

## THE 'STANDARD' AUSTRALIAN LABORATORY RODENT DIET

G.H.McINTOSH

All scientists know that variation in the quality of laboratory rodents can adversely affect reproducibility of experimental results. While genetic and microbiological monitoring is an important part of maintaining quality, nutrition has only lately been recognised in Australia for the influence it could be having. The Australian Society of Laboratory Animal Science has undertaken an analytical survey of commercially produced rodent diets in 5 mainland states over the last three years. Twenty five diet components have been analysed in 9-10 samples per year by the Australian Government Analytical Laboratory, and examples of the range and mean of results are shown.

	AIN76*	Units	1987		1988		1989	
			$\bar{x}$	Range	$\bar{x}$	Range	$\bar{x}$	Range
Vit B-1	6	ppm	11.3	0.6-31.6	14.8	1.2-34	21.7	1.4-60
Vit E	35	ppm	73	10-210	84	22-290	63	22-190
Fe	35	ppm	324	109-1012	319	160-720	334	170-690
Se	0.1	ppm	0.26	0.10-0.40	0.37	0.15-0.57	0.38	0.15-0.72
Pb	-	ppm	0.9	0.4-3.4	1.7	0.3-8.2	0.75	0.18-3.0

AIN76\* - *J. Nutr.* (1977) 107 : 1340.

Nutrients such as Fe, Se and Vit E can have a significant influence on a number of systems of the body and the immune system is a good example. It has been shown that the immunological response in rats increases with increasing concentrations of vitamin E up to 200 ppm (Bendich et al. 1986) which is six times that recommended for rodents to meet normal requirements. Similar immunological responses have been recorded for vitamin A, Fe, Se, and Zn also, when levels exceeded minimal requirements (Nockels 1986).

There are obvious deficiencies in many of the diets examined ranging from excessive bone meal measured as Ca/P (1.7% Ca/1.2% P), essential fatty acid deficiency, thiamin and retinol deficiency, and high lead and cadmium levels (Pb-8.2 ppm in a Newcastle diet and Cd-0.6 ppm in a SA diet).

If unnecessary use of animals and waste of time and resources are to be avoided, then improvement in the quality of these diets and standardising composition are important goals for scientists and researchers to strive for.

BENDICH, A., GABRIEL, E. and MACHLIN, L.J. (1986). *J. Nutr.* 116 : 675.

NOCKELS, C.E. (1986). In 'Recent Advances in Animal Nutrition' pt. A. eds. W. Haresign and D.J.A. Cole. (Butterworths : London)

CSIRO Division of Human Nutrition, Kintore Avenue, Adelaide, South Australia, 5000