

THE THIAMIN CONTENT OF AUSTRALIAN FLOUR

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In 1952 a policy to enrich all white flour for breadmaking with thiamin, niacin and iron was adopted in the United Kingdom. In many of the states of the U.S.A. enrichment with thiamin, riboflavin, niacin and iron was initiated some 10 years earlier. In Australia attention has focused on one nutrient in particular, thiamin and the need for enrichment of flour or bread has been investigated by two National Health & Medical Research Council committees (NH & MRC Reports 1959, 1977).

While recommending "that until further information was available, steps should not be taken at present to enrich cereals or any other staple food with vitamins" the NH & MRC working party in 1977 requested more information on the vitamin and mineral content of Australian wheats and flours. To comply with this request the Bread Research Institute in 1977 obtained samples of wheats and the corresponding bakers' flours from all flour mills in Australia (Mugford *et al.* 1979). Results averaged on a State and Australian basis are presented below.

	WHEAT (a)			FLOUR (b)			
	Protein (Nx5.7)%	Ash %	Thiamin mg/100g	Thiamin mg/100g	Protein (Nx5.7)%	Ash %	Extraction Rate % (c)
QLD.	13.3	1.37	0.49	0.24	12.5	0.59	76.4
N.S.W.	12.9	1.44	0.46	0.22	12.2	0.57	75.9
VIC.	12.1	1.17	0.40	0.19	11.2	0.51	75.8
TAS.	12.5	1.27	0.45	0.17	11.5	0.47	74.1
S.A.	12.5	1.34	0.44	0.17	11.5	0.54	75.2
W.A.	12.5	1.25	0.45	0.22	11.6	0.52	75.1
AUSTRALIA	12.7	1.35	0.45	0.22	11.8	0.55	75.7

(a) Wheat results are expressed on a moisture basis of 11%.

(b) Flour results are expressed on a moisture basis of 13.5%.

(c) Flour mill extraction rates are expressed as a % of total mill products.

The average retention of wheat thiamin in the flour at 49% (flour thiamin/wheat thiamin) exceeds that of 33% reported by NH & MRC (1941) in an Australia-wide survey. The average thiamin content of Australian flour compares with the minimum level required for enrichment 0.24 mg/100 g in the U.K. and is double that of unenriched patent flour (0.11 mg/100 g) in the U.S. (Toepfer *et al.* 1972).

Bread is the main flour-based product in the Australian diet pattern. Baking losses of up to 40% have been reported. A study to test the effect of fermentation time, various improvers and degree of baking on thiamin content is underway and some results will also be presented.

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