake of irradiated food on a national population.

5b. Safety Assessment

We are highly concerned that the issues we raised about FSANZ's general approach to safety assessment and dietary modelling in previous assessments (A1038 – Persimmons and A1069 – Tomatoes and Capsicums) have been either ignored or trivialised in this latest assessment.

The FSANZ position of “no toxicological hazards” is incorrect, since it makes no reference to new evidence of an allergenic effect from low doses of irradiation. This allergenicity is due to the protein, rather than lipid, content of the food, which undermines FSANZ's contention that the low lipid content of fruits makes toxicity unlikely.

For example, there is a paucity of published accounts of the effects of irradiation on the integrity of folate. The proposal states that only the integrity of vitamin C and beta-carotene are relevant. Scurvy and vitamin A xerophthalmia are extremely rare in Australia, so the sole focus on vitamins C and A are spurious. Folate is relevant to nutrition in Australia, as inadequate folate intake has prevalent consequences such as neural tube defect, despite the fortification of the bread supply with folate.

For example, zucchini contains 17 micrograms per hundred grams of folate. The EAR for young women is 320 micrograms per day. Despite widespread fortification of cereal products, the preferred sources of folate are vegetables and fruits. Any potential deterioration of folate in these foods would represent a significant public health risk. The applicant should provide DIRECT, PUBLISHED and PEER-REVIEWED evidence that folate integrity is maintained.

Another example is the food component category collectively known as flavonoids. These various compounds are found almost exclusively in vegetables and fruits and have been linked to risk/prevention of a range of cancers and coronary heart disease. Flavonoids are complex organic molecules, and thus potentially radio labile. Apples are a major source of quercetin in the Australian diet. Cherries are one of the few foods that contain peonidin and likewise strawberries are an important source of anthocyanidins. This application provides NO evidence that flavonoids are not modified when exposed to irradiation.

We previously have raised the concern that whilst high irradiation will obliterate food proteins, at the lower dosages proposed, irradiation has the potential to modify the tertiary structure of proteins presenting the risk of generating allergenic epitopes. A recent study has shown that smaller irradiation dosages (~1 Gy) can render protein more allergenic than either non-irradiated protein, or protein irradiated at a higher dosage. It has been speculated that this effect may be due to increased exposure of conformational and linear epitopes resulting from the formation of partially unfolded and aggregated species in response to irradiation. Prevalence of allergies to vegetables and fruits are low, but not insignificant, and most likely due to reactions to glycoprotein food components. FSANZ and the applicant have still not adequately addressed this concern in either the application or the various responses. We also have previously identified serious misinterpretation of dietary intake studies which FSANZ has not adequately addressed.

FSANZ has belatedly acknowledged the feline pathogenic model for toxigenicity related to consumption of irradiated food despite providing no insight into the exact mechanisms involved in this toxic effect. To arrive at the conclusion that these effects are indeed cat-specific, other animal models would need to have been tested. It is incumbent upon FSANZ to present these data to substantiate their conclusions). Until the specific mechanisms of toxicity are elucidated, it is irresponsible to declare these observations “not relevant” to humans. A pertinent analogy is that thalidomide is not teratogenic in rodents, but is devastating for humans *in utero*. On this basis, it is remarkable, and indeed irresponsible, that FSANZ categorically deems this model to be irrelevant to human health.

Contrary to FSANZ’s implications, irradiated food is not “chemical free” since irradiation causes the accumulation of radiolytic compounds, such as alkylcyclobutanones, to levels not seen in untreated food. There are at least five radiolytic biomarkers available to test for irradiated food

(namely *n*-pentadecane, 1-hexadecene, 1,7-hexadecadiene, *n*-heptadecane and 8-heptadecene). The chemical changes to meat in response to irradiation are detectable, repeatable and specific.

Claims that no significant change to fruit occurs due to irradiation are also misleading. Delayed ripening – an acknowledged and sometimes sought-after outcome of irradiation - is indicative of major, biologically significant compositional change. Claims that macronutrient content are unaffected is also incorrect and misleading. Irradiation causes substantial documented changes to both proteins and lipids.

5c. International precedents

FSANZ justifies approving the application - in part “by virtue of consistency with other international regulations on irradiated food”. This is misleading. While some countries have general approvals for fruits and vegetables, the 12 fruits specified in A1092 do not generally require irradiation of for any purpose.

In a search on the IAEA irradiation authorisation database “***Irradiated Food Authorization (IFA) Database (IFA)***” of the proposed 12 fruits, only strawberries came up as specifically listed for irradiation in a few instances. None of the others were listed specifically for any country.

FSANZ also cites the Codex revised standard on irradiated food (2003) in support of their proposed approval. However, this Codex document predates the emergence of well-documented, but little understood, serious toxic effects of the consumption of irradiated food.

5d. Review of consumer attitudes: Consumer rejection of irradiated food.

Both industry and governments know that irradiation is highly unpopular with Australians and New Zealanders and that synthetic chemicals have fallen out of favour too. So many people will find a problem with the unpleasant “choice” this application purports to offer: irradiation or organophosphates.

Appendix B also comments on Australian’s rejection of irradiated foods. Recent surveys, industry reports and even media from irradiation supporters acknowledge consumer opposition or concern about the technology and point to a need for marketing strategies to gain public acceptance if the irradiated food industry is to grow. Unfortunately for the consumer, the industry sees clear and accurate labelling as a threat to, rather than a marketing strategy for, irradiated food.

Research commissioned by irradiation supporters themselves reveals little public awareness about irradiation and consumer hesitation to support it. An overview of some of the issues brought up by recent tomato and capsicum approvals appeared in The Land. It clearly articulates retailer concerns about consumer perception of irradiation- Woolworth’s basically states that identifying products as irradiated will be a death-knell to their purchase. The article reveals market research in to inaccurate or deceptive statements such as “cold sterilisation”

which would make irradiation more palatable to the consumer. Ultimately, “The survey results showed that even when informed, irradiation was not the preferred treatment method among consumers. “Some of the key points follow:

“In the eyes of the public

Perhaps the biggest battle facing the further implementation of fresh produce irradiation is public awareness.

Retailers have expressed concern over public resistance to the very term irradiation” and a consumer backlash against them.

Woolworths declared it is not willing to “go it alone” on the introduction of irradiated produce to the public.

When questioned about the company’s position at the Horticulture Australia Limited (HAL) November 2012 Forum in Sydney, Paul Harker, head of produce, Woolworths said the industry needed a united voice on the subject before it proceeds.

“It’s going to be an extremely emotional product and we are not going to stand alone trying to convince Australian consumers that there is nothing wrong with **irradiation**,” **Mr Harker said.**

“We’ve communicated that back to industry and we said unless there is a concerted campaign that is led not only by the people peddling irradiation as an alternative, but unless the government and everyone else is involved in actually talking to the customer about it, the last thing I am going to do is plonk it on my shelf because I can tell you that fresh produce sales will die. People won’t shop there.” (our emphasis)

An Aldi spokesperson said the supermarket chain had nothing to say about the topic. Fairfax Agricultural Media contacted Coles for comment but received no reply.

Last year, Ausveg commissioned a Klein Partnership research study into consumer attitudes toward irradiated produce.

The research found that just over half (56 per cent) of respondents were aware of methods used to control insect pests on fruit and vegetables.

A total of 81pc of respondents said they were aware that chemical spraying and dipping was used as a treatment method.

Just over a third (33pc) were aware of irradiation.

The survey results showed that even when informed, irradiation was not the preferred treatment method among consumers.

Although grounded in concerns over public health, the act of suspending dimethoate and fenthion increased public suspicion over what chemicals are still being used.

The Klein Partnership research found wariness of the products increased in survey subjects when told the names of the chemicals.

In response to other treatment methods, methyl bromide received some negative reactions when labeled as such, while cold disinfestation was found to be the “least intimidating” method with some saying it sounded similar to refrigeration.

The survey found 88pc of respondents would accept cold disinfestation as a treatment method, while 42pc said they would accept irradiation.

“Interpretively, for irradiation to be successful, it would require significant investment in public education,” the report said.

Murray Lynch, CEO of the sole irradiation business currently in Australia, Steritech, said generally, consumers are not as welcoming of the application new technologies to food production as they are in other areas.

“Consistent with this attitude, consumers can tend to be uncertain and wary of food irradiation when first introduced to the technology,” he said.

“This is usually due to questions about product safety and quality derived from the mistaken association of the technology with radioactivity.

“Nonetheless, where there are clear benefits to them as consumers – particularly in terms of food safety, quality and price – people tend to be positive towards food irradiation.

“This is backed by consumer attitude studies from around the world.”

<http://www.theland.com.au/news/agriculture/horticulture/general-news/irradiation-pros-and-cons/2665981.aspx> The Land Irradiation: pros and cons Ashley Walmsley 31 Jul, 2013

Consumer awareness- consumer concern

In 2013, FSANZ approved the irradiation of tomatoes and capsicum. The application for approval came from Queensland Department of Primary Industries; a key rationale was to expand Queensland/Australia tomato exports markets to New Zealand. While the New Zealand government – and even the conventional tomato industry – supported the irradiation approval as a quarantine measure, the issue of labelling was seen as a key area of concern.

The ensuing debate provides some of the most recent – and local - information about consumer awareness and attitudes in our region. In June 2013, 72% of respondents to on New Zealand Herald on-line survey expressed concern about irradiated food:

On June 23, 2013, the New Zealand Herald published these outcomes to its online survey:

Are you concerned about irradiated food? 7050–7100 votes

I'm very concerned and would never touch any ray-treated food	40%
I'm a little worried, but want to see more information	32%
I'm not concerned about it at all	24%
Bring it on, I want to see what it tastes like	4%

http://www.nzherald.co.nz/opinion/news/article.cfm?c_id=466&objectid=10892295

Tomatoes will test our trust Sunday Jun 23, 2013

In its Dec 2012 Industry newsletter, Cherry Growers Australia – a supporter of irradiation for cherries identifies consumer reluctance to purchase irradiated food.

Consumer awareness

There is very limited awareness and understanding of irradiation in primary industry and among consumers.

There is abundant scientific evidence that irradiated food is toxicologically safe, and presents no special nutritional or microbiological problems, but there is a need for good information to be made available to consumers and producers alike.

There is limited information available on consumer attitudes for Australian markets, although new consumer research has just been completed as a HAL/AUSVEG initiative. The Klein Partnership (TKP) consumer survey included irradiation as a choice when gauging consumer opinions, offering several alternatives which included irradiation among others. The TKP survey confirmed that in general;

- *consumers are unaware of food irradiation*
- *consumers become more accepting of irradiated food with well-targeted information*
- *consumers prefer options that can be seen to reduce chemical residues, including irradiation as a low-chemical option*
- *un-informed, or mis-informed consumers hold similar views on irradiation, fumigation and insecticides.*

http://www.cherrygrowers.org.au/assets/cga_newsletter_201212.pdf

Cherry Growers Australia Inc December 2012 - No 8

History of opposition in Australia and New Zealand: A huge campaign against food irradiation in the 1980s resulted in a 10-year moratorium, lifted in 1999, with little public fanfare. Opinion surveys conducted for FSANZ, along with other reports, have repeatedly found that irradiation is still a little known process and that irradiated foods do not have wide public acceptance.

One of Canada's largest ever food recalls took place In September/October 2012: E. coli contaminated beef. Canadians are responding skeptically to the immediate promotion of irradiation as a solution. An overwhelming majority of those commenting on an article on the Canadian Broadcasting Corporation website oppose irradiation and see this as a false solution. In Australia, when food irradiation applications have been open for public comment, an overwhelming majority of respondents have also been opposed.

6. Failure to Benefit Consumers: Critique of Cost Benefit Analysis

The cost-benefit analysis makes dubious claims in regards to the benefits and costs for Consumers, Industry and Government. A full set of comments and remarks have been listed below in regards to the Costs and Benefits provided by FSANZ in the Cost Benefit Chart.

OPTION 1: ACCEPT APPLICATION 1092

Government Benefits

Claim: Additional pest disinfection treatment which may facilitate trade when some methods are not accepted or are being phased out e.g. some chemical treatments.

Our response: *The fact that irradiation “may” facilitate trade, is conjecture. ”*

Claim: Possible enhanced economic development in rural and regional Australia.

Our response: *The possibility of enhanced economic development is also conjecture – it is not weighted against other “possibilities” such as – irradiation leading to the “possible” decline of rural markets due to competition from imported products produced more cheaply and irradiated as a quarantine treatment. It is also not weighted against the possible growth of the organics industry – which does not allow for irradiation – and is one of the world's fastest growing industries.*

Government Costs

Our response: Costs that have not been considered include:

Approving an extra 12 Fruits and Vegetables for irradiation – particularly those which are commonly consumed in Australia will increase costs associated with labelling and monitoring such as testing and enforcement as there will be a larger number of fruit and vegetables to track. This is not only the case for Australian grown produce, but also the monitoring of imports, which may also be irradiated.

Costs associated with healthcare impacts from nutritional depletion, allergenicity, and other identified risks.

There is potential for costs to occur in the process of changing and updating of legislation.

In the future there is potential that costs may arise in regards to extra waste etc. leading to environmental or health damage.

Opportunity cost in the fact that money spent on approving irradiation of these 11 Fruit and Vegetables could be spent on other initiatives or searching for a cheaper, safer alternative to chemicals been phased out.

Industry Benefits

Claim: Availability of an alternative internationally-endorsed phytosanitary measure when the current chemical-based treatments are restricted. Other postharvest options for example, heat treatments, cold disinfestation, fumigants, new insecticides are available, although unsuited for use for particular fresh produce due to possible phytotoxicity and quality issues, length of treatment time, as well as costs or the time frame needed to gain approval from quarantine authorities.

Our response: *Whether it is internationally endorsed or not is up for debate which may limit its potential to facilitate trade. Irradiation's legislated approval in certain countries does not indicate consumer acceptance of irradiated food.*

Claim: Increased shelf life and quality of fruit and vegetables, depending on the dose.

Our response: *FSANZ must be called upon to clarify the meaning of the above statement. Any claim that irradiation IMPROVES the quality of food must be supported with peer-reviewed science. This is a marketing statement – and a dangerous precedent from our regulator – in particular as the claims are not relevant to the purpose upon which this application is presented – Phytosanitary measure. As the regulator FSANZ knows that irradiation approvals are made for the specific purpose of the application. The rationale for this application was phytosanitary control for quarantine purposes. Irradiation is not being approved for the purposes of shelf- life extension or “increased quality” and may not be done so even if this application is approved. FIWatch understands this claim to be an inference to situations in which irradiation has been promoted for microbial control. Proponents of irradiation for microbial control claim it improves the quality as it “destroys harmful micro-organisms.” The elimination or neutralisation of certain micro-organisms may have some benefit- but must be evaluated in relation to destruction of beneficial micro-organisms, nutrient depletion and the production of radiolytic compounds in irradiated food – Irradiation changes the quality of food - with all factors weighted one cannot assert that it “increases” quality. Furthermore, as the regulator FSANZ should know that whether or not, there is a case of irradiation for microbial contamination, this application DOES NOT ALLOW FOR IT. Further applications for the approval of irradiation for microbial control would need to be processed it were to be. FSANZ should not act as a de-facto promoter of irradiation and should certainly not make claims/rationalise irradiation on grounds irrelevant to this application.*

Claim: Assistance and maintenance of the economic viability of an important segment of the horticulture sector.

Our response: **Potential for* the above, it is not a definite outcome and should be stated that way.*

Claim: Increased trade opportunities and increased markets available to growers due to an alternative treatment being available to meet quarantine requirements. Permission to irradiate could facilitate market access to New Zealand.

Our response: *This is still conjecture. Furthermore – for NZ growers the increase of imported produce can be threatening to their markets.*

Claim: Introduction of a cost-effective technology in relation to other alternative treatments (hot water, vapour heat treatment, cold or heat treatment) without some of the inherent quality issues that alternative treatments may cause.

Our response: *This is a vague statement without quantifiable details: The CBA should present the figures on the costs of other treatments so that an informed analysis can be made. The meaning of the “inherent quality issues that alternative treatments may cause” must also be explained – qualified for any meaningful assessment to take place. The use of the word “alternative treatments” should be re-considered. Irradiation is in fact the “alternative” as non-irradiation of these fruits is the status quo – the norm.*

Claim: Reduction in the costs of using pesticides

Our response: *As above the actual estimated costs of any “reduction” in pesticide use needs to be quantified. Irradiation is a post-harvest process and will not necessarily lead to the reduction of pesticides in the planting through harvesting phases of crop production – it will be used in conjunction.*

Industry Costs

Our response: *A number of potential costs have been ignored. Approving irradiation for the 12 fruits and vegetables will open up the market to irradiated imports, which has potential to create more competition for Australian farmers, reducing their share of the market and therefore revenue.*

There is also potential for job loss in the industry as not everyone would be able to make the switch to irradiation.

A lack of scientific research on the impacts of irradiation on chemicals and pesticides in crop production. Irradiation is a post-harvest process and will not necessarily lead to the reduction of pesticides in the planting through harvesting phases of crop production – it will be used in conjunction.

Consumer Benefits

Claim: Possibly greater year-round availability of these commodities in some markets/regions in Australia and New Zealand.

Our response: *This claim is outright conjecture. “Possibly” greater year-round availability of these fruits. There is great scope in growing climate and production practices which enable both countries to supply their markets. Imports of these commodities are already impacting on the ability of local growers to sell their produce. It is therefore unlikely that irradiating them would significantly impact on their availability.*

Claim: **Possibly better quality fruit and vegetables depending on the dose of irradiation, as other treatments (such as heat and cold) can affect fruit and vegetable quality.**

Our response: *This also is purely unsubstantiated conjecture and also raises alarm bells. If irradiation is to occur, one would expect the regulator to ensure a dose that is the least detrimental possible. This statement raises concerns about the suitability of a dosage range and uncertainty about the process and its appropriateness. Also presentation of the quantity of irradiation also affects quality and will not be used in lieu of other treatments and food processes. Irradiated food will be subject to cold storage for transport purposes.*

Claim: **Produce may be transported for longer periods while maintaining desirable sensory qualities for consumers.**

Our response: *“Maintenance of desirable sensory qualities” is not maintenance of food quality. Consumers do not benefit from (being tricked in to) purchasing food that looks good but is actually be less nutritious -of poorer quality. If this were a true quantifiable benefit-it would be to industry/producers –not consumer. It is not listed in the Industry section of this CBA as it is conjecture and calls in to question as to whether consumers will choose food that is older (and of poorer nutritional value) and has been irradiated to maintain its fresh appearance. According to ACCC fresh food is food that is as marketed as close to possible at production point (with minimal manipulation).*

Claim: **Provides choice to consumers wanting to avoid exposure to other treatments such as chemicals and the resulting residues in those foods.**

Our response: *Irradiation is a post-harvest process and will be used in conjunction with chemical treatments/ pesticides in the planting through harvesting phases of crop production. Irradiation will be used on top of pesticides and be followed by other food transport and processing treatments/practices.*

Claim: **Approval of these commodities may increase competition in the marketplace, improve seasonal availability and increase price competition.**

Our response: *Once again, conjecture.*

Consumer Costs

Our response: *Costs to Consumers that have not been considered include:*

Potential for loss of vitamin intake depending on the amount of irradiated produce consumed.

Health risks associated with consuming irradiated food.

For consumers who do not choose to eat irradiated produce there is a time cost involved, as consumers will have to look closely at labelling to differentiate between irradiated and non-irradiated produce.

OPTION 2: MAINTAINING PROHIBITION

Government Benefits

Our response: Government lives up to its mandate to protect public health and benefits through engendering peoples trust in the food regulatory systems. The public have over 30 years expressed their disapproval of and concern about irradiation.

Government is involved in promoting and maintaining Australia's global reputation for clean, green, wholesome food.

Government Costs

Our response: The fact that no costs were identified with non-approval suggests that there has been no international demand for Australia to market irradiated food.

Industry Benefits

Our response: Major benefit as local producers will not have to compete with irradiated overseas products. Irradiation is an import-enabling tool – not just an export enabling too. Approvals allow for imports of irradiated produce. Australian producers cannot compete with cheaply produced irradiated products from overseas.

Opportunities to invest in and develop non-chemical non-radiation-sourced solutions to quarantine matters (which is what people around the world are demanding – with the organics market being one of the fastest growing market/industries in the world)

Opportunities for research and development of broader pest-free systems.

Maintenance of Australia's reputation as a clean, green food producer.

Less risk of jeopardising organic industry.

Less risk of confusion re differentiating between irradiated and non-irradiated products. The current push to remove labelling of irradiated products may see complete shoppers rejection of all produce potentially irradiated as consumers cannot enact their choice.

Food producers who choose not to irradiate will not have to bear the costs entailed in differentiating their fresh and non-irradiated products with irradiated products.

Industry Costs

Claim: Costs in research and development incurred in an attempt to identify alternative treatments as existing chemical or other treatments are phased out.

Our response: The reviews of the major chemicals in question were initiated/flagged in 1995 - there has been a long period of potential R&D time – it is unacceptable that industry and government push irradiation on to the market as a substitute for bona fide research and development of alternatives to chemicals.

Consumer Benefits

Our response: Refocusing of energy and development of local economies and local producers.

Claim: A potential cost to consumers was identified as the possible limitation of the supply of some fruits and vegetables due to the phase out of chemicals that normally reduce fruit fly disinfestation. If there was not an efficacious alternative treatment, such as irradiation, there is a strong possibility that the fruit and vegetable supplies will decrease and prices may increase.

Our response: Approximately 80% of canned tomatoes are imported though Australia industry – which is now looking for markets. The problem is loss of markets through global competition and failure of Aus/NZ governments to support and protect local industries. Irradiation will not solve the root cause of the erosion of markets.

FSANZ is mandated to ensure that Australians and New Zealanders have access to safe and healthy food. Despite dismissing even the known and accepted detrimental impacts of irradiation and omitting any risks from the Cost/Benefit Analysis, FSANZ fails to show that this Application would provide any benefits to shoppers. At best, FSANZ claims irradiating these fruits may provide “possibly better quality” which we refute and “possibly greater availability.” Which is unnecessary.

Either way, these and the other claimed possible benefits are irrelevant to guaranteeing the public a nutritious, safe and healthy food supply. A1069 provides no tangible benefits but carries many known risks, hazards and costs.

We recommend that FSANZ adopt Option 2 and reject the application.

7. Failure to Demonstrate a Technological Need

The technological need to use irradiation as a quarantine measure has not been established in this Application.

No other country in the world specifically call for the irradiation of apples, apricots, cherries, nectarines, peaches, plums, honeydew, rockmelon, table grapes, zucchini and squash. Indeed, only strawberries mentioned on the International Atomic Energy Agency's (IAEA) irradiation authorization information portal as being approved for irradiation.

Application A1092 suggests that irradiation is necessary to control the spread of fruit fly, in particular Queensland fruit fly, to allow greater trade of food grown in potentially fruit fly infested areas. Though Queensland has lodged this application, the Victorian Government recently acknowledged that its attempts to contain fruit fly infestations in the state had failed and that it would not continue to fund control measures. This suggests that irradiation may also become a fruit fly control measure throughout the country if other options remain unexplored.

Irradiation is not a substitute for a holistic approach to fruit fly and other pests.

7a. The false choice between irradiation and pesticides

Two toxic chemicals, fenthion and dimethoate, nerve inhibiting pesticides are used in Australian horticultural production. They are both under review, with dimethoate already prohibited and fenthion seemingly extended/still under review. Use of these organophosphates is severely restricted overseas because of their public health impacts. Australian growers have known about potential health problems with these chemicals since the review of fenthion began in 1994 and dimethoate was announced in 1995, but not begun until 2005. Despite the reviews, Australian growers, under pressure from supermarket chains and large food corporations, continued to use these chemicals because it was cheaper than to establish good production practices that produce quality, healthy food. The many years since the reviews were announced have not been used to develop positive, safe and healthy food production practices or to explore options for growing fruit and controlling fruit fly without chemicals. The status quo continued.

Now, governments and industry claim fenthion and dimethoate were necessary for “cost-effective” market access. They are urgently pushing for another dubious post-harvest decontamination treatment to be used in their place: food irradiation. Other potential methods, systems and materials are ignored.

The phase out of toxic chemicals is a cause to celebrate and should be lauded as a chance to review and improve food production practices. As it is, however, we are being offered a false choice, the swapping of one toxic industry for another dangerous and toxic one.

Irradiation as a “phytosanitary” measure, in this case irradiating food to control fruit fly, benefits food corporations wishing to transport and trade volumes of food at the expense of the public health. Providing nutritionally depleted food and putting us all at risk in order to protect or expand trade and markets is unacceptable and not in keeping with FSANZ objectives.

As mentioned earlier, FSANZ is aware that the public see irradiation as a “high risk, low benefit” technology, and repeatedly attempts to legitimise the process by falsely claiming that a technological “purpose” for irradiating food has been established. A technological “need” for irradiating, however, has not been established.

Irradiation to control bugs

Irradiation is not a “clean” alternative to chemicals. Irradiation for “phytosanitary control” is actually a prime example of the use of irradiation in lieu of healthy and environmentally sustainable production systems and practices.

In 1986, Queensland DPI produced research promoting the post-harvest use of dimethoate and fenthion for controlling fruit fly on tomatoes. The research states: “the insecticides dimethoate and fenthion as high volume spray (flood) treatments can disinfect tomatoes post-harvest with levels of security similar to ethylene dibromide for other fruits, but with the added advantage of handling efficiency and without phytotoxic or tainting effects.”

35 years on, this research has proven faulty. APVMA is in the process of banning this use of these chemicals because they harm human health. Queensland is Australia’s largest producer of fresh tomatoes and the pressure is on to maintain its markets. (Victoria produces the most tomatoes for processing and also now has widespread fruit fly infestations) The Queensland government then presented its own, new, unpublished research to secure approvals to irradiate tomatoes and capsicums in lieu of using these toxic chemicals. Now it is following suit with A1092.

Once again, the Queensland government is getting it wrong.

Irradiation will not be used as a total substitute for chemical use in food production. Irradiation is a post-harvest treatment that would be used in conjunction with other chemicals applied pre-harvest, raising further concerns about the effects of radiation on pesticides and their metabolites on foods – and the lack of data on the risks. Unless there is a thorough review of all chemical uses in food production, or fruit and vegetables are organically grown, chemicals will still be used in the growing of fruits and vegetables.

There is no technological need for irradiation to replace dimethoate and fenthion.

Australia was the only country permitting dimethoate to be used for post-harvest pest control so other producers found other options. Indeed, the chemicals taskforce phasing out dimethoate has proposed numerous chemical alternatives. Non-chemical options, such as organic production also exist.

There is simply no need to irradiate fresh fruits and vegetables as there are numerous alternatives.

As mentioned above, some of the alternatives currently in use include:

- Cold storage
- Cold treatment
- Heat/steam, vapour treatment
- Hot water dips
- Atmospheric control with oxygen, carbon dioxide or nitrogen
- Physical disinfestation, i.e. cleaning, washing

- Hygienic and safe production practices
- Pest exclusion zones
- Early harvesting
- Organic production

Irradiation is not a substitute for holistic control for fruit fly and other pests.

7b. Irradiation-free trade

Numerous practical chemical-free and irradiation-free options are available. They pose little or no health risk to the public so using irradiation as a phytosanitary measure – to protect markets – is insupportable.

Irradiation as a mandatory protocol for trade in food is the exception, not the rule, around the world. This is highlighted by the existence of non-chemical and non-irradiation trade protocols to and from Australia for the products approved for irradiation in Australia and New Zealand. For example, some Australian chemical and irradiation-free treatments of Rambutans, Mangoes, Longans and Lychees follow:

Australian Fruit Growers wash their fruit for access to Japan

The method is simple: after harvesting, the fruit is washed. It is then coated with food-grade/edible oil to seal the fruit against contamination and pests. Australian Rambutans are now exported to Japan using this method. Water and edible oil maintains the integrity of organic products, which are not allowed to use synthetic chemicals or irradiation, facilitating trade in both organic and conventionally grown fruit.

North Queensland Mango growers expand market with “Modified Atmosphere”

“Mango growers in the Burdekin and Atherton Tablelands have created a small operation to process second grade mangoes. (Tableland Export Coop Ltd). This has been based on R&D commissioned to create a sliced mango product using MAP (Modified Atmosphere Technology). This produced a “fresh” mango slice with an extended shelf life (up to 6 weeks in a commercial environment). It has the advantage of being no mess, ready to use, discards 60% by weight of a whole fruit, with a high value to weight ratio and easier access to markets as a processed product ... The distributor has advised that market enquiries already far exceed the capacity of the plant to produce.

The same group hopes to produce a fresh avocado product ... Trials have been completed with positive results using second grade fruit ... Trials have also commenced on a similar pawpaw product.

Initial discussions have been held with growers in the Northern Territory, with the prospect of expanding and extending these operations across Northern Australia.”

Non-chemical alternatives for trade and intrastate commerce

Many products are already traded globally without the use of chemicals or irradiation, including foods Australia has approved for irradiation. A combination of regulation, specific harvest practices, non-chemical cleaning, inspection and certification can be sufficient to allow products

into Australia or to facilitate intrastate trade. Australia should promote these alternatives in its own production and advocate for these methods for import and export approvals.

Longan and lychees may be imported from China and Thailand after:

- ♣ cold treatment (CT) or vapour heat treatment (VHT) for the management of fruit flies;
- ♣ cold treatment or orchard control, inspection and remedial action for the management of litchi fruit borers;
- ♣ inspection and remedial action (i.e. withdrawal, re-export, destruction or further treatment) for the management of mealybugs and soft scales; and
- ♣ operational maintenance and verification systems.

Mangos may be imported from India after:

- ♣ vapour heat treatment (VHT) or hot water treatment (HWT) for the management of fruit flies;
- ♣ designated pest free places of production or production sites for the management of mango pulp weevil and mango seed weevil; and
- ♣ inspection and remedial action (with VHT or HWT) for other quarantine pests such as red-banded mango caterpillar, mealybugs and scale insects.

Alternatives used in interstate trade in Australia:

- ♣ standard physical treatments, such as washing;
- ♣ maturity and condition standards like hand-green condition - picking unripe fruit to avoid its infestation with pests, and unbroken skin;
- ♣ cold treatment or heat treatment;
- ♣ area freedom, such as Fruit Fly Exclusion Zones.

The Organic option:

Organics is one of the fastest growing industries in Australia. Irradiation is not allowed in “Organic” production practices. Organic producers have been successfully supplying the increasing global organic market without using either synthetic chemicals or irradiation.

More examples:

Radio frequency Heating of Persimmon Fruit as a Treatment for Control of the Mexican Fruit Fly, Hot water dips kills insects in bananas and pawpaw, cold storage kills fruit fly in grapefruit, steam treatment kills some forms of fruit fly in mangoes ... The US Department of Agriculture developed an “acoustic coupler” which detects fruit fly larvae vibrations when the larvae eat the fruit, and infested fruit can then be removed. CSIRO has been conducting feasibility trials for the use of Ultra-high Pressure (UHP) processing for juices, jams and purees.

7c. International Phytosanitary obligations

The fact that irradiation is accepted/listed as an international phytosanitary measure is not a rationale for using irradiation for that purpose. International Standards for Phytosanitary Measures, that mention irradiation, also identify many possible phytosanitary technologies and management processes and recommend a systems approach. Though irradiation is one

possibility for post-harvest treatment it is easily avoidable as the existence of numerous other options shows. There is no technological imperative or requirement to irradiate, nor a situation in which irradiation is the only choice.

“In principle, systems approaches should be composed of the combination of phytosanitary measures that can be implemented within the exporting country. However, where the exporting country proposes measures that should be implemented within the territory of an importing country and the importing country agrees, measures within the importing country may be combined in systems approaches.

The following summarizes many of the options commonly used:

Pre-planting

- healthy planting material
- resistant or less susceptible cultivars
- pest free areas, places or sites of production
- producer registration and training.

Pre-harvest

- field certification/management (e.g. inspection, pre-harvest treatments, pesticides, biocontrol, etc.)
- protected conditions (e.g. glasshouse, fruit bagging, etc.)
- pest mating disruption
- cultural controls (e.g. sanitation/weed control)
- low pest prevalence (continuous or at specific times)
- testing.

Harvest

- harvesting plants at a specific stage of development or time of year
- removal of infested products, inspection for selection
- stage of ripeness/maturity
- sanitation (e.g. removal of contaminants, “trash”)
- harvest technique (e.g. handling).

Post-harvest treatment and handling

- treatment to kill, sterilize or remove pests (e.g. fumigation, irradiation, cold storage, controlled atmosphere, washing, brushing, waxing, dipping, heat, etc.)
- inspection and grading (including selection for certain maturity stages)
- sanitation (including removal of parts of the host plant)
- certification of packing facilities
- sampling
- testing
- method of packing

- screening of storage areas.

Transportation and distribution

- treatment or processing during transport
- treatment or processing on arrival
- restrictions on end use, distribution and ports of entry
- restrictions on the period of import due to difference in seasons between origin and destination
- method of packing
- post entry quarantine
- inspection and/or testing
- speed and type of transport
- sanitation (freedom from contamination of conveyances).

7d. Summary of concerns re Technological Need:

The Applicant has not established a technological need for using irradiation as a quarantine measure for apples, apricots, cherries, nectarines, peaches, plums, honeydew, rockmelon, strawberries, table grapes, zucchini and squash.

- ☐ Irradiation is not required by Australia's trading partners and can be avoided for inter-state trade or trade between Australia and New Zealand.
- ☐ The benefits of using irradiation over cold-storage or other treatments have not been demonstrated.
- ☐ Comparative models have not been provided or assessed.
- ☐ No evidence is provided to ensure the safety of eating irradiated apples, apricots, cherries, nectarines, peaches, plums, honeydew, rockmelon, strawberries, table grapes, zucchini and squash.
- ☐ Numerous alternatives to irradiation exist, are already approved by trading partners and avoid the risks of potentially harmful chemicals and irradiation.

8. Harmful to Australian Farmers: Market access is only half the story

While promoted as a “tool” to protect or broaden Australian markets, irradiation is more likely to further destroy the livelihoods of local small producers, family farmers, local horticulture, agriculture, organic and alternative food production systems.

Irradiation is a tool of large agri-business. Irradiation approvals in Australia would not benefit our farmers in the long term; as such approvals will also facilitate importation of those irradiated foods from overseas, where food can be typically produced more cheaply. Imports already play a key role in the demise of local markets. Now irradiation is touted as a tool to expand markets for those whose local markets are being destroyed by imports. Supporting practices that protect and develop local economies would make more sense.

The recent approval for the irradiation of tomatoes is a case in point. Since 2007, tomato imports have reportedly increased 40%, due to low domestic production, the high value of the Australian dollar, higher Australian labour costs and a legal challenge upholding market access through international trade agreements. As it stands, only 2 out of 10 cans of tomatoes sold in Australia are locally made. There is a surplus, not a shortage of tomatoes on our domestic market. In a move to increase output and lower production costs, Australia is already seeing its tomato industry move to large hothouse-style production, which has brought devastating impacts to smaller growers – closing Queensland's (and Australia's) largest tomato producer, SP Exports.

Irradiation cannot provide the solution to what is causing the tomato market's demise: market saturation and competition created by large food corporations and supermarket chains. Australia's weakened tomato industry was presented a temporary quick fix – "market access tool" – irradiation. Unfortunately this then brings further threat to other local economies – including New Zealand – while opening up Australia to further irradiated imports.

In the long term, it would be in Australian farmers' interests to use alternatives to chemical fruit fly control and also reject irradiation. If public perception alone is not enough to deter food producers from irradiation, add the threat of increased competition from cheaply produced irradiated imports.

8a. Irradiation facilitates imports

FSANZ suggests that irradiating the 12 specific fruits will have a trade enabling effect, facilitating interstate and international trade of Australian and New Zealand and providing shoppers with year-round access to seasonal fruit.

Approving the irradiation of these products in Australia and New Zealand, however, is also a de-facto approval for the importation of irradiated tomatoes and capsicums from overseas.

Supporting the importation of irradiated apples, apricots, cherries, nectarines, peaches, plums, honeydew, rockmelon, strawberries, table grapes, zucchini and squash seems contradictory to the underlying intention of this application – to protect Australian apple, apricot, cherry, nectarine, peach, plum, honeydew, rockmelon, strawberry, table grape, zucchini and squash markets.

Trade harmonization is a major consideration for the WTO and irradiation proponents. Australia's attempt to protect its tomato industry, for example, was been successfully challenged in the past. Allowing irradiation will potentially open the floodgates for irradiated imports while, at the same time, Australia's failure to adhere to international labelling standards may penalize Australian export potential.

As Australia and New Zealand's trading partners do not at the moment require the irradiation of apples, apricots, cherries, nectarines, peaches, plums, honeydew, rockmelon, strawberries, table grapes, zucchini and squash there is no foreseeable trade/market benefit from this proposal and more likely a negative impact on local growers.

9a. Labelling inadequacies

Food Standard 1.5 requires novel food products with no history of safe use, and those from new technologies such as genetic manipulation and irradiation to undergo pre-market assessments and to be labeled. Another rationale for labelling is that the public has a right to know and make informed decisions about radically new foods that are unfamiliar and have no history of use.

So far irradiation approvals in Australia and New Zealand including, A1092, have claimed to offer shoppers more food options. However, most irradiated food is either poorly labelled or not labelled at all and the Forum, which represents all governments, is moving for removal of all labelling in 2014.

In 2011, the Blewett National Food Labelling Review asserted that as food irradiation was no longer a new technology the requirement to label its products be reviewed. This recommendation was based on the claim that irradiated foods had been on the market for over 30 years and are safe. In adopting or rejecting the Blewett recommendations last December, the Forum resolved that FSANZ review the labelling requirements with the intention that they be terminated by within two years.

While irradiation technology has been under development since the early days of the nuclear age in the 1950s, irradiated food has only been in the Australian market for since 2001. A huge campaign against food irradiation in the 1980s resulted in a 10-year moratorium, lifted in 1999, with little public fanfare. Opinion surveys conducted for FSANZ, along with other reports, have repeatedly found that irradiation is still a little known process and that irradiated foods do not have wide public acceptance.

The first approval, for irradiated herbs, spices and herbal infusions was in 2001, nine tropical fruits approved in 2003. But apart from a small amount of irradiated Australian mangoes and lychees sold in New Zealand, very few irradiated foods have been sold in either country. Interstate trade protocols for the sale of irradiated fruit on the Australian domestic market were only finalised this year. Any claim that Australians and New Zealanders have 30 years of safe experience of irradiated foods and that they have been widely available is clearly untrue. No long-term research has been done on the patterns of consumption of irradiated foods.

Irradiation has a longer history in a few other countries and the international food standards Codex Alimentarius requires that all irradiated foods be labelled. The USA, UK and Canada all have more stringent guidelines than Australian and New Zealand labelling regulations.

A lack of mandatory statements for irradiation labelling is unprecedented amongst other English-speaking nations and our trading partners. The mandatory individual labelling of individual products is the only mechanism that observes our right to make fully-informed choices about whether or not we, our families, pets and livestock will eat irradiated foods.

FSANZ suggests that irradiating these fruits will provide greater choice. However, we are not reassured as existing labeling requirements fail the public, are inadequate by global standards, and are under threat of complete removal.

The current labelling regulations fail because they do not:

- ☐ prescribe mandatory labelling statements;
- ☐ ensure individual labelling of irradiated products;
- ☐ require that products such as pet food and animal feed are labeled.

They also allow:

- ☐ wording such as “treated with ionizing electrons” which may be technically incorrect;
- ☐ wording that does not include “irradiation” or “radiation”;
- ☐ positive statements that may mislead;
- ☐ a sign near a point of sale to be displayed instead of individual products being labelled.

Misleading and deceptive labels have been used in Australia and NZ. For example:

Ongoing: Use of the labelling statement “treated with ionizing electrons” when the irradiation source used in Australia is actually gamma rays is technically inaccurate and misleading because of its failure to use any words that signify the treatment uses radiation;

2005: Mangoes exported to New Zealand from the Northern Territory carried stickers on which the average letter size was 0.6mm. The words “irradiated fruit” measured just 1cm;

2006: Mangoes exported to New Zealand were removed from an export case and sold without any labelling or signage;

2010: “Radurised” irradiated spices were imported from South Africa and sold in a major supermarket chain. A sticker on the top or bottom of the box named the importing company and the words “irradiated spices” (1.5cm) or “radiated spices” (2.5cm), product of South Africa. The actual packaging included the term “radurised” (7mm) which is not used in Australia and in some cases carried the Radura mark (total size with word radurised 8mm)

2012: On Feb 5, WA Senator Scott Ludlam received an answer to a question on notice at the October 19 2011 Senate Estimates informing him that a irradiated curry spices that he displayed to the committee were not properly labeled. The company had labeled the box that contained packaged irradiated curry spices but had failed to label the individual packets.

It is imperative that FSANZ and state governments (the Forum members) enforce stricter labelling for irradiated products and ensures that all are labelled individually, fully and factually.

9b. Australia and New Zealand: Failing to meet world labeling standards

The international food regulatory body Codex Alimentarius, the EU and other trading partners all require mandatory labelling of irradiated foods. Their standards are:

9c. Codex Alimentarius

GENERAL STANDARD FOR THE LABELLING OF PREPACKAGED FOODS (CODEX STAN 1-1985) Adopted 1985. Amended 1991, 1999, 2001, 2003, 2005, 2008 and 2010.

5.2.1 The label of a food which has been treated with ionizing radiation shall carry a written statement indicating that treatment in close proximity to the name of the food. The use of the international food irradiation symbol, as shown below, is optional, but when it is used, it shall be in close proximity to the name of the food.

5.2.2 When an irradiated product is used as an ingredient in another food, this shall be so declared in the list of ingredients.

5.2.3 When a single ingredient product is prepared from a raw material which has been irradiated, the label of the product shall contain a statement indicating the treatment.

GENERAL STANDARD FOR IRRADIATED FOODS (CODEX STAN 106-1983, REV.1-2003)

7.3 Foods in Bulk Containers

The declaration of the fact of irradiation should be made clear on the relevant shipping documents. In the case of products sold in bulk to the ultimate consumer, the international logo and the words “irradiated” or “treated with ionizing radiation” should appear together with the name of the product on the container in which products are placed.

9c. Overview of regulations in other countries

The European Union:

According to Article 6 of Directive 1999/2/EC any irradiated food or any irradiated food ingredient of a compound food must be labelled with the words “irradiated” or “treated with ionising radiation.”

The United States of America:

Since 1986, all irradiated products must carry the international symbol called a radura. This must also be accompanied by the statement: **“Treated with irradiation”** or **“Treated by irradiation.”**

The Food and Drug Administration requires that both the logo and statement appear on packaged foods, bulk containers of unpackaged foods, on placards at the point of purchase (for fresh produce), and on invoices for irradiated ingredients and products sold to food processors.

Processors may add information explaining why irradiation is used; for example, "treated with irradiation to inhibit spoilage" or "treated with irradiation instead of chemicals to control insect infestation."

New Zealand:

While FSANZ is a shared Australia and New Zealand authority, the New Zealand Food Standards Authority has in the past been more candid than FSANZ when informing its public on irradiated food labelling. New Zealand's material clearly says that irradiated products like fruit will not be individually labelled.

“Under the Australia New Zealand Food Standards Code, which the New Zealand Food Safety Authority is responsible for enforcing in New Zealand, foods that have been irradiated must be clearly labelled showing that they have undergone this treatment.

For items such as fruit that do not carry labels, a statement must be displayed beside the produce stating that it has been treated with ionising radiation.”

Canada:

Canadian law requires both the Radura mark and a written statement about irradiation to be on packaged irradiated products. Non-packaged irradiated products must carry both the Radura symbol and written statement to be “displayed immediately next to the food.”

The Radura symbol is required to “appear in close proximity on the principal display panel” or on the sign to one of the following statements or a written statement that has the same meaning:

- (a) "treated with radiation";
- (b) "treated by irradiation"; or
- (c) "irradiated".

9d. Labelling Recommendations:

Australia and New Zealand must label in accordance with global standards.

Appendix A includes our further concerns about the current Australia New Zealand labeling regime and a more detailed list of labeling recommendations. To ensure customer awareness and accurate information we recommend that Australia and New Zealand uphold international standards by requiring labelling with the words:

- ☐ irradiated (name of the food)
- ☐ treated with radiation
- ☐ or treated by irradiation

Our call for comprehensive labeling is intended to rectify the serious failings of the current regime and is not tacit support for irradiation. People have shown an aversion to irradiated food. Comprehensive, objective, factual, honest and mandatory labeling is the only assurance that shoppers can know and make the decision that suits them. Failure to do so is contrary to the public interest and unjust.

10. Conclusion: A1092 Must Be Rejected

We call on FSANZ to decide on option 2 and reject A1092 which seeks permission to irradiate. In brief, the grounds for our recommendation are:

- ☐ the safety and nutritional integrity of irradiated foods is not established;
- ☐ the application and the assessment are flawed in the ways we discussed;
- ☐ the technological need for this irradiation has not been established;
- ☐ irradiation is not the only option for fruit fly control that exists or is used now;
- ☐ the assessment has no cost/benefit analysis of other phytosanitary measures;
- ☐ FSANZ must ensure a whole systems approach is used that would guarantee - or at least make accessible – other approaches to quarantine solutions;
- ☐ A1092 offers no credible benefits to Australians or New Zealanders;
- ☐ if A1092 were approved, the Australian and New Zealand public would be unfairly and unnecessarily exposed to further risks, costs and hazards;
- ☐ exporting irradiated may expose local growers to greater competition from, further reducing or wiping out local production;
- ☐ only full, honest irradiated food labelling would support public confidence in the wholesomeness of Australian foods and the integrity of the food industry itself.

11. APPENDIX A

OTHER PROBLEMS WITH LABELLING

Rather than loosening labelling regulations, Australia and New Zealand need to develop stricter, more accurate and more comprehensive labelling guidelines.

To ensure that the public has the right to choose, we also call on FSANZ to:

- Mandate prescribed wording:
 - ☐ Prohibit the use of the wording “Treated with Ionising Electrons”
 - ☐ to mandate individual labelling of irradiated products, including fruit and the containers holding products irradiated in bulk
 - ☐ to remove positive statements re the irradiation process **and**
 - ☐ to prohibit the Radura symbol

Mandate prescribed wording: For accuracy purposes labelling must include the words: irradiation or treated with ionising radiation. (as above)

Prohibit the use of the terms “‘TREATED WITH IONISING ELECTRONS’:

The phrase “Treated with ionizing electrons” has been removed as an example in the Code, however it is still permissible as a labelling statement as these are determined by the industry. FSANZ has agreed that It is difficult to understand in its use of unfamiliar terms, does not indicate to the general public the use of radiation, and depending on the type of radiation used is technically inaccurate. Australian irradiation facilities use gamma radiation. Gamma radiation bombards the exposed product with high energy electromagnetic radiation and does not consist of electrons. X-ray irradiation, which is also permitted in Australia, is also high energy electromagnetic radiation.

Mandate for Labelling and not signage

Though FSANZ has updated its website to include info about food that does not require labelling, FSANZ ‘s assessment of A1092 and assessments in the past have repeatedly repeatedly asserted that consumers will have the choice as irradiated products will be labelled. The fact is that most fresh fruit falls into the category of food not otherwise required to bear a label. The requirement in this case is signage nearby at the point of sale.

According to the Cambridge English Dictionary, 1990, a “label” is “a slip of paper, &c., affixed to something stating name, contents &c.” A sign nearby at point of sale is not a label.

We have previously mentioned the case Australian irradiated mangoes imported into New Zealand, removed from a labelled carton and sold without any labelling or signage. This case was exposed simply because a person who saw the mangoes for sale was an environmental and consumer advocate who knew that Australian mangoes sold in New Zealand were irradiated. This coincidental discovery of an infraction of labelling regulations begs the question “how many other such cases are there that are not being monitored?” While the EU conducts regular checks into irradiation and labelling, we are not aware of any checks being conducted by FSANZ. In light of the lack of regulatory follow-up, a regulation that allows products to go

unlabelled is begging to be breached! Comprehensive and mandatory individual labelling would alleviate this problem and would provide the public with the assurance that when FSANZ says a product is labelled, it is actually labelled.

Positive statements: FSANZ currently allows the inclusion of positive statements alongside irradiation labelling. Examples of such that have been used in Australia or New Zealand are: treated with irradiation – “to protect New Zealand’s environment” or “to destroy harmful micro-organisms”. Irradiation is known to change the molecular structure of a product and to deplete vitamin and nutritional content. Permitting the use of a positive statement about the process without any requirement for potential negative impact of the process is biased and inappropriate for fair consumer education.

Radura symbol: Furthermore, we oppose the use of the Radura symbol and call for FSANZ to disallow its use as it is misleading and deceptive, therefore breaching FSANZ’s duty of care and legal obligations to the public.

The Radura symbol, permitted but not required, on irradiated products in Australia, has clearly been designed to lead the public to believe that the process is “clean and green”. The design consists of a plant inside a circle, which is dashed on the top, reported to represent radiation. There are two commonly used versions of this symbol, (below) the international version and the version required on irradiated food in the US. The Radura symbol is strikingly similar to the US Environmental Protection Agency logo and bears no resemblance to the commonly used and easily recognizable symbol for radiation. (also below)



http://en.wikipedia.org/wiki/File:Radura_international.svg



The international Radura mark

US FDA Radura mark

US Environmental Protection Agency logo



Radiation symbol

New International Atomic Energy Agency sign warning about ionizing radiation

The original intention of the Radura mark is reported to have been to represent a high quality product that had a long shelf life.

“The word “Radura” is derived from radurization, in itself an artificial word combining the initial letters of the word “radiation” with the stem of “durus”, the Latin word for hard, lasting.

The inventors of the symbol Radura - knowing this proposal for a new terminology - came from the former Pilot Plant for Food Irradiation, Wageningen, Netherlands, which was the nucleus for the later Gammaster today known as Isotron. The director at the time, R.M. Ulmann, introduced this symbol to the international community. Dr. Ulmann in his lecture also provided the interpretation of this symbol: denoting food - as an agricultural product - i.e., a plant (dot and two leaves) in a closed package (the circle) - irradiated from top through the package by penetrating ionizing rays (the breaks in the upper part of the circle).

The Radura was originally used in the 1960s exclusively by a pilot plant for food irradiation in Wageningen, Netherlands that owned the copyright. Jan Leemhorst, then president of Gammaster, untiringly propagated the use of this logo internationally. The use of the logo was permitted to everybody adhering to the same rules of quality. The symbol was also widely used by Atomic Energy of South Africa, including the labelling by the term 'radurized' instead of irradiated. By his intervention, the new logo was also included in the Codex Alimentarius Standard on irradiated food as an option to label irradiated food. Today it is found in the Codex Alimentarius Standard on Labelling of Prepacked Food.

It is clear that irradiation proponents developed, designed and promoted this logo with the intention of making irradiation seem attractive to consumers and removing any recognizable reference to radiation in the process.

Recent research shows that consumers are inclined to accept products irradiated with the Radura symbol, despite having little knowledge of the irradiation process.

“In Chile the “Radura” symbol is not frequently present on food labels. The irradiation treatment is normally identified by the statement “tratado por energía ionizante” (treated by ionizing energy); 95.8% of the responders in the present study were not familiar with this symbol for irradiated food. However, 55.8% said that they would buy irradiated food because of the symbol, affirming that the “Radura” transmits the sensation of confidence and safety.

The association of the symbol “Radura” with the statement “treated by ionizing energy” might facilitate the consumer’s acceptance of irradiated food in Chile since most of the interviewed persons affirmed that the symbol means confidence and safety. A similar situation exists probably in many other countries.”

While the logo denotes a plant, and is usually green in colour suggesting life or freshness, the purpose of irradiation is to use radiation to extend the shelf life – allowing irradiated products to appear fresh though they are not. Irradiation does not clean a product or remove contaminants, such as animal feces in poorly produced herbs or on hastily slaughtered beef, it simply acts to neutralize or mask these contaminants.

The reality of the process is far removed from the image suggested by the logo.

The logo is suggested by irradiation proponents as a means to encourage consumption of irradiated products – in this sense it is a marketing tool. We call on the FSANZ to actively ban its use and ensure that this logo will not be permitted on packaging or products in Australia or NZ.

Summary of Labelling recommendations:

Labelling is in the public interest and information provision is a duty of FSANZ. We, therefore, recommend:

Mandatory labelling on all irradiation food with the words:

- ☐ Irradiated...
 - ☐ treated with radiation
- or
- ☐ treated by irradiation

and

- ☐ Prohibition of the terms 'treated with ionizing electrons'
- ☐ Individual labelling of irradiated products, including fruit and the containers holding products irradiated in bulk
- ☐ Removal of positive statements re the irradiation process.
- ☐ Prohibition of the use of the Radura symbol

12. APPENDIX B

Australian and New Zealand consumers' knowledge of and attitudes towards irradiation

Over the past 30 years, Australians have shown considerable opposition to food irradiation. In the 1980s there was a huge movement against food irradiation in Australia and worldwide. International consumers' conventions in Europe and Australia called for a moratorium on food irradiation. Politicians came on board the campaign and in Australia; a Public Inquiry into irradiation saw the participation of all major environmental organizations, including Australian Conservation Foundation, Greenpeace, Friends of the Earth Australia as well as consumers' organisations and women's organisations.

"In 1987, the Australian Consumer's Association joined with all the major national and international consumer bodies in voting for a worldwide moratorium..." Records show that thousands of Australians signed petitions opposing food – making it a stand-out issue during its time.

A moratorium was put on the practice in 1989. This moratorium was lifted without much public awareness in 1999, coincidentally within weeks the Caboolture Shire Council gave approval for the building of a nuclear irradiation plant at Deception Bay.

It is our understanding that most young Australians are unaware of food irradiation and that older Australians who were aware of the issue believe that the practice was successfully stopped in 1989.

Between 1999 and 2003 a renewed campaign was waged against a nuclear irradiation facility in Queensland and the first-ever application to irradiate food in Australia – Application A413 by the irradiation company Steritech for herbs... Again thousands of petitioners petitioned both the state and federal governments on these issues and many made submissions against the application. In 2003, a further application A443 for the Irradiation of Tropical fruits saw an overwhelming majority of submissions opposing the application 675 in against, 16 in favour- the application was nonetheless approved.

As a testament to the political understanding that the broader community does not support food irradiation in August 2003, the Australian Senate passed a motion calling for the Australian government to commission further research and disallowing further irradiation approvals until such research had been done. (chamber/journals/2003-08-14/0010). The motion passed with the support of the Labor Party, the Greens and the Democrats.

We have no reason to believe that Australian consumers' attitudes towards irradiation have changed since the strong shows of opposition in the 1980's and early 2000s.

Food Irradiation Watch speaks with people from all walks of life who are alarmed by the prospects of food irradiation. In 2005, FI Watch surveyed 1000 Australian food companies on their food irradiation policies, attitudes and practices. The research enabled us to produce the Irradiation-free Food Guide, which was reprinted with slight changes in 2007. Though FI Watch has been fairly inactive since 2008, the Food Irradiation Watch website and Irradiation-Free

Food Guide continue to be popular. To date, approximately 25,000 hard copies of the Guide have been distributed, and orders for the Guide and/or other information continue to be received via email almost weekly.

We receive frequent requests for our Irradiation-free Food Guide and information from concerned consumers who have contacted food manufacturers about irradiation. Since the Guide's original publication, several major food producers have developed irradiation-free policies, which we understand is due to consumers concern about this issue expressed through their contacting the companies.

The research that has been done in Australia and overseas consistently indicates consumer resistance to the technology.

In December 2001 the report: Qualitative Research with Consumers – Food Labelling Issues, produced for FSANZ (then ANFA) found that:

“There was even less awareness and more misunderstanding about irradiated foods [than Genetically Modified foods.] The word ‘irradiation’ is almost synonymous with ‘radiation’ [also connoting ‘nuclear’] (their brackets) and is consequently suspected to be unsafe or bad for you.

Much would need to be done by ANZFA to educate people about exactly what irradiation means, how irradiated foods compare safety-wise and nutritionally to similar products preserved in other ways, and what the potential benefits are before it would be acceptable to consumers at large.”

Despite the apparent research bias towards promoting irradiation, the researchers found that there is little consumer acceptance of the technology.

The same research found that Australian consumers believe that:
they have the right to access to information about their food and
that the government will facilitate that right.

This was demonstrated by the fact that:

“Consumers expressed an absolute right to know about any GMOs included in any products...”

Consumers, also, expected all genetically modified food to be labelled as such.

“It was generally thought by most people that even if a product was not specifically labelled as ‘GMO-free’ it would not be genetically modified. That is, they would expect any product that contained genetically modified organisms to be clearly labelled that this was the case.”

Overall, consumers expressed general concern about the food supply and regulation and suggested that they trust their government to inform them about products and to label products clearly.

“The concern over the use of GM illustrates the level of general apprehension about the food supply and the perceived importance of maintaining stringent control over it...”

However,

“There is an over-riding belief that the food system in Australia and New Zealand is safe, and this sense of trust is extended to food labels. People generally have faith that the labels will be fairly accurate and reliable - as long as the governing body continues to check the products to ensure compliance. In this way there is a belief in 'good' governance.”

This research has great significance for FSANZ when considering labelling regulations and, in particular, labelling proposals linked to this Application.

Consumers' reported concerns over irradiation must be met with access to comprehensive and accurate information about the process to ensure FSANZ lives up to its mandate to enable consumers' rights to choose. We can extrapolate from this research that if a product is not labelled as irradiated then the public will assume that it is not.

Incidences such as the illness of Australian cats after eating irradiated food has highlighted an area of ongoing concern for FI Watch and the public: the lack of understanding that many products consumed by Australians and New Zealanders are not labelled as they are not legally “food” under Australian and New Zealand law. It is the case in Australia that one company's irradiated herbal teas and irradiated “therapeutic quality” herbal teas appear similarly packaged, side by side or near each other, on shelves in stores. The packaging of the tea regulated as food contains a statement re irradiation, the packaging of the tea regulated as therapeutic goods do not. The average consumer cannot ascertain that the “therapeutic quality” teas may also be irradiated – nor can they be expected to.

As a result of ten years work culminating in the distribution of 25,000 consumer guides on the issue, is our opinion that consumers are not aware that products they consume may fall under different regulatory regimes and therefore have different labelling requirements.

Consumers are unaware of the “food-drug interface”, and have no obvious means by which to assess that products which may be marketed in one store may fall under differing regulatory bodies and therefore have no labelling requirement. The average consumer has no way of knowing that some fall under the “food” regulatory regime – while others fall under the therapeutic or veterinary regulatory systems and consequently do not require labeling. This is a grave failure of the regulatory system.

When conducting its Review of Food Labelling Law and Policy Review, the government acknowledged an “optimism bias whereby consumers assume that unmentioned factors are favourable.”

Coupled with “optimism bias” felt by Australian consumers, the current flawed labelling regimen leads consumers to believe that products that are not labelled “irradiated” are not irradiated.

Australian cat owners whose cats were disabled by eating irradiated food were shocked to find that the food they bought for their cats was not “food” by law.

The fact is that the majority of irradiated and genetically modified products are not labelled as they either fall into the category of foods that don't require individual labelling – such as fruit – or are classified as animal feed, pet food or therapeutic goods.

The current status and definition of “food” denies consumers the right to make an informed choice around whether they will consume irradiated products or feed them to their animals.

Australian consumers – and their counterparts overseas - have shown ongoing resistance to irradiated food – which has been expressed by campaigning over 30 years, opposition to food irradiation applications, rejection by informed consumers of irradiated foods on the market, community campaigns to close irradiation plants and community campaigns to support local and organic agriculture.

Pushes by industry to remove labelling and/or to use labelling that does not include the words “radiation” or “irradiation” and/or to use euphemistic terms such as cold-pasteurisation”, or “pasteurization”, “ionizing electrons” suggest that industry also acknowledges consumer rejection of the technology.

Consumers do not want to eat irradiated food. In light of this rejection Australia should move towards banning irradiated foods – or at a minimum ensuring that comprehensive, non-biased labelling is guaranteed so that consumers can make an informed choice.

13. APPENDIX C

Concerns about the nuclear aspects of the food irradiation industry.

Nuclear industry

From the mining of uranium to the use of nuclear power or development of nuclear weapons, the nuclear industry produces intractable waste. The use of nuclear materials for the purpose of irradiating food continues the dangerous and unjustifiable nuclear industry, which we oppose.

There are three commercial irradiation facilities in Australia and one in New Zealand. All of these commercial irradiation facilities in Australia and New Zealand, and the majority of irradiation plants around the world, are nuclear facilities that use radioactive Cobalt-60 as the source of ionizing radiation.

Caesium 137, a nuclear waste product, is also permitted in the US and other countries. The nuclear cycle is neither clean nor sustainable. It produces waste that is radioactive for thousands of years and leaves a legacy of environmental destruction and human health impacts, such as cancer, leukemia and birth defects. Uranium mines, nuclear reactors and irradiation facilities are often pushed on unwilling communities violating democratic principles and indigenous land rights.

The Cobalt-60 used by Australia's only commercial irradiation company, Steritech, is imported from Canada and transported to Steritech's three locations, Dandenong, VIC, Wetherill Park, NSW and Deception Bay, QLD.

The transport, storage and ongoing use of Cobalt-60 put the community and environment at risk. Accidents and incidents have occurred in Australia and overseas.

Not covered by insurance: A major concern to the Narangba and Deception Bay communities located near the then proposed nuclear irradiation plant at Deception Bay was the fact that insurance companies would not cover them in case of nuclear accident.

14. Supporting Organisations

Food Irradiation Watch

PO box 5829

West End QLD 4101

www.foodirradiationwatch.org



Food Irradiation Watch is a not-for-profit consumer advocacy organization aimed at raising awareness about food irradiation. We are an affiliate of Friends of the Earth Australia. We oppose the irradiation of food and work to ensure the consumer's right to choose to avoid irradiated foods, pet foods and therapeutic goods.

Food Irradiation Watch works with, educates and advocates for the community on the issue of food irradiation, alternatives to food irradiation, and related food, environment and social justice issues. As a community organization, we play a role in supporting the rights of citizens where government and corporations have failed them. We act in response to a need in the community that should not exist – or we feel would not exist if governments and corporations acted along principals of ecological and social justice in relation to food – its production and distribution.

While we act in a necessary role as a watchdog, we believe that it is in fact the role of the government to inform the community about food and food processes, and to create legislation and regulations that protect the consumer's "right to know" about what they consume.

Food Irradiation Watch (FI Watch) formed in 2003 from a partnership of Friends of the Earth Brisbane and several community networks opposed to the development of the food irradiation industry in Australia. FI Watch works closely with U.S. advocacy organization Food and Water Watch and international campaigns around food irradiation awareness in the E.U. and Japan. It is our understanding that Australians do not wish to consume irradiated foods or feed them to their pets and that at a minimum Australians expect their food to be accurately and comprehensively labelled when "novel" technologies such as irradiation and GMOs are used.

Gene Ethics Network

Gene Ethics is a non-profit educational network of citizens and kindred groups. We want the precautionary principle, scientific



evidence and the law rigorously applied to all proposed uses of genetic manipulation (GM) technologies and their products.

Gene Ethics generates and distributes accurate information and analysis on the ethical, environmental, social and economic impacts of GM. Our education programs critically assess GM for the public, policy-makers and interest groups.

Friends of the Earth Australia

Friends of the Earth (FoE) Australia is a federation of independent local groups working for a socially equitable and environmentally sustainable future. Friends of the Earth Australia is part the world's largest grassroots environmental network, uniting 76 national member groups and some 5,000 local activist groups on every continent. Friends of the Earth aims to support local communities in gaining environmental and social justice through mobilising resources, and resisting destruction of global eco-systems. Friends of the Earth opposes all forms of the commercial and military nuclear industry and supports sustainable agriculture as the viable alternative to food irradiation.



GM-Free Australia Alliance

"The GM-Free Australia Alliance supports this submission. We oppose the irradiation of apples, apricots, cherries, honeydew melons, nectarines, peaches, plums, rockmelons, strawberries, table grapes, zucchinis and scallopinis. We have concerns about the wholesomeness of irradiated food as well as the environmental and social impacts of food irradiation. Better alternatives to irradiation exist. We do not believe that the irradiation of these fruits benefits the eaters of Australia.



Our export markets should be consulted before we even consider this risky step."

GM Free Australia Alliance www.gmfreeaustralia.org.au
PO Box 333,
Wonthaggi 3995

MADGE Australia Inc

We are a group concerned about new technologies in our food. We are concerned that poorly tested and potentially hazardous technologies are being used to increase the profits of the food industry while remaining unlabelled and therefore hidden from



the knowledge of the public. We consider this to be deceptive and misleading conduct and therefore contrary to FSANZ's brief. Before any expansion of irradiation can commence we need full and open public discussion and information, not the current methods of approval that are hidden and exempt from proper scientific and ethical scrutiny. This is an issue of human rights as we have a right to safe food.

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Friends of the Earth New Zealand**

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Executive Summary

Ministers responsible for food regulation have asked Food Standards Australia New Zealand (FSANZ) to review Standard 1.5.3 – Irradiation of Food, specifically to:

- assess the need for the mandatory labelling requirement for all irradiated food to continue, and
- assess whether there is a more effective approach to communicate the safety and benefits of irradiation to shoppers.

Once prohibited in Australia and New Zealand, irradiation is now being promoted here. It is to be used primarily as a quarantine treatment and replacement for some post-harvest chemicals phased out because of their toxicity. However, irradiation brings its own set of risks and hazards to the table.

The irradiation of fruits and vegetables typically involves their exposure to the energy equivalent of between 1.5 and 10 million chest x-rays. When used as a fruit fly “treatment”, food irradiation also extends shelf life, sanitises, and alters the nutritional value of the treated foods. Changes made to fruits and vegetables as a result of processing with irradiation are substantial and significant - and cannot be discerned with our ordinary senses.

Shoppers cannot rely on taste, smell, texture or appearance to determine if a food has been irradiated. Labelling is the only mechanism that allows shoppers to exercise their preference for fresh produce. The removal of labelling from irradiated fruits and vegetables would, therefore, create a situation where the public is led to false, misleading and deceptive conclusions as to the nature of these foods – believing them to be fresh when they are, in fact, highly processed. Removal of labelling would negatively affect our right to make well-informed food buying decisions that send appropriate signals to the market.

With known nutritional impacts and possible health risks associated with irradiation, removal of labelling could also impact on our right to make well-informed food buying decisions that potentially impact on our diet and health. Labelling is the norm globally and people want irradiated food to be labelled.

It is unacceptable that our food regulator and governments are considering making the public less directly and well-informed about irradiation by removing the labelling requirement.

Recent approvals for fruits and vegetables that are central to the average Australian and New Zealand diet will significantly increase the proportion of irradiated foods eaten. This increases the need for strong labelling laws. The horticulture and food industries are keen to increase the amount of food irradiated and see labelling as standing in the way to shopper acceptance and purchasing.

We expect our governments and food regulator to act in the public interest. It is therefore unacceptable that they side with industry to keep us in the dark about irradiated or other novel foods, and their impacts. Mandatory labelling must remain and be improved as we propose.

Recommendation:

Australia and New Zealand must improve labelling to ensure that all irradiated products are clearly and accurately labelled. In accordance with global standards the labelling wording should be prescribed and limited to the following choices:

- irradiated (name of the food),
- treated with radiation,
- or treated by irradiation

Positive statements about irradiation should not be permitted without balancing references to potential detrimental impacts.

FSANZ should cease to act as a promoter of irradiation and work to ensure that the public has access to the necessary information to make informed decisions through the means they expect: labelling.

10 key points

1. Despite their appearance, irradiated fruits and vegetables are processed, not fresh.

Irradiated food is processed, not “fresh”: The irradiation of fruits and vegetables typically involves their exposure to the energy equivalent of between 1.5 and 10 million x-rays. When used as a fruit fly larvae treatment, food irradiation also extends shelf life, sanitises, and alters the nutritional value of the treated foods. The substantial and significant changes made to fruits and vegetables as a result of processing with irradiation cannot be discerned with our ordinary senses. Furthermore, irradiation is used in conjunction, not as a substitute for chemicals used in food production, cold storage, cooking and other processing of food.

2. As irradiation is invisible, without labelling, shoppers will have no way to discern whether or not a product has been irradiated. Shoppers will be misled into believing irradiated food is fresh or unprocessed.

Labelling is the only way to know: As irradiation is invisible, labelling is the only way to ensure that shopper rights are protected, producers of non-irradiated products are not disadvantaged by having

their products indistinguishable from irradiated products (or are not forced to label “non-irradiated” or “fresh” to ensure the distinction) and that true market forces are allowed to prevail through shoppers being empowered to make fully-informed decisions about what they purchase.

Marketing irradiated fruits and vegetables as fresh would grossly mislead the public and be a failure of duty of care to Australian and New Zealand shoppers.

3. Shoppers have strong opinions on irradiated produce and expect it to be labelled.

‘In October 2001, FSANZ commissioned qualitative research to examine Australian and New Zealand consumer understanding and use of various label elements (NFO Donovan Research 2001)... The report also noted that the general consensus was that even though the word was alarming and off-putting, that it should be used on packaging rather than a symbol, again because people had a right to know what has been done to their food...’

“Tomatoes NZ (the industry body that represents the fresh tomato sector) commissioned a telephone poll of 1000 New Zealand adults in April 2015 (Curia Market Research 2015). Poll participants were asked if they would like:

- the fruit and vegetables they buy that have been treated with irradiation to be clearly labelled as irradiated. (Eighty-five per cent of participants responded that they would).
- to know if a dish they ordered in a restaurant, café or takeaways includes irradiated food. (Seventy-eight per cent of participants responded that they would). “ (p 14-15)

The public wants irradiated food to be labelled.

Precedence and presumption of labelling: All irradiation approvals to date have been premised on the notion that all irradiated food will be labelled. It would be disingenuous to remove labelling so clearly identified as part of the approval process.

Labelling is correctly listed by Food Standards Australia New Zealand as the only method by which shoppers will know if food has been irradiated:

“How can I tell if food has been irradiated?”

A food that has been irradiated, or food that contains irradiated ingredients or components, must be labelled with a statement that the food, ingredients or components have been treated with ionising radiation.

If the food is not normally required to be labelled, then the mandatory labelling statement must be displayed close to the food. This would apply to foods such as:

- whole fruit and vegetables sold loose by supermarkets
- a take away pizza with an irradiated herb as an ingredient.

The radura symbol (below) may be used in addition to the mandatory labelling.”¹

¹ <http://www.foodstandards.gov.au/consumer/foodtech/irradiation/Pages/default.aspx>

Labelling is the status quo and expected. To remove labelling is to deny the public any access to informed choice and is unconscionable.

4 Irradiation is still a new technology with a limited history of safe use in the human food supply.

Australian and New Zealand shoppers have little experience with irradiated foods: Irradiated foods have not been in the Australian food chain for 30 years. In fact the first approval, for herbs and spices, was in 2001 and the list has only recently been extended to include commonly eaten foods such as tomatoes and grapes.

Outside of a few trials, very little irradiated food has been marketed in Australia. New Zealand has received some irradiated produce from Australia, though this is still in niche markets and has not been broadly experienced. The issue of irradiation and labelling, however, have been newsworthy in New Zealand as irradiated Australian produce has the potential to be competition for locally grown non-irradiated items.

Overall, Australians and New Zealanders are unaware of the process of irradiation, and when made aware express concern. It is also clear that Australians and New Zealanders expect products produced using “new” technologies to be labelled. Irradiation is new to most of the public.

It must be noted, however, that in the 1980s, Australian opposition to food irradiation was so strong and publicly acknowledged that a 10- year moratorium was placed on the process in 1989. In 1999, with little public awareness, the moratorium was lifted with plans to construct Australia’s first specifically food- related irradiation facility soon revealed. This facility, at Narangba/Deception Bay – 25 minutes north of Brisbane, is now operating, irradiating food and other commercial items.

Safety cannot be presumed: While our main objective here is to ensure that the public have access to information and choice via accurate information, we must point out that the notion of “safety” is a marketing tool, rather than as a fact.

“Safety” is unsubstantiated. Indeed, FSANZ’s own literature points to the lack of quantified research in to consumption patterns. In a 2014, report FSANZ stated:

"The USA is the second greatest user of food irradiation by volume after China. No consumption data are available, but the amounts sold into the retail trade are known approximately. As the foods have been retailed for several years in a few thousand retail outlets (Eustace & Bruhn 2006), it may be presumed that retailers are actually selling most of the product." (A1092 SD1 page3)

It is farcical to state that irradiation is safe – or has been proven safe – when no data of consumption patterns is available. Safety cannot be "presumed." With "no consumption data available" a scientific statement as to the safe consumption -let alone the safe consumption for over 30 years - is unprovable - and unacceptable. It is a marketing tool, not a scientific fact – and should not used as a premise for assessment of irradiation applications or as a rationale for removing labelling.

Cat food irradiation banned in Australia after cats developed neurological disorder:

The Animal Biosecurity Branch of the Commonwealth Department of Agriculture confirms that: “In 2008-9, 87 cats in Australia were reported to have developed severe neurological disease (chronic

leukoencephalomyelopathy) associated with eating an imported, irradiated dry pet food. ... The department ... concluded that there was a reasonable body of evidence that gamma irradiation, applied as an adjunct quarantine treatment of pet food, was a contributing factor to the disease syndrome. A cause of great distress to the cat owners was the fact that laboratory research proving the potential for this impact existed but had been disregarded at the time by the parties involved. In its latest irradiation literature review, the European Food Safety Authority (ESFA) has not ruled out the potential significance to humans.

The irradiation of cat food is now prohibited in Australia and dog food requires irradiation labelling. To have less or no guidelines for labelling of foods for human consumption is incomprehensible and certainly deceptive to shoppers who are aware of the cat and dog food threat.

Recent science around allergenicity:

A recent study shows that smaller irradiation dosages (~1 Gy) can render protein more allergenic than either non-irradiated protein, or protein irradiated at a higher dosage. This is an ignored but potential emerging food safety risk associated with irradiation. *Vaz, A.F., et al., Low-dose gamma irradiation of food protein increases its allergenicity in a chronic oral challenge. Food Chem Toxicol., 2012. 51C: p. 46-52-doi: 10.1016/j.fct.2012.09.011.*

With limited history in our diet, and no long-term studies conducted, the potential impact of consuming irradiated food cannot be accurately assessed. Ultimately, however, “safety” of the process does not extinguish the public’s right to know about it or necessarily negate public concern. The public expects to be informed when a food has undergone processing and FSANZ has a responsibility to administer that. The current rules on irradiated food labelling should, therefore, be maintained and strengthened.

5. Removal of labelling will disadvantage non-irradiating producers and people who choose to eat irradiation-free.

Producers of non-irradiated foods should not have to bear the potential costs of differentiating themselves from irradiated foods, nor should they be forced to face the potential loss of market due to shopper inability to distinguish irradiated food from non. Irradiation labelling should be improved to include the labelling of individual fruit and vegetables.

New Zealand has a substantial tomato industry – Australia primarily filling an off-season gap. New Zealand tomato growers are keen to ensure that New Zealand shoppers can differentiate between irradiated Australian and non-irradiated local tomatoes.

The Tomatoes NZ chairman Alasdair MacLeod stated "We are demanding compulsory labelling on all irradiated produce, loose or otherwise, be clear and enforced, so that Kiwi consumers can make an informed decision between Australian irradiated tomatoes and New Zealand tomatoes."

²

Furthermore, labelling is correctly listed by Food Standards Australia New Zealand as the only method by which shoppers will know if food has been irradiated:

² <http://www.stuff.co.nz/business/farming/cropping/8618860/Fears-over-treated-Aussie-tomatoes>
Fears over treated Aussie tomatoes, Pryor, Nicole 01/05/2013

“How can I tell if food has been irradiated?”

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If the food is not normally required to be labelled, then the mandatory labelling statement must be displayed close to the food. This would apply to foods such as:

- whole fruit and vegetables sold loose by supermarkets
- a take away pizza with an irradiated herb as an ingredient.

The radura symbol (below) may be used in addition to the mandatory labelling.”³

So far, all irradiation approvals in Australia and New Zealand have been made with the premise and promise that irradiated food will be labelled. Labelling is the status quo and expected. To remove labelling is to deny the public any access to informed choice and is unconscionable.

6. FSANZ and food producers are aware of shopper resistance to irradiated food.

At a 2012 Horticulture Australia Limited (HAL) Forum in Sydney, Paul Harker, head of produce, Woolworths, said the industry needed a united voice on the subject before it proceeds...

“It’s going to be an extremely emotional product and we are not going to stand alone trying to convince Australian consumers that there is nothing wrong with irradiation,” Mr. Harker said.

“We’ve communicated that back to industry and we said unless there is a concerted campaign that is led not only by the people peddling irradiation as an alternative, but unless the government and everyone else is involved in actually talking to the customer about it, the last thing I am going to do is plunk it on my shelf because I can tell you that fresh produce sales will die. People won’t shop there.”
(our emphasis)⁴

In its review document, FSANZ and the Ministerial Council clearly link labelling to the low “uptake” of irradiation foods. (Labelling Review consultation document, p5). They also know that people want irradiation food to be labelled – see #3 above.

Labelling should not be removed in order to mislead people into buying irradiated food

7. Removing labelling to boost sales of irradiated food would be deceitful.

In its review document, FSANZ and the Ministerial Council clearly link labelling to the low “uptake” of irradiation foods. (p5). They also know that people want irradiation food to be labelled – see #3 above.

³ <http://www.foodstandards.gov.au/consumer/foodtech/irradiation/Pages/default.aspx>

⁴ <http://www.theland.com.au/news/agriculture/horticulture/general-news/irradiation-pros-and-cons/2665981.aspx?storypage=0>

Removing labelling would be misleading: Labelling is vital and the removal of labels and signage from irradiated fruits and vegetables would create circumstances in which Australian and New Zealand shoppers would be led to the false, misleading and deceptive conclusion that irradiated fruits and vegetables are fresh produce.

Labelling should not be removed in order to mislead people into buying irradiated food.

8. Australian & New Zealand labelling requirements already fall short of global standards.

Global standards – such as the CODEX guidelines - require irradiated food to be labelled. In fact, removing labelling would make Australia the odd-ball amongst its trading partners – and likely increase costs for food producers who would need to ensure that their export products are labelled appropriately for overseas markets.

In its consultation paper, FSANZ states:

“FSANZ has reviewed the requirements for food irradiation label information in a number of countries. Most of the countries reviewed appear to have based their requirements on the Codex Standard, although some variations occur.

For irradiated whole foods that are packaged, it is common for a mandatory statement to indicate that the food has been irradiated...

For packaged foods that contain an irradiated ingredient(s), most countries require that the ingredient(s) be identified on the label, usually in the list of ingredients...

Most countries require specific signage for unpackaged foods that have been irradiated (e.g. whole produce) and are sold in bulk....”

Furthermore, “FSANZ does not know whether other countries have previously considered, or are considering, changing or removing their food irradiation information requirements.” (All Public Consultation Paper p10)

Labelling is the norm globally and no other country is considering removal, so Australia and New Zealand should also retain their labelling requirements.

9. Labelling requirements should be strengthened to meet global standards & address community concern. At a minimum, labelling should include prescribed words: “irradiated” or “treated with irradiation”

Australia and New Zealand’s failure to meet global labelling standards:

Labelling of irradiated food is the norm with our English speaking trading partners and clearly called for in global standards as set by the international Codex Alimentarius. Non-conformity with international standards would betray Australian and New Zealand shoppers’ belief that their regulatory system is world class and reflects their needs and concerns. As it is, FSANZ’s lack of a

precise, mandatory labelling regime for irradiated foods fails the public and is unprecedented amongst other English-speaking nations, USA, UK and Canada, and our trading partners.

The current labelling regulations do not:

- prescribe mandatory labelling statements,
- ensure individual labelling of irradiated products;
- or require products such as pet food and animal feed to be labelled.

If FSANZ is to live up to its mandate to provide accurate information to ensure public choice, Australia and New Zealand must improve labelling in accordance with global standards requiring at a minimum, the prescribed words:

- irradiated (name of the food),
- treated with radiation,
- or treated by irradiation

Without these improvements, there is still potential for producers to put forward misleading and deceptive claims.

10. FSANZ should not be considering regulatory changes to intentionally decrease public awareness about an issue.

The recently released FSANZ policy guideline “recognises that labelling on foods produced or processed using a new technology can be an issue of consumer interest” though not necessarily a health or safety issue. Australians and New Zealanders have clearly demonstrated concern about irradiation.

Without labels on irradiated foods, the public would be led to conclude that such foods were fresh and not irradiated. The removal of the mandatory labelling and signage requirements from irradiated fruits and vegetables would create a set of false, misleading and deceptive circumstances for shoppers in Australia and New Zealand.

Labelling is the only way to ensure that shopper rights are protected, producers of non-irradiated products are not disadvantaged by having their products indistinguishable from irradiated products (or are not forced to label “non-irradiated” or “fresh” to ensure the distinction.)

Australian and New Zealand labelling standards are already weaker than our trading counterparts and world standards. Rather than being removed, labelling should be improved to prescribe clear and accurate statements such as: “Irradiated---” or “Treated with irradiation.”

In a free market economy, the demand for irradiated products should be driven by shoppers making informed and intentional decisions to purchase such products. Irradiators who are confident that their products are wholesome, healthy and desirable should be proud to label their products irradiated and let the market play out.

With Australia and New Zealand set to dramatically increase the amount of irradiated foods available on the market and in peoples’ diets, the push to remove mandatory labelling and signage requirements is unacceptable and must be stopped.

Recommendation:

Australia and New Zealand must improve labelling in accordance with global standards. For these reasons we are calling for labelling to be improved, not removed. FSANZ must:

- Mandate prescribed wording: For accuracy purposes labelling must include the words:
 - irradiated(food name),
 - treated with radiation,
 - or
 - treated by irradiation
- Prohibit the use of the wording “Treated with Ionising Electrons”
- Mandate individual labelling of irradiated products, including fruit and the containers holding products irradiated in bulk
- Remove positive statements re the irradiation process and
- Prohibit the Radura symbol

ON LINE SURVEY RESPONSES

Food Irradiation Watch is an advocacy network that has been monitoring food irradiation in Australia and New Zealand since 2003. We work with both shoppers and food producers who choose their food to be irradiation-free. We have responded to all questions in this survey as we – and our constituents – are stakeholders or members of all identified sectors: All submitters, produce growers, food manufacturers, food service providers and general food industry.

All submitters (Q1-Q8)

- 1: What information (for example, studies, data or shopper feedback) can you provide on shopper awareness, understanding and behaviour, in response to labelling about food irradiation?**

The Australian and New Zealand public have demonstrable, known and legitimate concerns about irradiation. In recent polling in New Zealand -where irradiated Australian produce is being marketed – 72% of respondents expressed concern.⁵

Furthermore it is clear that the public wants irradiated food to be labelled:

‘In October 2001, FSANZ commissioned qualitative research to examine Australian and New Zealand shopper understanding and use of various label elements (NFO Donovan Research 2001)... the general consensus was that even though the word was alarming and off-putting, that it should be used on packaging rather than a symbol, again because people had a right to know what has been done to their food...’

⁵ http://www.nzherald.co.nz/opinion/news/article.cfm?c_id=466&objectid=10892295

“Tomatoes NZ (the industry body that represents the fresh tomato sector) commissioned a telephone poll of 1000 New Zealand adults in April 2015 (Curia Market Research 2015). Poll participants were asked if they would like:

- the fruit and vegetables they buy that have been treated with irradiation to be clearly labelled as irradiated. (Eighty-five per cent of participants responded that they would).*
- to know if a dish they ordered in a restaurant, café or takeaways includes irradiated food. (Seventy-eight per cent of participants responded that they would). “ (Labelling Review document p14-15)*

In 1999, a broad community campaign about irradiation saw a moratorium put in place. Ten years later, that moratorium was lifted with little public awareness. Australian shoppers and their counterparts overseas – have, however, shown ongoing resistance to irradiated food which has been expressed by opposition to food irradiation applications, rejection by informed shoppers of irradiated foods on the market, community campaigns to close irradiation plants and community campaigns to support local and organic agriculture.

Recent surveys, industry reports and even media from irradiation supporters acknowledge shopper opposition or concern about the technology and point to a need for marketing strategies to gain public acceptance if the irradiated food industry is to grow. Unfortunately for the shopper, the industry sees clear and accurate labelling as a threat to, rather than a marketing strategy for, irradiated food.

Research commissioned by irradiation supporters themselves reveals little public awareness about irradiation and shopper hesitation to support it. An overview of some of the issues brought up by recent tomato and capsicum approvals appeared in The Land. It clearly articulates retailers concerns about shopper perception of irradiation- Woolworth’s basically states that identifying products as irradiated will be a death-knell to their purchase.

The article reveals market research into inaccurate or deceptive statements such as “cold sterilisation” which would make irradiation more palatable to the shopper. Ultimately, “The survey results showed that even when informed, irradiation was not the preferred treatment method among shoppers. Some of the key points follow:

“In the eyes of the public

- Perhaps the biggest battle facing the further implementation of fresh produce irradiation is public awareness.
- Retailers have expressed concern over public resistance to the very term ‘irradiation’ and a shopper backlash against them.
- When questioned about the company’s position at the Horticulture Australia Limited (HAL) November 2012 Forum in Sydney, Paul Harker, head of produce, Woolworths said the industry needed a united voice on the subject before it proceeds.
- “It’s going to be an extremely emotional product and we are not going to stand alone trying to convince Australian shoppers that there is nothing wrong with irradiation,” Mr. Harker said.
- **“We’ve communicated that back to industry and we said unless there is a concerted campaign that is led not only by the people peddling irradiation as an alternative, but unless the government and everyone else is involved in actually talking to the customer about it, the last thing I am going to do is plonk it on my**

shelf because I can tell you that fresh produce sales will die. People won't shop there."⁶ (our emphasis)

The industry is aware that people have an aversion to irradiated food. We know that our members and would not knowingly purchase irradiated food. We therefore support mandatory labelling of irradiated food.

Our understanding from decades of anecdotal evidence is that older people in our community – who are aware of irradiation – believe that food irradiation was stopped in the late 1980s and that irradiated food should not be on the Australian market. There is no evidence that community sentiment has changed. We expect that most people still choose not to eat irradiated foods if given the choice. The fact that irradiation was previously banned in Australia – and that in 2003 the Senate passed a motion for no further irradiation approvals, is testament to community opposition.

The fact that 87-100 Australian cats developed neurological disorders attributed to consuming irradiated pet food shows that irradiation has a chequered history in Australia. The irradiation of cat food is banned – and dog food must be labelled that it is "not fit for consumption by cats." AQIS Industry Notice 33/2009: Changes to Import Conditions for Pet Foods – Updates to Notices 33/2008-09 and 7/2009'(see Enclosure 11).

All food irradiation approvals to date have been premised on the assertion that all irradiated foods will be labelled. FSANZ and state health department publications inform the public that the way to tell if food is irradiated is through its mandatory labelling. Some examples follow:

FSANZ: "How can I tell if food has been irradiated?

A food that has been irradiated, or food that contains irradiated ingredients or components, must be labelled with a statement that the food, ingredients or components have been treated with ionising radiation." ⁷

Victoria: "It is mandatory for irradiated foods to be labelled in accordance with regulations by FSANZ." ⁸

Queensland Health: "How will I know if the food I eat is irradiated?

The labelling on a package of irradiated food must include a statement to the effect that the irradiated food has been treated with ionising radiation..." ⁹

Labelling is the public's expectation and, to date, the government's undertaking. It would be disingenuous to remove labelling that has been so clearly identified as part of the approval and commercialisation process.

2. Do you purchase, or would you consider purchasing, irradiated food?

⁶ <http://www.theland.com.au/news/agriculture/horticulture/general-news/irradiation-pros-and-cons/2665981.aspx?storypage=0>

⁷ <http://www.foodstandards.gov.au/shopper/foodtech/irradiation/Pages/default.aspx>

⁸ <https://www.betterhealth.vic.gov.au/health/healthyliving/food-irradiation>

⁹ <https://www.health.qld.gov.au/publications/portal/food-safety-hazardous/food-irradiation.doc>

The people in our networks choose to eat non-irradiated food – or at a minimum want to be able to make the choice as to whether or not they purchase irradiated food. It is not FSANZ's role to assess a market for a certain commodity – such as irradiated food - but to ensure that that commodity is safe and that the public has access to necessary information to make informed choices about it. It is of great concern that the regulator appears in this process to be unjustifiably concerned with facilitating the marketing of irradiated food, knowing that the public has reservations about the process. It is clear that labelling is seen as an impediment to the "uptake" of the technology, that FSANZ shares this analysis with the pro-irradiation food industry, and that removal of labelling is seen as a way to increase the market for irradiated food. It is also clear that both FSANZ and pro-irradiation industry are aware that the public has reservations about irradiation food and wants it to be labelled. It is duplicitous – and inappropriate for the regulator to work with industry to deny the public information that they clearly demand, in particular when labelling is the norm globally and called for by international food standards.

3. Does the current labelling requirement for irradiated food (see box below) provide enough information for you to make an informed choice about the food you buy?

Labelling requirement: If the food, ingredient or component of a food has, been irradiated, a statement to the effect that the food, ingredient or, component has been treated with ionising radiation is required.

Precise mandatory labelling is necessary – AND the wording of that labelling needs to be prescribed to include: either the words: "irradiated" or "treated with radiation/irradiation".

Current labelling requirements are inadequate, leaving the shopper guessing. Though there is "mandatory" labelling, it remains hard to tell if something has been irradiated. These reasons for this are:

- 1) The laws allow "labelling" to be a SIGN placed near point of sale - rather than actual individual stickers or labels. So one needs to look up and around to see if there are any "statements" "to the effect of" the product having been irradiated NEAR the product as it may not be ON the product.

While this practice is legal, it is our understanding that people understand "Labelling" to mean something that is affixed to a product or written on the package.

Indeed, according to the Cambridge English Dictionary, 1990, a "label" is "*a slip of paper, &c., affixed to something stating name, contents &c.*"

A sign nearby is not what would commonly be understood as a label. Communicating to the public that irradiated food is labelled and then only requiring a sign nearby is misleading.

In 2006, Australian irradiated mangoes imported into New Zealand, were removed from a labelled carton and sold without any labelling or signage. This case was exposed simply because a person who saw the mangoes for sale was an environmental and shopper advocate who knew that Australian mangoes sold in New Zealand were irradiated. This coincidental discovery of an infraction of labelling regulations begs the question "how many other such cases are there that are not being monitored?"

In fact, in 2011, Senator Scott Ludlam (WA) brought the issue to the attention of the Australian Senate with an unlabelled packet of spice mix purchased in an Australian store. Disciplinary action was then followed up by the Victorian Health Department.

While the EU conducts regular checks into irradiation and labelling, we are not aware of any checks being conducted by FSANZ. In light of the lack of regulatory follow-up, a regulation that allows products to go unlabelled is begging to be breached! Comprehensive and mandatory individual labelling would alleviate this problem and would provide the public with the assurance that when FSANZ says a product is labelled, it is actually labelled and that an unlabelled product is, in fact, not irradiated.

We would, therefore, like to see all irradiated produce individually labelled and products with irradiated ingredients labelled accordingly.

- 2) The current labelling requirements in Australia and New Zealand do not require prescribed wording. A labelling statement to the ***“effect that the food, ingredient or, component has been treated with ionising radiation”*** may not even include the words radiation or irradiation.

The phrase “Treated with ionising electrons” has been removed as an example in the Code, however it is still permissible as a labelling statement as these are left to the industry’s discretion. FSANZ has agreed that the term “ionising electrons” is difficult to understand in its use of unfamiliar terms, does not indicate to the general public the use of radiation, and depending on the type of radiation used is technically inaccurate. Australian irradiation facilities use gamma radiation. Gamma radiation bombards the exposed product with high energy electromagnetic radiation and does not consist of electrons. X-ray irradiation, which is also permitted in Australia, is also high energy electromagnetic radiation.

For these reasons we are calling for labelling to be improved, not removed. To ensure that the public has the right to choose, we also call on FSANZ to:

- Mandate prescribed wording: For accuracy purposes labelling must include the words: irradiation or treated with ionising radiation. (as above)
- Prohibit the use of the wording “Treated with Ionising Electrons”
- Mandate individual labelling of irradiated products, including fruit and the containers holding products irradiated in bulk
- Remove positive statements re the irradiation process and
- Prohibit the Radura symbol

4. What are your views about the wording of the statement not being prescribed?

It is imperative that the words be prescribed to state either: “irradiated” “treated with radiation/irradiation”. We are aware that irradiation proponents have used misleading or unfamiliar terms on their labelling – such as “radurised” or “treated with ionising electrons” which confuse the public.

We are also aware that proponents frequently attempt to use the terms “cold pasteurisation” or suggest that irradiation is similar to pasteurisation, which is also both scientifically inaccurate and misleading.

The Radura mark should not be used as it is deceptive. It suggests a budding flower when in fact irradiation stops flowers/plants from sprouting. Furthermore, “positive” statements should not be

permitted on irradiation labelling unless statements about potential allergenicity or nutritional compromise be included.

5. What are your views about the voluntary use of the Radura symbol?

The Radura symbol should be prohibited as it is misleading and unfamiliar to most people.

The Radura symbol permitted, but not required, on irradiated products in Australia, has clearly been designed to lead the public to believe that the process is “clean and green”. The design consists of a plant inside a circle, which is dashed on the top, reported to represent radiation. The form suggests a budding flower when in fact irradiation stops flowers/plants from sprouting. There are two commonly used versions of this symbol, (below) the international version and the version required on irradiated food in the US. The Radura symbol is strikingly similar to the US Environmental Protection Agency logo and bears no resemblance to the commonly used and easily recognizable symbol for radiation. (also below)



The international Radura mark logo



US FDA Radura mark US Environmental Protection Agency



Radiation symbol
radiation



New Int'l Atomic Energy Agency sign warning re ionizing

The original intention of the Radura mark is reported to have been to represent a high quality product that had a long shelf life. “The word "Radura" is derived from radurization, in itself an artificial word combining the initial letters of the word "radiation" with the stem of "durus", the Latin word for hard, lasting. (http://en.wikipedia.org/wiki/File:Radura_international.svg)

The Radura was originally used in the 1960s exclusively by a pilot plant for food irradiation in Wageningen, Netherlands that owned the copyright. Jan Leemhorst, then president of Gammaster, untiringly propagated the use of this logo internationally. The use of the logo was permitted to everybody adhering to the same rules of quality. The symbol was also widely used by Atomic Energy of South Africa, including the labelling by the term 'radurized' instead of irradiated. By his intervention, the new logo was also included in the Codex Alimentarius Standard on irradiated food as an option to label irradiated food. Today it is found in the Codex Alimentarius Standard on Labelling of Prepacked Food.

It is clear that irradiation proponents developed, designed and promoted this logo with the intention of making irradiation seem attractive to shoppers and removing any recognizable reference to radiation in the process.

Recent research shows that shoppers are inclined to accept products irradiated with the Radura symbol, despite having little knowledge of the irradiation process.

“In Chile the “Radura” symbol is not frequently present on food labels. The irradiation treatment is normally identified by the statement “tratado por energía ionizante” (treated by ionizing energy); 95.8% of the responders in the present study were not familiar with this symbol for irradiated food. However, 55.8% said that they would buy irradiated food because of the symbol, affirming that the “Radura” transmits the sensation of confidence and safety.

The association of the symbol “Radura” with the statement “treated by ionizing energy” might facilitate the shopper’s acceptance of irradiated food in Chile since most of the interviewed persons affirmed that the symbol means confidence and safety. A similar situation exists probably in many other countries.”¹⁰

While the logo denotes a plant, and is usually green in colour suggesting life or freshness, the purpose of irradiation is to use radiation to extend the shelf life – allowing irradiated products to appear fresh though they are not. Irradiation does not clean a product or remove contaminants, such as animal faeces in poorly produced herbs or on hastily slaughtered beef, it simply acts to neutralize or mask these contaminants.

The reality of the process is far removed from the image suggested by the logo.

The logo is suggested by irradiation proponents as a means to encourage consumption of irradiated products – in this sense it is a marketing tool. We call on the FSANZ to actively ban its use and ensure that this logo will not be permitted on packaging or products in Australia or NZ.

6. Do you think the current labelling requirement for all foods permitted to be irradiated should be removed?

-

The current labelling requirements have been put in place to inform the Australian and New Zealand public about the unfamiliar and food-altering process of irradiation.

All irradiation approvals in Australia and New Zealand have been made with the premise and promise that irradiated food will be labelled. Labelling is the status quo and expected. To remove labelling would be a breach of faith and misleading to the public.

To remove labelling is to deny the public any access to informed choice and is unconscionable.

It is clear that industry would like to have labelling removed in order to increase shopper acceptance of irradiated food – by keeping public unaware that a product has been irradiated.

¹⁰ (Junqueira-Gonçalves, Maria P., Galottoa, Maria J., Valenzuelaa, Ximena, Dintenb, Carolina M, Aguirrec, Paulina, Miltzd, Joseph, “Perception and view of shoppers on food irradiation and the Radura symbol” Radiation Physics and Chemistry, Volume 80, Issue 1, January 2011, Pages 119–122 4 June 2010)

Without labelling, Irradiated fruits would be marketed as “fresh” despite being exposed to 150Gy - 1kGy of ionising radiation, which is equivalent to approximately: 1.5 million – 10 million chest x-rays per exposure. Irradiation decreases the vitamin and nutritional content of food and disrupts its molecular structure, producing free radicals and potentially harmful chemicals such as benzene, formaldehyde and cyclobutanones.

We are outraged that the food regulator and government Health Departments would remove the public’s right to know about a process which chemically alters our food – and is not discernible to the senses. Governments would make people LESS aware about processes of food production to give unfair advantage to just one of the many methods of fruit fly worm management.

The government has a duty of care to ensure the public is informed about the products of processes about which:

- people have well-founded and genuine concerns
- scientists and nutritionists are divided
- there is no means of sensory identification, except for labelling.

Global standards – such as the CODEX guidelines - require irradiated food to be labelled. In fact, removing labelling would make Australia the odd-ball amongst its trading partners – and likely increase costs for food producers who would need to ensure that their export products are labelled appropriately for overseas markets.

Labelling is the global norm. Australia and New Zealand should be strengthening labelling, not removing it. In the consultation paper, FSANZ states:

- “FSANZ has reviewed the requirements for food irradiation label information in a number of countries. Most of the countries reviewed appear to have based their requirements on the Codex Standard, although some variations occur.
- For irradiated whole foods that are packaged, it is common for a mandatory statement to indicate that the food has been irradiated...
- For packaged foods that contain an irradiated ingredient(s), most countries require that the ingredient(s) be identified on the label, usually in the list of ingredients...
- Most countries require specific signage for unpackaged foods that have been irradiated (e.g. whole produce) and are sold in bulk....”
- Furthermore, “FSANZ does not know whether other countries have previously considered, or are considering, changing or removing their food irradiation information requirements.” (All from FSANZ Public Consultation Paper p10)

6. If labelling was to continue for irradiated whole foods, do you think restaurant meals containing irradiated ingredients should still be labelled?

Yes, all irradiated foods should be labelled. The public should be informed of any and all irradiated components.

7. If labelling was to continue for packaged foods containing irradiated ingredients, do you think the irradiated ingredients should still be labelled?

All irradiated foods should be labelled. The public should be informed of any and all irradiated components. All of Australia’s irradiation approvals have been premised on the assurance that

irradiated products would be labelled. To remove labelling would be a breach of faith and misleading to the public

Produce growers:

9. Does the mandatory labelling requirement prevent you from using irradiation as a treatment for your produce? Please provide reasons for your answers.

We work with both shoppers and food producers who choose their food to be irradiation-free.

From a shopper's perspective, if producers are not using a process because they have to label it, it is clear that they are concerned about shopper resistance to irradiation – or they are wrongly claiming that labelling costs are prohibitive. We choose to support growers who choose to not irradiate. These growers and producers would be disadvantaged by the removal of labelling. To distinguish their products from irradiated products they would be forced to bear the costs of identifying their fresh produce as “fresh” or non-irradiated, while irradiated, and therefore technically processed foods, go unlabelled.

We have great concerns about any process that food producers feel they need to hide from shoppers. It is trickery to remove labelling to get people to purchase irradiated food. If the process is positive, useful and healthy, producers should be proud to label their irradiated products – and let the market decide.

Furthermore, resistance to labelling ascribed to “costs” must be discounted as 1) Labelling is the status quo and expected 2) current labelling regulations require only signage nearby the product at point of sale meaning the producer bears little or no cost this messaging. 3) As labelling is the norm, removing labelling for the Australia/New Zealand market would require food manufacturers to produce separate labels for their export products – in fact increasing costs. Most countries require labelling – Australian food producers should be falling in line with global standards.

Producers of non-irradiated foods should not have to bear the potential costs of differentiating themselves from irradiated foods. New Zealand has a substantial tomato industry – Australia primarily filling an off-season gap. New Zealand tomato growers are keen to ensure that New Zealand shoppers can differentiate between irradiated Australian and non-irradiated local tomatoes.

The Tomatoes NZ chairman Alasdair MacLeod stated "We are demanding compulsory labelling on all irradiated produce, loose or otherwise, be clear and enforced, so that Kiwi shoppers can make an informed decision between Australian irradiated tomatoes and New Zealand tomatoes." ¹¹

Finally, it is not FSANZ's role to support the growth of the irradiated food industry. FSANZ is mandated to protect the public through ensuring a safe food supply. Supporting industry to develop the irradiated food market is beyond FSANZ's scope – and inappropriate.

Food manufacturers:

¹¹ <http://www.stuff.co.nz/business/farming/cropping/8618860/Fears-over-treated-Aussie-tomatoes> Fears over treated Aussie tomatoes, Pryor, Nicole 01/05/2013

10. Do you use irradiated ingredients in your products? (For example, tomato paste, herbs & spices).

Our associates prefer to avoid irradiated ingredients. We are aware from our research that in some cases, due to inadequate testing by the government, it is difficult for food producers to monitor the entire supply chain. We call on the government to carry out regular testing/monitoring to support food producers who wish to provide irradiation-free food. This testing/monitoring should be supported by irradiation proponents who should wish the public to be informed about irradiated products.

11. Does the fact that irradiated foods have to be labelled impact on your decision to use them?

Our associates prefer to avoid irradiation. They also label within the framework of the law – though some have already begun to label their products “irradiation-free.”

From a shopper’s perspective, if producers are not using a process because they have to label it, it is clear that they are concerned about shopper resistance to irradiation – or they are wrongly claiming that labelling costs are prohibitive.

We are great concerns about any process that food producers feel they need to hide from shoppers. It is trickery to remove labelling to get people to purchase irradiated food. If the process is positive, useful and healthy producers should be proud to label their irradiated products – and let the market decide.

Furthermore, resistance to labelling ascribed to “costs” must be discounted as 1) Labelling is the status quo and expected 2) for bulk products current labelling regulations require only signage nearby the product at point of sale meaning the producer bears little or no cost this messaging. 3) As labelling is the norm, removing labelling for the Australia/New Zealand market would require food manufacturers to produce separate labels for their export products – in fact increasing costs. Most countries require labelling – Australian food producers should be falling in line with global standards.

Some producers already choose to label their products “irradiation-free”. However, producers of non-irradiated foods should not have to bear the potential costs of differentiating themselves from irradiated foods. As mentioned above: New Zealand has a substantial tomato industry – Australia primarily filling an off-season gap. New Zealand tomato growers are keen to ensure that New Zealand shoppers can differentiate between irradiated Australian and non-irradiated local tomatoes.

The Tomatoes NZ chairman Alasdair MacLeod stated “We are demanding compulsory labelling on all irradiated produce, loose or otherwise, be clear and enforced, so that Kiwi shoppers can make an informed decision between Australian irradiated tomatoes and New Zealand tomatoes.”¹²

Finally, it is not FSANZ’s role to support the growth of the irradiated food industry. FSANZ is mandated to protect the public through ensuring a safe food supply. Supporting industry to develop the irradiated food market is beyond FSANZ’s scope – and inappropriate.

12. How important is the labelling factor alongside other factors? (For example, price, availability of ingredients, quality of produce, reputation of supplier).

¹² <http://www.stuff.co.nz/business/farming/cropping/8618860/Fears-over-treated-Aussie-tomatoes> Fears over treated Aussie tomatoes, Pryor, Nicole 01/05/2013

We understand the need to label irradiated products from both a shopper and producer point of view. Our associates prefer to avoid irradiated ingredients and wish to see mandatory labelling continue. Labelling is the status quo and food producers using irradiation should see labelling as an opportunity to inform the public about their products. We are concerned that irradiated foods remain labelled because our industry constituents choose NOT to irradiate or sell irradiated foods. Removing the labelling requirement would mean that our associates' non-irradiated products are not distinguishable from irradiated products. This would disadvantage them, would make the market place less competitive and unfairly place the cost and onus upon them to distinguish themselves from irradiated products.

13. If the mandatory labelling requirement was removed for irradiated ingredients used in processed foods, would your company be more likely to use irradiated ingredients?

Both the shoppers and food producers in our networks choose their food to be irradiation-free. Our associates prefer to avoid irradiated ingredients and wish to see mandatory labelling continue to ensure their products are to the standard they expect.

Our industry associates choose not to irradiate due to their concerns about irradiation and/or their understanding that shoppers do not want to eat irradiated foods. They would not like to be perceived as so unscrupulous that they would trick the public in to purchasing an irradiated product by not labelling it.

Food service providers:

14. Do you use irradiated whole foods in your products? (For example, irradiated tomatoes in sandwiches).

The food service providers and others in our networks choose their food products to be irradiation-free. Our associates prefer to avoid irradiated ingredients and wish to see mandatory labelling continue.

15. If the mandatory labelling requirement was removed for irradiated whole foods, would you still ask suppliers to label the food?

Our stakeholders in this matter choose their food to be irradiation-free. We expect food companies to have the integrity to honour the public's real and legitimate concerns about irradiation and therefore expect them to inform all levels of food manufacturing and marketing to use labelling to keep the public and supply chain informed. We understand that companies generally choose to label in accordance with the law and that it would, therefore, be hard to compel them to label without mandatory labelling. Non-labelling could severely disadvantage food producers that choose to avoid irradiated ingredients and fail to let the real market play out.

All of Australia's irradiation approvals have been premised on the assurance that irradiated products would be labelled. To remove labelling would cause us to play a part in a gross deception of the public and damage our reputation and reliability.

All industry submitters

16. Have you conducted any shopper research or received shopper enquiries about irradiated food? If so, are you able to provide the research to FSANZ?

Food Irradiation Watch has conducted both industry and shopper research on irradiated food. In 2005, after surveying 1000 Australian food producers, we published Irradiation-Free Food Guide, which was slightly updated in 2007. With virtually no budget, by word of mouth promotion through individual and on-line orders, over 25,000 copies of this Guide were distributed. FI Watch continues to receive enquiries from concerned shoppers of both human and pet food – as well as shoppers and distributors of therapeutic goods.

Public consultation on food irradiation applications has also shown the responding public to be overwhelmingly opposed. For example, in the final round of public consultation on the irradiation of tropical fruit, 675 submissions were made against the proposal. There were only 16 in favour. The application was still approved.

The fact that irradiation was banned in Australia – and that in 2003 the Senate passed a motion for no further irradiation approvals is testament to community opposition.

Furthermore, the fact that 87-100 Australian cats developed neurological disorders attributed to consuming irradiated food, which lead to the banning of the irradiation of cat food is banned – and the labelling of irradiated dog food - suggests that irradiation has a chequered history in Australia.

Research commissioned by irradiation reveals little public awareness about irradiation and shopper's desire to be informed through labelling. FSANZ's consultation papers confirm this.

In recent polling in New Zealand - where irradiated Australian produce is being marketed – 72% of respondents expressed concern.¹³

'In October 2001, FSANZ commissioned qualitative research to examine Australian and New Zealand shopper understanding and use of various label elements (NFO Donovan Research 2001)... the general consensus was that even though the word was alarming and off-putting, that it should be used on packaging rather than a symbol, again because people had a right to know what has been done to their food...'

"Tomatoes NZ (the industry body that represents the fresh tomato sector) commissioned a telephone poll of 1000 New Zealand adults in April 2015 (Curia Market Research 2015). Poll participants were asked if they would like:

- the fruit and vegetables they buy that have been treated with irradiation to be clearly labelled as irradiated. (Eighty-five per cent of participants responded that they would).*
- to know if a dish they ordered in a restaurant, café or takeaways includes irradiated food. (Seventy-eight per cent of participants responded that they would)." (FSANZ Review document p14-15)*

It is also clear that industry is wary of selling irradiated food:

At a 2012 Horticulture Australia Limited (HAL) Forum in Sydney, Paul Harker, head of produce, Woolworths said the industry needed a united voice on the subject before it proceeds...

¹³ http://www.nzherald.co.nz/opinion/news/article.cfm?c_id=466&objectid=10892295

"It's going to be an extremely emotional product and we are not going to stand alone trying to convince Australian shoppers that there is nothing wrong with irradiation," Mr. Harker said.

"We've communicated that back to industry and we said unless there is a concerted campaign that is led not only by the people peddling irradiation as an alternative, but unless the government and everyone else is involved in actually talking to the customer about it, the last thing I am going to do is plonk it on my shelf because I can tell you that fresh produce sales will die. People won't shop there."
(our emphasis)¹⁴

Australian and New Zealand shoppers' knowledge of and attitudes towards irradiation:

Over the past 30 years, Australians have shown considerable opposition to food irradiation. In the 1980s there was a huge movement against food irradiation in Australia and worldwide. International shoppers' conventions in Europe and Australia called for a moratorium on food irradiation. Politicians came on board the campaign and in Australia; a Public Inquiry into irradiation saw the participation of all major environmental organizations, including Australian Conservation Foundation, Greenpeace, Friends of the Earth Australia as well as shoppers' organisations and women's organisations.

"In 1987, the Australian Shopper's Association joined with all the major national and international shopper bodies in voting for a worldwide moratorium..." Records show that thousands of Australians signed petitions opposing food – making it a stand-out issue during its time.

A moratorium was put on the practice in 1989. This moratorium was lifted without much public awareness in 1999, coincidentally within weeks the Caboolture Shire Council gave approval for the building of a nuclear irradiation plant at Deception Bay.

It is our understanding that most young Australians are unaware of food irradiation and that older Australians who were aware of the issue believe that the practice was finally stopped in 1989.

Between 1999 and 2003, a campaign was waged against a nuclear irradiation facility in Queensland and the first-ever application to irradiate food in Australia – Application A413 by the irradiation company Steritech for herbs. Again, thousands of petitioners petitioned both the state and federal governments on these issues and many made submissions against the application. In 2003, a further application, A443 for the Irradiation of tropical fruits, saw an overwhelming majority of submissions opposing the application 675 in against, 16 in favour- the application was nonetheless approved.

As a testament to the political understanding that the broader community does not support food irradiation in August 2003, the Australian Senate passed a motion calling for the Australian government to commission further research and disallowing further irradiation approvals until such research had been done. (chamber/journals/2003-08-14/0010). The motion passed with the support of the Labor Party, the Greens and the Democrats.

There is no evidence that Australians' attitudes towards irradiation have changed since the strong demonstrations of public opposition in the 1980's and early 2000s.

¹⁴ <http://www.theland.com.au/news/agriculture/horticulture/general-news/irradiation-pros-and-cons/2665981.aspx?storypage=0>

Food Irradiation Watch speaks with people from all walks of life who are alarmed by the prospects of food irradiation. In 2005, FI Watch surveyed 1000 Australian food companies on their food irradiation policies, attitudes and practices. The research enabled us to produce the Irradiation-free Food Guide, which was reprinted with slight changes in 2007. Though FI Watch has been fairly inactive since 2008, the Food Irradiation Watch website and Irradiation-Free Food Guide continue to be popular. To date, approximately 25,000 hard copies of the Guide have been distributed.

We continue to receive requests for information and/or our Irradiation-free Food Guide. Since the Guide's original publication, several major food producers have developed irradiation-free policies, which we understand is due to shoppers concern about this issue expressed through their contacting the companies.

The research that has been done in Australia and overseas consistently indicates shopper resistance to the technology.

In December 2001 the report: Qualitative Research with Shoppers – Food Labelling Issues, produced for FSANZ (then ANZFA) found that:

“There was even less awareness and more misunderstanding about irradiated foods [than Genetically Modified foods.] The word ‘irradiation’ is almost synonymous with ‘radiation’ [also connoting ‘nuclear’] (their brackets) and is consequently suspected to be unsafe or bad for you.

Much would need to be done by ANZFA to educate people about exactly what irradiation means, how irradiated foods compare safety-wise and nutritionally to similar products preserved in other ways, and what the potential benefits are before it would be acceptable to shoppers at large.” (Donovan Research for ANZFA, Qualitative Research with Consumers – Food Labelling Issues 2001, p 15)

Despite the apparent research bias towards promoting irradiation, the researchers found that there is little shopper acceptance of the technology.

The same research found that Australian shoppers believe that:

- they have the right to access to information about their food and
- that the government will facilitate that right.

This was demonstrated by the fact that:

“Consumers expressed an absolute right to know about any GMOs included in any products...”

Consumers, also, expected all genetically modified food to be labelled as such. (Donovan Research for ANZFA, Qualitative Research with Consumers – Food Labelling Issues 2001, p 15)

“It was generally thought by most people that even if a product was not specifically labelled as 'GMO-free' it would not be genetically modified. That is, they would expect any product that contained genetically modified organisms to be clearly labelled that this was the case.” (Donovan Research for ANZFA, Qualitative Research with Consumers – Food Labelling Issues 2001, p 15)

Overall, shoppers expressed general concern about the food supply and regulation and suggested that they trust their government to inform them about products and to label products clearly.

“The concern over the use of GM illustrates the level of general apprehension about the food supply and the perceived importance of maintaining stringent control over it...” (Donovan Research for ANZFA, Qualitative Research with Consumers – Food Labelling Issues 2001, p 60)

However, “There is an over-riding belief that the food system in Australia and New Zealand is safe, and this sense of trust is extended to food labels. People generally have faith that the labels will be fairly accurate and reliable - as long as the governing body continues to check the products to ensure compliance. In this way there is a belief in 'good' governance.” (Donovan Research for ANZFA, Qualitative Research with Consumers – Food Labelling Issues 2001, p 16)

This research has great significance for FSANZ when considering labelling regulations and, in particular, proposals to remove or lessen labelling requirements.

Shoppers’ reported concerns over irradiation must be met with access to comprehensive and accurate information about the process to ensure that FSANZ lives up to its mandate to enable shoppers’ rights to choose. We can extrapolate from this research that if a product is not labelled as irradiated then the public will assume that it is not.

Incidences such as the illness of Australian cats after eating irradiated food has highlighted an area of ongoing concern for FI Watch and the public: the lack of understanding that many products consumed by Australians and New Zealanders are not labelled as they are not legally “food” under Australian and New Zealand law.

It is the case in Australia that one company’s irradiated herbal teas and irradiated “therapeutic quality” herbal teas are similarly packaged, and sit side by side or near each other, on shelves in stores. The packaging of the tea regulated as food contains a statement re irradiation, the packaging of the tea regulated as therapeutic goods does not. The average shopper has no way to ascertain that the “therapeutic quality” teas may also be irradiated – nor can they be expected to.

As a result of ten years work culminating in the distribution of 25,000 shopper guides on the issue, is our opinion that shoppers are not aware that products they consume may fall under different regulatory regimes and therefore have different labelling requirements.

Shoppers are unaware of the “food-drug interface”, and have no obvious means by which to assess that products which may be marketed in one store may fall under differing regulatory bodies and therefore have no labelling requirement. The average shopper has no way of knowing that some fall under the “food” regulatory regime – while others fall under the therapeutic or veterinary regulatory systems and consequently do not require labelling. This is a grave failure of the regulatory system.

When conducting its Review of Food Labelling Law and Policy Review, the government acknowledged an “optimism bias whereby shoppers assume that unmentioned factors are favourable.”

Coupled with “optimism bias” felt by Australian shoppers, the current flawed labelling regimen leads shoppers to believe that products which are not labelled “irradiated”, are not irradiated.

Australian cat owners whose cats were disabled by eating irradiated food were shocked to find that the food they bought for their cats was not “food” by law. Indeed, it may be that the majority of irradiated and genetically modified products are not labelled as they either fall into the category of foods that don’t require individual labelling – such as fruit – or are classified as animal feed, pet food

or therapeutic goods. Without labelling we are unable to assess the scope of irradiation on these products. Unfortunately, this failure to regulate has led to tragedy for some Australian cats, the banning of irradiated cat food and the labelling for Australian dog food. While the labelling of therapeutic goods and animal feed falls outside the scope of this review, informed consent from the public will only be achieved when all irradiated products consumed by people and animals are labelled.

Australian shoppers – and their counterparts overseas - have shown ongoing resistance to irradiated food – which has been expressed by campaigning over 30 years, opposition to food irradiation applications, rejection by informed shoppers of irradiated foods on the market, community campaigns to close irradiation plants and community campaigns to support local and organic agriculture.

Pushes by industry to remove labelling and/or to use labelling that does not include the words “radiation” or “irradiation” and/or to use euphemistic terms such as cold-pasteurisation”, or “pasteurization”, “ionizing electrons” suggest that industry also acknowledges shopper rejection of the technology.

Shoppers do not want to eat irradiated food. In light of this, Australia should move towards banning irradiated foods – or at a minimum ensuring that comprehensive, non-biased labelling is guaranteed for all irradiated products so that the public can make an informed choice and the real market for irradiated food can be discerned.

17. Do you think the current mandatory labelling requirement is an impediment to developing existing / new markets? What reasons do you have for this?

Food Irradiation Watch is an advocacy network that has been monitoring food irradiation in Australia and New Zealand since 2003. We work with both shoppers and food producers who choose their food to be irradiation-free.

Global food standards, CODEX and most of our trading partners – and all of the countries listed in the discussion paper – require more stringent labelling than Australia as it is. Removing labelling from irradiated products for the domestic market would see Australian companies incurring the added cost of labelling their products for the overseas markets - which generally require labelling as well as often prescribing the wording to include “irradiated” or “treated with irradiation”.

Not labelling irradiate products would also call in to question Australia’s transparency and reliability as a global trading partner and would be bad for our reputation.

Australia’s regulations should be improved to fall in line with global mandatory labelling requirements.

In fact, all of Australia’s irradiation approvals have been premised on the assurance that irradiated products would be labelled. To remove labelling would be a gross deception to the public – who though perhaps divided on novel technologies, demand and expect them to be labelled.

18. What do you perceive to be the costs associated with the mandatory labelling requirement? (For example, costs of segregating irradiated produce from non-irradiated produce, specific packaging and/or labelling costs, traceability costs).

Irradiation is the status quo and is the status quo in our trading partners. Therefore, labelling should be considered a pre-requisite to all irradiation approvals. The costs are, therefore, no greater than the labelling already required.

As the current regulations state that individual labelling of irradiated produce is not required and that a sign nearby will suffice, there is virtually no cost associated with labelling of irradiated bulk foods. For packaged irradiated products or in the case that individual labelling of produce is prescribed, the cost would be a minimal – one off - design fee cost associated with placing the labelling statement on the sticker or package.

For new products, labelling costs will be no more than those attributable to general package design – in particular as labelling is already the norm and is expected. In fact, all of Australia's irradiation approvals have been premised on the assurance that irradiated products would be labelled. To remove labelling would be a gross deception to the public – who though perhaps divided on novel technologies demand and expect them to be labelled.

Mandatory labelling helps the public make informed choices about what they eat. It is important that our food industry appears to be honest, reliable and forthright with the public so that they can maintain long-term trust in our system and that both overseas and domestic shoppers can maintain trust in Australian and New Zealand products.

19. What do you perceive the costs associated with the removal of mandatory labelling to be? (For example, potential for loss of shopper confidence in your products, amending product segregation, handling and display processes).

Mandatory labelling allows businesses to help the public make informed choices about what they eat.

Removing the labelling requirement would mean that non-irradiated products are not distinguishable from irradiated products. This would disadvantage producers and would make the market place less competitive. It would unfairly place the cost and onus upon non-irradiators to distinguish themselves from irradiated products.

All of Australia's irradiation approvals have been premised on the assurance that irradiated products would be labelled. To remove labelling would be misleading to the public and lead to the questioning of the food system's integrity.

Global food standards, CODEX and most of our trading partners – and all of the countries listed in the discussion paper – require more stringent labelling than Australia as it is. NOT labelling irradiated products for our domestic market would see Australian and New Zealand food producers incur the added cost of labelling their products for the overseas markets which require labelling – generally prescribing the words to include “irradiated” or “treated with irradiation”.

Mandatory labelling allows helps the public make informed choices about what they eat. It is important to us that Australian and New Zealand food producers and retailers company appear to be honest, reliable and forthright with the public so that they can maintain long-term trust in their products.

20. What are the opportunity costs for your business associated with the mandatory labelling requirement? (That is, does the requirement to label irradiated produce cause you to

compromise in your business practices? For example, does the time delay involved in labelling your produce prevent you from accessing certain market opportunities?).

Irradiation is the status quo and is the status quo in our trading partners. Therefore, labelling should be considered a pre-requisite to all irradiation approvals. The costs are no greater than the labelling already required.

As the current regulations state that individual labelling is not required and that a sign nearby will suffice, there is virtually no cost associated with labelling of irradiated foods. As with packaged irradiated foods, if individual labelling of produce was to be prescribed, the cost would be a minimal – one off - design fee cost associated with placing the labelling statement on the sticker or package.

For new products, labelling costs will be no more than those attributable to general package design – in particular as labelling is already the norm and is expected. In fact, all of Australia's irradiation approvals have been premised on the assurance that irradiated products would be labelled. To remove labelling would be a gross deception to the public – who, though perhaps divided on novel technologies, demand and expect them to be labelled.

21. What are the relative costs and benefits of irradiation and other treatments in terms of cost, efficacy, post-treatment product quality, convenience and timeliness?

This question is not relevant to the review of mandatory labelling requirements. Whether or not industry reaps benefits or accrues cost from irradiation does not negate the fact that labelling is the global standard and desired by the public.

Furthermore, benefit and relative safety of a process do not negate the validity and importance of labelling novel foods – or foods using technologies unfamiliar to most people – in particular those about which the public have expressed concern.

Irradiation is one of numerous post-harvest and food treatments available to food producers. Food manufacturers can choose to not irradiate as numerous alternatives exist and it is well understood that people generally do knowingly want to eat irradiated food.

Irradiation is known to deplete vitamin and nutrient content as well as potentially produce harmful substances in food. While this may be the case for many food processes, irradiation is not done in isolation. Irradiation is done in conjunction with pre-harvest chemicals, cold storage, possible heat treatment and cooking of food. Irradiation is often seen to be expensive and, due to lack of facilities, may itself increase the transport time for products.

Not labelling irradiate products would call in to question Australia's and New Zealand's transparency and reliability as a global trading partner and would be bad for our food reputations. Australia and New Zealand regulations should, therefore, be improved to fall in line with global mandatory prescribed wording requirements.

In fact, all Australian and New Zealand irradiation approvals have been premised on the assurance that irradiated products would be labelled. To remove labelling would be a gross deception to the public – who, though perhaps divided on novel technologies, demand and expect them to be labelled.

All submitters

22. What are your views about information on the safety and benefits of food irradiation being on food labels?

Unqualified “positive” statements should not be permitted on irradiation labelling unless statements about potential allergenicity or nutritional compromise are included.

FSANZ currently allows the inclusion of positive statements alongside irradiation labelling. Examples that have been used in Australia or New Zealand are: treated with irradiation – “to protect New Zealand’s environment” or “to destroy harmful micro-organisms”. Irradiation is known to change the molecular structure of a product and to deplete vitamin and nutritional value. Permitting the use of a positive statement about the process without any requirement for mention of the negative impacts of the process is biased and inappropriate for honest and fair shopper education.

23. What other practical approaches other than labelling can be used to communicate the safety and benefits of food irradiation? (Please describe).

FSANZ has no legitimate role in “communicating the safety and benefits of food irradiation” - which is primarily a marketing program. The safety and benefits of irradiation are not qualified.

It is inappropriate to attempt to equate irradiation with pasteurisation, to promote positive statements and euphemisms (such as “treated with ionising electrons”) about the process, and to use the Radura mark (which looks like a budding flower) to make irradiation seem innocuous.

Some FSANZ material promotes irradiation, which is inappropriate. For example: FSANZ’s website exaggerates the use of irradiation (it is approved in many countries, yes, but it is not widely used.) FSANZ also dumbs down the science of irradiation – likening ionising radiation to microwaves and failing to discuss the source or strength of gamma radiation used. “The rays pass through the food just like microwaves in a microwave oven, but the food does not heat up to any significant extent.” This is misleading and inappropriate role for the regulator which should be a neutral referee on the food supply.

Scientific opinion is divided on the safety of irradiated food. While in some cases overseas, irradiation has been promoted as a response to food-borne illnesses, irradiation is not an alternative to good, clean, well-managed food production systems and practices.

The Therapeutic Goods Administration permits irradiation as a decontamination treatment while acknowledging its potential adverse impacts.

“Substances may be sterilised using ionising radiation. You should consider what radiolytic products may be formed in the substance and what constituents of the substance may be affected by such treatment, for example: vitamin A. You should have documentation about substances that have been irradiated, monitor levels of radiolytic products or constituents and, if necessary, establish and document limits.”¹⁵

Biosecurity Australia permits irradiation for quarantine purposes yet also notes:

¹⁵ <https://www.tga.gov.au/book/information-required-demonstrate-quality-new-complementary-medicine-substance>

“It is now well established that irradiation does affect certain vitamins and other nutrients and does produce peroxides and other radiolytic by-products, some of which may be toxic and/or carcinogenic, and that these effects are dose related.”

“The available scientific evidence supports the use of irradiation as a biosecurity treatment for pet food only in exceptional circumstances. It is not supported for those products likely to be consumed as a significant proportion of an animal’s diet (e.g. kibble).”¹⁶

Federal government information from the Therapeutic Goods Administration and Biosecurity Australia highlight and acknowledge problems with irradiation as a production practice for non-food products we consume. Rather than looking for ways to communicate the “safety and benefits” of irradiation, Food Standards Australia New Zealand should demonstrate the same candour in representing the issues around irradiation in food.

FSANZ’s exploration of other ways to communicate the “safety and benefits” demonstrates its bias towards promoting or marketing irradiation, rather than providing neutral information to the public. The “safety and benefits” are unclear and they are unspecified.

- “Safety” may refer to the “safety” of the industry – which in Australia is a nuclear industry carrying its associated risks around the transportation, use and storage of radioactive materials.
- Or “Safety” may refer to the inferred “wholesomeness” of irradiated foods – which is at best questionable.
- Or “Safety” may refer to the “decontamination” aspects of some irradiation – which can neutralise but not remove some pathogens from food. The fact is, that for the most part, irradiation in Australia and New Zealand has not been authorised for food “safety” reasons – which could call for higher doses of radiation exposure– but for trade/quarantine purposes which – while possibly beneficial to local environments - are ultimately aimed at increasing profit for food producers, not at benefitting the shopper.

Ultimately, however, “safety” of the process does not extinguish the public’s right to know about it or necessarily negate public concern. The public expects to be informed when a food has undergone processing and FSANZ has a responsibility to administer that. The current rules on irradiated food labelling should, therefore, be maintained and strengthened.

24. Do you have any information on the effectiveness of any of these approaches? (If so, please provide).

We are aware that people expect the regulator to keep them accurately informed and for products using novel or structurally altering production practices to be labelled. We are also aware that the industry, knowing that people have an aversion to irradiated food, see labelling as an impediment to their market.

¹⁶ <http://www.agriculture.gov.au/biosecurity/risk-analysis/reviews/final-animal/gamma-irradiation/questions-and-answers>

We call on the regulator to accept that peoples' rejection of labelled irradiated food is a sign of a healthy free market in action. To remove labelling to trick people into purchasing something they would not normally buy is unacceptable.

Food producers and processors that support irradiation should loudly promote their irradiated products through mandatory labelling. All Australian and New Zealand irradiation approvals have been premised on the assurance that irradiated products would be labelled. To remove labelling would be a gross deception and betrayal of the public's trust – who all the products of novel technologies to be labelled.

Food producers who want to hide food processes they use are not acting with the good of the community in mind and the food regulator and our governments must not support this evasion.

Appendix A: Supporting Organisations

Food Irradiation Watch

PO Box 5829

West End QLD 4101

www.foodirradiationwatch.org



Food Irradiation Watch is a not-for-profit consumer advocacy organization aimed at raising awareness about food irradiation. We are an affiliate of Friends of the Earth Australia. We oppose the irradiation of food and work to ensure the consumer's right to choose to avoid irradiated foods, pet foods and therapeutic goods.

Food Irradiation Watch works with, educates and advocates for the community on the issue of food irradiation, alternatives to food irradiation, and related food, environment and social justice issues. As a community organization, we play a role in supporting the rights of citizens where government and corporations have failed them. We act in response to a need in the community that should not exist – or we feel would not exist if governments and corporations acted along principals of ecological and social justice in relation to food – its production and distribution.

While we act in a necessary role as a watchdog, we believe that it is in fact the role of the government to inform the community about food and food processes, and to create legislation and regulations that protect the consumer's "right to know" about what they consume.

Food Irradiation Watch (FI Watch) formed in 2003 from a partnership of Friends of the Earth Brisbane and several community networks opposed to the development of the food irradiation industry in Australia. FI Watch works closely with U.S. advocacy organization Food and Water Watch and international campaigns around food irradiation awareness in the E.U. and Japan. It is our understanding that Australians do not wish to consume irradiated foods or feed them to their pets and that at a minimum Australians expect their food to be accurately and comprehensively labelled when "novel" technologies such as irradiation and GMOs are used.

Gene Ethics Network

Gene Ethics is a non-profit educational network of citizens and kindred groups. We want the precautionary principle, scientific evidence and the law rigorously applied to all proposed uses of genetic manipulation (GM) technologies and their products.



Gene Ethics generates and distributes accurate information and analysis on the ethical, environmental, social and economic impacts of GM. Our education programs critically assess GM for the public, policy-makers and interest groups.

Friends of the Earth Australia

Friends of the Earth (FoE) Australia is a federation of independent local groups working for a socially equitable and environmentally sustainable future.

Friends of the Earth Australia is part the world's largest grassroots environmental network, uniting 76 national member groups and some 5,000 local activist groups on every continent. Friends of the Earth aims to support local communities in gaining environmental and social justice through mobilising resources, and resisting destruction of global eco-systems. Friends of the Earth opposes all forms of the commercial and military nuclear industry and supports sustainable agriculture as the viable alternative to food irradiation.



MADGE Australia Inc

We are a group concerned about new technologies in our food. We are concerned that poorly tested and potentially hazardous technologies are being used to increase the profits of the food industry while remaining unlabelled and therefore hidden from the knowledge of the public. We consider this to be deceptive and misleading conduct and therefore contrary to FSANZ's brief. This is an issue of human rights as we have a right to safe food.



South Australian Genetic Food Information Network



Friends of the Earth New Zealand

Appendix B: Submission to ACCC by Food Irradiation Watch and Gene Ethics



Food Irradiation

A: PO Box 5829 West End QLD 4101

M: 0411 118 737

E:

foodirradiationwatch@yahoo.com.au

W: foodirradiationwatch.org



ABN 67 104 140 918

A: 60 Leicester St, Carlton Vic 3053

T: 03 9347 4500 / 1300 133 868

F: 03 9341 8199

E: info@geneethics.org

W: www.geneethics.org

June 24, 2014

Australian Competition and Shopper Commission

GPO Box 3131

Canberra ACT 2601

Dear Sir/Ms:

Re: Unlabelled Irradiated 'fresh' fruits and vegetables: False, Misleading and Deceptive

Executive Summary

The Legislative and Governance Forum on Food Regulation has instructed Food Standard Australia New Zealand (FSANZ) to review the mandatory labelling requirements for irradiated food. Indications from officials and Ministerial letters suggest that the outcome of this process will likely be cessation of the present requirement to label irradiated fruits and vegetables, and other irradiated foods.

We submit for ACCC assessment our case, that removal of labels and signage from irradiated fruits and vegetables would create circumstances in which Australian and New Zealand shoppers would be led to the false, misleading and deceptive conclusion that irradiated fruits and vegetables are fresh produce.

We therefore ask the ACCC to consider the following:

- 1. Despite their appearance, irradiated fruits and vegetables are processed, not fresh.**
- 2. Without Labelling, irradiated fruit and vegetables would be implicitly misrepresented as fresh -products of the irradiation process are undetectable to shoppers without labelling and consumers naturally expect such products to be labelled**
- 3. Consumers have strong opinions on irradiated produce as it is a new technology with a limited history of safe use in the human food supply**
- 4. Food producers have raised their own queries about the removal of labelling, as it will disadvantage non-irradiating producers**

The irradiation of fruits and vegetables typically involves their exposure to the energy equivalent of between 1.5 and 10 million x-rays. When used as a fruit fly larvae treatment, food irradiation also extends shelf life, sanitises, and alters the nutritional value of the treated foods. The substantial and significant changes made to fruits and vegetables as a result of processing with irradiation cannot be discerned with our ordinary senses. Thus, consumers could no longer rely on taste, smell, texture or appearance to exercise their preference for fresh produce, if irradiation labelling were removed. We therefore assert that the removal of labelling from irradiated fruits and vegetables will create a situation where the public will be led to false, misleading and deceptive conclusions as to the nature of these foods, also impacting on their right to make well-informed food buying decisions that potentially impact on their diet and health.

Another matter for the ACCC to resolve in advance of irradiated fruits and vegetables coming to market unlabelled are the terms and conditions for a claim that a fruit or vegetable is “fresh”, “Irradiation-free” or “non-Irradiated”. The ACCC developed a policy for such claims on genetically manipulated foods and should do so for irradiated products before they come to market.

So far, FSANZ has approved herbs, herbal infusions, spices, tomatoes, capsicums, mangoes, pawpaws, mangosteens, carambolas, breadfruit, litchis, rambutans, longans, custard apples and persimmons for irradiation treatment. However, few irradiated products have been marketed in Australia and New Zealand as chemical treatments (now banned) were used as post-harvest treatments for fruit fly. FSANZ is now processing application A1092 from the Queensland Government which would extend irradiation approvals to include 11 more fruits and vegetables: apples, apricots, cherries, nectarines, peaches, plums, honey dews, rockmelons, strawberries, table grapes and zucchini/squash. These approvals would significantly increase the proportion of irradiated foods in the average Australian and New Zealand diet, increasing the need for strong labelling laws.

Labelling is the only way to ensure that consumer rights are protected, producers of non-irradiated products are not disadvantaged by having their products indistinguishable from irradiated products (or are not forced to label “non-irradiated” or “fresh” to ensure the distinction) and that true market forces are allowed to prevail through consumers being empowered to make fully-informed decisions about what they purchase.

Marketing irradiated fruits and vegetables as fresh would grossly mislead the public and be a failure of duty of care to Australian and New Zealand consumers.

We therefore ask the ACCC to expedite development of a policy on food irradiation and the labelling of all its products.

1. Irradiated food is processed, not fresh.

Irradiation involves zapping food with ionising irradiation to intentionally alter some characteristics of the produce to achieve extended shelf life and/or pest destruction. Approved irradiation exposures for the processing of ‘fresh’ fruits and vegetables (tomatoes, capsicums,

persimmons, mangoes, pawpaw, lychees, longan, rambutan, mangosteen, carambola, breadfruit, custard apples) is a minimum of 150Gy (equivalent to 1.5 million x-rays) and a maximum of 1KGy (equivalent to 10 million x-rays). These doses are delivered by exposure to fuel rods containing Cobalt 60 from Canadian nuclear reactors. FSANZ acknowledges that irradiation changes the vitamin and nutritional content of food with the potential to create new chemical compounds within the food, which may not be naturally found. Ionising radiation by its nature changes the molecular structure of that which is exposed to it.

While acknowledging the existence of radiation-induced chemicals in irradiated food in its Executive Assessment of the current irradiation application (A1092 Application for the Irradiation of Specific Fruits), FSANZ suggests that chemical changes also occur in “more conventional processes such as cooking.” Even if this was true, it is misleading and deceptive to present a cooked food as unprocessed and fresh.

The test for irradiation is the presence of radiolytic products and free radicals. This shows that there are compositional changes of the kind that require labelling under Standard 1.5. FSANZ also confirms: “Irradiation potentially causes both macro and micronutrient changes in foods, depending on the irradiation dose, the food’s composition and environmental conditions.”

There are ample examples of governing bodies referring to Food Irradiation as ‘Processed’ both locally and overseas. In recognition that irradiation alters the nature of food, irradiation is regulated as a food additive in the US and irradiated food is labelled accordingly. The 1958 Food Additives Amendment describes irradiated food as “adulterated.”

<http://www.fda.gov/Food/IngredientsPackagingLabeling/IrradiatedFoodPackaging/default.htm>

In Australia Irradiation approvals are given under Food Standard 1.5.3; irradiation is regulated as a food processing technique.

“Even where this Standard permits irradiation, food should only be processed by irradiation where such processing fulfils a technological need or is necessary for a purpose associated with food safety. Food should not be processed by irradiation as a substituted procedure for good manufacturing practices.”

<http://www.comlaw.gov.au/Details/F2009C00895>

Both the Queensland and Victorian government’s use phrases such as a “food preservation method” and a “processing and preservation” technique in explaining food irradiation.

<http://www.health.qld.gov.au/foodsafety/documents/fs-39-irradiation.pdf>

http://www.betterhealth.vic.gov.au/bhcv2/bhcarticles.nsf/pages/Food_irradiation

According to the ACCC, Food and beverage industry Food descriptors guideline to the Trade Practices Act NOVEMBER 2006, “‘Fresh’ generally refers to food that is put on sale at the earliest possible time and close to the state it would be in at the time of ‘picking’, ‘catching’, producing etc. The term fresh generally implies that food has not been frozen or preserved.” The ACCC Food Descriptor guidelines also make it clear that “silence” or “omission” of information is also potentially misleading. *Australian Competition and Consumer Commission, Food and beverage industry Food descriptors guideline to the Trade Practices Act NOVEMBER 2006, p 8.*

It is clear Irradiated food is not fresh – it is intentionally and significantly altered. Marketing fresh-looking irradiated produce without labelling is clearly deceptive. This is also the case when irradiated foods are used as ingredients; irradiated components will appear to have been fresh or unadulterated prior to their use. Without labelling, consumers will be fed the false and misleading impression that irradiated fruits, vegetables and other foods in the market are “fresh” when they are actually processed.

Labelling is the only means by which a consumer can ascertain if a product is irradiated or not.

2. The removal of labelling is deceptive to consumers

2. a. The irradiation process is undetectable to the average consumer, without labelling

Generally the irradiation process is invisible to consumers; testing for it requiring analysis of changed molecular components in the product. In this light, the only way for a consumer to make an informed choice about purchasing an irradiated product is through the provision of information relating to irradiation – labelling.

Accordingly, labelling is correctly listed by Food Standards Australia New Zealand as the only method by which consumers will know if food has been irradiated:

“How can I tell if food has been irradiated?”

A food that has been irradiated, or food that contains irradiated ingredients or components, must be labelled with a statement that the food, ingredients or components have been treated with ionising radiation.

If the food is not normally required to be labelled, then the mandatory labelling statement must be displayed close to the food. This would apply to foods such as:

- whole fruit and vegetables sold loose by supermarkets
- a take away pizza with an irradiated herb as an ingredient.

The radura symbol (below) may be used in addition to the mandatory labelling.”

<http://www.foodstandards.gov.au/consumer/foodtech/irradiation/Pages/default.aspx>

So far, all irradiation approvals in Australia and New Zealand have been made with the premise and promise that irradiated food will be labelled. Labelling is the status quo and expected. To remove labelling is to deny the public any access to informed choice and is unconscionable.

2. b. Consumers expect irradiated food to be labelled.

Research conducted for Food Standards Australia New Zealand (FSANZ) in 2001 found that Australian consumers believe that:

- they have the right to access to information about their food and
- that the government will facilitate that right.

This was demonstrated by the fact that: *“Consumers expressed an absolute right to know about any GMOs included in any products...”* (5) Consumers, also, expected all genetically modified food to be labelled as such.

“It was generally thought by most people that even if a product was not specifically labelled as ‘GMO-free’ it would not be genetically modified. That is, they would expect any product that contained genetically modified organisms to be clearly labelled that this was the case.” (6)

The same research also found that people were concerned and confused about irradiated foods.

“There was even less awareness and more misunderstanding about irradiated foods [than GMOs]. The word ‘irradiation’ is almost synonymous with ‘radiation’ [also connoting ‘nuclear’] (their brackets) and is consequently suspected to be unsafe or bad for you.” (7)

Overall, consumers expressed general concern about the food supply and regulation and suggested that they trust their government to inform them about products and to label products clearly.

“The concern over the use of GM illustrates the level of general apprehension about the food supply and the perceived importance of maintaining stringent control over it...” (8)

“There is [also] an over-riding belief that the food system in Australia and New Zealand is safe, and this sense of trust is extended to food labels. People generally have faith that the labels will be fairly accurate and reliable - as long as the governing body continues to check the products to ensure compliance. In this way there is a belief in ‘good’ governance.” (9)

When conducting its Review of Food Labelling Law and Policy Review, the Australian government acknowledged an “optimism bias whereby consumers assume that unmentioned factors are favourable” (Review Panel, Issues Consultation Paper: Food Labelling and Policy Review March 5, 2010 p8)

When the public has concerns or apprehension about an aspect of their food, they expect it to be labelled. The breadth of concerns includes – but is not limited to – issues of health and safety aspects of food; COOL labelling is a prime example of principle/issues-based labelling.

Australians and New Zealanders expect a food that is not labelled to contain a characteristic of concern, to not contain that characteristic. Therefore, they would assume that a non-labelled product is not irradiated.

FSANZ’s new “Ministerial Policy Guideline: labelling of food processed using new technologies” also states the labelling should promote consistency with international standards. Labelling of irradiated food is the norm with our English speaking trading partners and clearly called for in global standards as set by the international Codex Alimentarius. Non-conformity with international standards would betray Australian and New Zealand consumers belief that their

regulatory system is world class and reflects their needs and concerns. In fact, Australia and New Zealand are already failing their citizens with their unprecedented lack of prescribed mandatory statements for irradiation labelling.

It is our belief that labelling must be improved. The mandatory individual labelling of individual products is the only mechanism that observes our right to make fully-informed choices about whether or not we, our families, pets and livestock will eat irradiated foods.

Current point of sale signage is ineffective, as it does not fully inform shoppers. Even Country of Origin point of sale labels, which have been required for 8 years, are ineffective. The states have not enforced the signage requirements which fail to inform shoppers, even when they are highly motivated to select local produce.

<http://www.weeklytimesnow.com.au/commodities/horticulture/countryoforigin-labelling-laws-under-scrutiny/story-fnker6g8-1226949775628>

It is our opinion that to justice to our community and in due respect to their concerns about irradiated food, irradiated food must continue to be labelled and the labelling regime must be improved to ensure that consumers can make informed choices. To do so, Australia and New Zealand must uphold international standards and require mandatory, individual labelling of all irradiated food with the words:

- irradiated (name of the food)
- treated with radiation
- or treated by irradiation

Without these improvements, there is still potential for consumers to put forward misleading and deceptive claims.

The recently released FSANZ policy guideline “recognises that labelling on foods produced or processed using a new technology can be an issue of consumer interest” though not necessarily a health or safety issue. Australians and New Zealanders have clearly demonstrated concern about irradiation.

3. Consumers Stance on Irradiated Produce

3. a. The Public’s Opinion

The Australian and New Zealand public have demonstrable, known and legitimate concerns about irradiation. In recent polling in New Zealand -where irradiated Australian produce is being marketed – 72% of respondents expressed concern.

http://www.nzherald.co.nz/opinion/news/article.cfm?c_id=466&objectid=10892295

In 1999, a broad community campaign about irradiation saw a moratorium put in place. Ten years later, that moratorium was lifted with little public awareness. Australian consumers and their counterparts overseas – have, however, shown ongoing resistance to irradiated food which has been expressed by opposition to food irradiation applications, rejection by informed consumers of irradiated foods on the market, community campaigns to close irradiation plants and community campaigns to support local and organic agriculture.

Recent surveys, industry reports and even media from irradiation supporters acknowledge consumer opposition or concern about the technology and point to a need for marketing strategies to gain public acceptance if the irradiated food industry is to grow. Unfortunately for the consumer, the industry sees clear and accurate labelling as a threat to, rather than a marketing strategy for, irradiated food.

Research commissioned by irradiation supporters themselves reveals little public awareness about irradiation and consumer hesitation to support it. An overview of some of the issues brought up by recent tomato and capsicum approvals appeared in *The Land*. It clearly articulates retailers concerns about consumer perception of irradiation- Woolworth's basically states that identifying products as irradiated will be a death-knell to their purchase.

The article reveals market research into inaccurate or deceptive statements such as "cold sterilisation" which would make irradiation more palatable to the consumer. Ultimately, "The survey results showed that even when informed, irradiation was not the preferred treatment method among consumers. Some of the key points follow:

"In the eyes of the public;

- Perhaps the biggest battle facing the further implementation of fresh produce irradiation is public awareness.
- Retailers have expressed concern over public resistance to the very term 'irradiation' and a shopper backlash against them.
- When questioned about the company's position at the Horticulture Australia Limited (HAL) November 2012 Forum in Sydney, Paul Harker, head of produce, Woolworths said the industry needed a united voice on the subject before it proceeds.
- "It's going to be an extremely emotional product and we are not going to stand alone trying to convince Australian shoppers that there is nothing wrong with irradiation," Mr. Harker said.
- **"We've communicated that back to industry and we said unless there is a concerted campaign that is led not only by the people peddling irradiation as an alternative, but unless the government and everyone else is involved in actually talking to the customer about it, the last thing I am going to do is plonk it on my shelf because I can tell you that fresh produce sales will die. People won't shop there."** (our emphasis)
- <http://www.theland.com.au/news/agriculture/horticulture/general-news/irradiation-pros-and-cons/2665981.aspx?storypage=0>

3. b. Lack of history of safe use

Despite FSANZ's support of irradiation, there are significant unresolved issues around irradiation that lead to public concern. Irradiated foods have not been visibly in the human food supply in Australia and New Zealand for the 30 years that the Blewett Review recommended or even 10 years as new "Ministerial Policy Guideline: labelling of food processed using new technologies" suggest. Foods regulated under Food Standard 1.5 have a small or zero history of safe use in the human food supply. Thus, they must undergo pre-market assessment and must be labelled to meet shoppers' right to know under Standard 1.5.3. We support the Standard.

The previously mentioned reduction of vitamin and nutritional content aside, consumer concerns appear to have legitimate substance behind them with several studies confirming health risks involved in consuming irradiated produce. The Animal Biosecurity Branch of the Commonwealth Department of Agriculture confirms that: "In 2008-9, 87 cats in Australia were reported to have developed severe neurological disease (chronic leucoencephalomyelopathy) associated with eating an imported, irradiated dry pet food. ... The department ... concluded that there was a reasonable body of evidence that gamma irradiation, applied as an adjunct quarantine treatment of pet food, was a contributing factor to the disease syndrome. A cause of great distress to the cat owners was the fact that laboratory research proving the potential for this impact existed but had been disregarded at the time by the parties involved. In its latest irradiation literature review, the European Food Safety Authority (ESFA) has not ruled out the potential significance to humans. The irradiation of cat food is now prohibited in Australia and dog food requires irradiation labelling. To have lessor or no guidelines for labelling of foods for human consumption is incomprehensible and certainly deceptive to consumers who are aware of the cat and dog food situation.

A recent study shows that smaller irradiation dosages (~1 Gy) can render protein more allergenic than either non-irradiated protein, or protein irradiated at a higher dosage. This is an ignored but potential emerging food safety risk associated with irradiation. *Vaz, A.F., et al., Low-dose gamma irradiation of food protein increases its allergenicity in a chronic oral challenge. Food Chem Toxicol., 2012. 51C: p. 46-52-doi: 10.1016/j.fct.2012.09.011.*

With limited history in our diet, and no long-term studies conducted, the potential impact of consuming irradiated food cannot be accurately assessed. Ultimately, however, "safety" of the process does not extinguish the public's right to know about it or necessarily negate public concern. The public expects to be informed when a food has undergone processing and FSANZ has a responsibility to administer that. The current rules on irradiated food labelling should, therefore, be maintained and strengthened.

4. Removal of labelling would disadvantage non-irradiating producers

Consumer resistance or concern about irradiated food is clear and acknowledged by industry and government. Removal of labelling in this climate would be to intentionally deny Australians and New Zealanders access to information that it is known they demand.

In correspondence with Food Irradiation Watch, Victorian Minister for Agriculture and Food Safety Peter Walsh stated

"The review [of mandatory labelling requirements] has been requested to assess whether this is a more effective approach to communicate the safety and benefits of irradiation to consumers. The FoFR noted that improving consumer confidence in irradiation will reduce disincentives for increased uptake and broader application of the technology by industry." (Dec 18, 2013)

It is important to note both the assumption that labelling is seen as a disincentive to acceptance of the technology and the potential for deception in the slant of this argument. To date all FSANZ fruit and vegetable irradiation approvals have been for phytosanitary control = that is quarantine purposes - not for the safety of the food. Only herbs/spice/herbal infusions have

been approved from microbial contamination. Food can only be legally irradiated for the purpose for which it has been approved, meaning that - even if there was safety scare with produce that irradiation may be able to address, the food could not be irradiated for that purpose without another approval process. Food in Australia and New Zealand is not being irradiated for food safety purposes, it is irradiated to enhance trade – which may benefit consumers but is not a health and safety concern for them. It would be deceptive to remove labelling using the rationale of promoting the uptake of a food safety technique when, in fact, not only is food safety not the reason for the irradiation, food cannot be irradiated for food safety reasons under the framework for which it has been approved.-

The push to remove labelling can itself be only seen as a disingenuous process to force irradiated products on a public that clearly wishes the freedom to reject them – in effect government and business aligning themselves to deceive the public. This is not acceptable behaviour in democratic free-market economies and it disadvantages food producers to choose to meet consumer demand for non-irradiated products.

In 2013, FSANZ approved the irradiation of tomatoes and capsicum. The application for approval came from Queensland Department of Primary Industries; a key rationale was to expand Queensland/Australia tomato exports markets to New Zealand. While the New Zealand government – and even the conventional tomato industry – supported the irradiation approval as a quarantine measure, the issue of labelling was seen as a key area of concern.

The ensuing debate provides some of the most recent – and local - information about awareness and attitudes towards irradiation. In 2006, media attention was drawn to the fact that unlabelled irradiated Australian mangoes were being marketed in New Zealand. The retailer simply removed the mangoes from an export case and sold them without any labelling or signage. In New Zealand, mangoes are an exotic, normally imported, product and the offense was noticed and exposed by aware consumers. As current labelling regulations require only a sign at point of sale, rather than individual labelling, it is easy to imagine this scenario re-occurring. If labelling regulations are completely removed, it is easy to imagine that irradiated and non-irradiated produce will either inadvertently or intentionally be mixed together.

New Zealand has a substantial tomato industry – Australia primarily filling an off-season gap. New Zealand tomato growers are keen to ensure that New Zealand consumers can differentiate between irradiated Australian and non-irradiated local tomatoes.

The Tomatoes NZ chairman Alasdair MacLeod stated "We are demanding compulsory labelling on all irradiated produce, loose or otherwise, be clear and enforced, so that Kiwi consumers can make an informed decision between Australian irradiated tomatoes and New Zealand tomatoes." <http://www.stuff.co.nz/business/farming/cropping/8618860/Fears-over-treated-Aussie-tomatoes> *Fears over treated Aussie tomatoes* NICOLE PRYOR 01/05/2013

Producers of non-irradiated foods should not have to bear the potential costs of differentiating themselves from irradiated foods, or the potential loss of market due to consumer inability to distinguish irradiated food from non. Irradiation labelling should be improved to include the labelling of individual fruit and vegetables.

Conclusion:

Without labels on irradiated foods, the public would be led to conclude that such foods were fresh and not irradiated. Within a free market economy, the demand for irradiated products should be driven by consumers making informed and intentional decisions to purchase such products. When Australia and New Zealand are set to dramatically increase the amount of irradiated foods available on the market and in people's diets, the removal of the mandatory labelling and signage requirements from irradiated fruits and vegetables would create a set of false, misleading and deceptive circumstances for consumers in Australia and New Zealand.

A false and misleading circumstance would be created if the labelling requirement on irradiated foods were revoked, as consumers would have no way to identify such processed foods and would naturally assume the produce to be fresh. Irradiation is not comparable to freezing, for instance, as the permanent changes wrought by irradiation processing cannot be thawed out of the product.

With labelling and signage removed, consumers would be unable to rely on the appearance of products to determine that they were irradiated and not fresh.

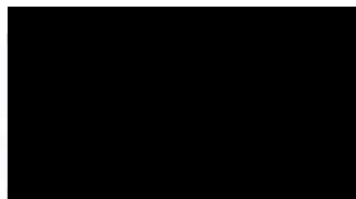
FSANZ has promoted to Australian and New Zealand consumers that irradiated foods are, and will continue to be, labelled.

We call on the ACCC to make a ruling on behalf of consumers to ensure that our ability to make fully-informed decisions about whether or not to purchase irradiated food is protected through clear, comprehensive and truthful labelling of all irradiated foods and food ingredients.

Yours sincerely,



Robin Taubenfeld
Coordinator
Food Irradiation Watch



Bob Phelps
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Gene Ethics