

Appendix 3

Dietary sources of vitamin C

Dietary intake data were derived from four national nutrition surveys conducted in Australia and New Zealand. These surveys were:

- 2007 Australian Children’s Nutrition and Physical Activity Survey (2007 ANCNPAS)
- Australian 1995 National Nutrition Survey (1995 NNS)
- New Zealand 2002 National Children’s Nutrition Survey (2002 NCNS) and
- New Zealand 1997 National Nutrition Survey (1997 NNS).

Population groups assessed were matched as closely as possible, within the limitations of the nutrition surveys and the DIAMOND dietary modelling program, to those age groups to which Nutrient Reference Values¹ (NRVs) (NHMRC 2006) apply (refer to Table 1).

DIAMOND is FSANZ’s custom-built software for dietary exposure assessments. Consistent with FSANZ’s dietary exposure assessment methodologies, major contributors to dietary intake were considered to be those food groups contributing 5% or more to a nutrient’s dietary intake for one or more population groups.

Table 1 Nutrient reference value (NRV) age groups and Australian and New Zealand population groups assessed

NRV Age Group	Australia		New Zealand	
	Age group assessed	National Nutrition Survey	Age group assessed	National Nutrition Survey
1-3 years	2-3 years	2007 ANCNPAS	-	-
4-8 years	4-8 years		5-8 years	2002 NCNS
9-13 years	9-13 years		9-13 years	
14-18 years*	14-16 years		14 years	
	17-18 years	1995 NNS	15-18 years	1997 NNS
19-30 years**	19-29 years		19-29 years	
31-50 years**	30-49 years		30-49 years	
51-70 years**	50-69 years		50-69 years	
>70 years**	70 years and above		70 years and above	

* The NRV age group of 14-18 years were assessed in two age ranges for both Australia and New Zealand as the food consumption data for this age group spans the two national nutrition surveys used in each country.

** There is a slight misalignment in relation to the NRV age group and the age groups that were reported in the 1995 NNS and subsequently used in DIAMOND (e.g. NRV age group = 31-50 years, NNS age group = 30-49 years). Nutrient intakes for the 1997 NNS are reported for the same age groups as for the 1995 NNS.

¹ Nutrient Reference Values (NRV) are health based guidance values that indicate the daily amount of nutrients required for good health, and for some nutrients safe intake levels.

The nutrition survey data have been used to determine whether irradiation-associated changes in vitamin levels would be likely to have an impact on dietary adequacy in Australia and New Zealand. In the review, the most recent available consumption data were used. The contribution of various fruit and vegetable groups to vitamin C intake in Australia and New Zealand are presented in Tables 2 and 3.

Table 2 Contribution (% dietary intake) of fruit and vegetable groups to vitamin C intake in Australia

Australia	Pome		Stone		Berry		Citrus		Tropical		Other fruit		Tomatoes		Other fruiting veg.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
2-3 years	3	3	-	-	4	4	14	13	5	6	6	5	2	2	4	3
4-8 years	3	3	-	-	3	1	12	16	3	4	4	5	2	2	3	4
9-13 years	2	2	-	-	1	1	10	11	3	3	4	3	2	3	4	3
14-16 years	1	2	-	-	<1	<1	9	11	2	2	2	2	3	2	2	4
17-18 years	1	1	<1	1	<1	<1	7	-	<1	<1	2	3	3	3	4	3
19-29 years	1	1	<1	<1	<1	-	5	6	3	3	2	2	4	4	5	6
30-49 years	2	2	<1	1	<1	1	7	7	3	4	2	4	5	6	5	6
50-69 years	2	2	1	2	<1	1	9	10	4	6	3	5	5	6	5	5
≥70 years	2	2	2	2	<1	<1	9	10	5	6	3	4	5	5	5	5

Table 3 Contribution (% dietary intake) of fruit and vegetable groups to vitamin C intake in New Zealand

New Zealand	Pome		Stone		Berry		Citrus		Tropical		Other fruit		Tomatoes		Other veg.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
5-8 years	6	5	-	-	-	-	15	17	2	3	5	4	2	1	1	<1
9-13 years	5	5	-	-	-	-	12	17	2	2	3	4	2	2	1	1
14 years*	4	4	-	-	-	-	8	13	2	1	1	7	4	4	2	<1
15-18 years*	2	4	<1	<1	<1	<1	12	9	2	3	2	1	2	4	<1	3
19-29 years	2	3	<1	1	<1	<1	6	11	3	3	2	4	3	4	2	3
30-49 years	3	4	1	1	<1	<1	8	10	4	4	3	5	6	6	4	4
50-69 years	3	3	1	1	<1	<1	7	14	5	5	5	6	6	8	3	4
≥70 years	4	4	<1	2	1	2	8	11	4	6	5	9	8	8	2	2