

## ADDENDUM

(Attention should be paid to any significant changes in relation to each particular food and its role in the diet, including for sub-populations). The American Dietetics Association (ADA 2000) and ACHS (Loaharanu 2003) concluded that the nutritional value of food is not adversely affected by irradiation up to an overall dose of 10 kGy, and supports the technology.

Thirty five countries including the USA and UK have approved the use of irradiation for pest disinfection or maturation control of fresh produce. Studies show that more fresh fruits and vegetables tolerate radiation than any other commercially available treatment (Heather and Hallman 2008a, b). FSANZ has also concluded that irradiation up to 1 kGy has no impact on the nutritional adequacy of 10 tropical fruits, persimmon, and in the more commonly consumed vegetables - tomato and capsicum (FSANZ 2003, 2012, 2013).

Sensitivities of water-soluble and fat-soluble vitamins and other key vitamins in foods are shown in Tables 8 and 9. Vitamin A, thiamin (Vitamin B1), ascorbic acid (Vitamin C) and alpha-tocopherol (Vitamin E) in foods are relatively sensitive to radiation while other B vitamins such as riboflavin, niacin and Vitamin D are not as sensitive.

**Table 8: The radiation sensitivity of water and fat soluble vitamins [JECFI 1999].**

Radiation sensitivity decreasing left to right	
<b>Water-soluble</b>	Thiamine (B1) > Vit C > Vit B6 > Vit B2 > Folate, Niacin > Vit B12
<b>Fat-soluble</b>	Vit E > Carotene > Vit A > Vit D > Vit K

**Table 9: The radiation sensitivity of some key vitamins in food [Kilcast 1994].**

High	Medium	Low
Vitamin C		
Thiamine (Vit B1)	K (in meat)	K (in vegetables)
α-tocopherol (Vit E)		Riboflavin (B2)
Retinol (Vit A)		Pyridoxine (B6)
		Cobalamin (B12)
		Niacin (B3)
		Folic acid
		Pantothenic acid
		Biotin (B10)

Irradiated apple, apricot, cherry, honeydew melon, nectarine, peach, plum, rockmelon, strawberry, table grape and zucchini at the low dose (150 – 1000 Gy) requested is expected not to have any significant impact on the average dietary intakes of nutrients, essential vitamins and minerals. From Table 5 and the nutritional tables for each of the eleven fruits (Appendix 2), the particular fresh commodity overall does not provide significant amounts of any essential vitamin or micronutrient, with many fruits being