

TYPICAL NUTRIENT CONCENTRATIONS IN HARVESTED AGRICULTURAL COMMODITIES IN AUSTRALIA

Generated as part of the National Land and Water Resources Audit after a review of Australian and international literature by Reuter, D and Judson, G. (2003) Nutrient Concentration of Agricultural Produce. The review data is available online at www.potash-info.com/research/nutrientconc/nutrientconc.htm

- *Nutrient concentration in field crops*
- *Nutrient concentration in harvested sugar cane crops*
- *Nutrient concentration in harvested vegetable crops*
- *Nutrient concentration in harvested fruit crops*
- *Nutrient concentration in harvested nut crops*
- *Typical nutrient content of livestock products*
- *Nutrient concentration in fodder crops and grain fed livestock*

Nutrient concentrations in field crops

| Species | Grain Moisture (%) | N | Mean Nutrient Concentration (kg/t) | | | | |
|------------------------|-----------------------|------|------------------------------------|------|------|------|------|
| | | | P | K | S | Ca | Mg |
| CEREALS | | | | | | | |
| Barley | 11 | * | 2.7 | 4.3 | 1.2 | 0.37 | 1 |
| Cereal rye | 11 | 14 | 3.4 | 4.6 | 0.9 | 0.62 | 1.2 |
| Maize | 10 | 13 | 2.3 | 2.7 | 1.1 | 0.11 | 1.2 |
| Millet / Canary seed | 11 | 20 | 3.3 | 3.9 | 1.3 | 1.2 | 3.8 |
| Oats | 11 | 16 | 2.7 | 4 | 1.4 | 0.6 | 1.2 |
| Rice (grain & hulls) | 14 | 10.3 | 2.4 | 2.9 | 0.85 | 0.22 | 0.86 |
| Sesame | 5 | 34 | 7.2 | 5.7 | 2.1 | 6.7 | 3.7 |
| Sorghum | 10 | 17 | 2.3 | 3.3 | 2.4 | 0.5 | 1.4 |
| Triticale | 11 | 16 | 2.4 | 4.4 | 1 | 0.31 | 1 |
| Wheat | 11 | * | 2.6 | 3.6 | 1.4 | 0.38 | 1.2 |
| GRAIN LEGUMES | | | | | | | |
| Chickpea | 10 | 33 | 3.8 | 9.1 | 1.8 | 1.5 | 1.4 |
| Cowpea | 10 | 39 | 6.9 | 9 | 1.9 | 0.6 | 2 |
| Faba bean | 10 | 38 | 3.6 | 9.7 | 1.6 | 1.1 | 1.1 |
| Field pea | 10 | 35 | 3.6 | 9 | 2.1 | 0.8 | 1.5 |
| Lablab | 11 | 36 | 10 | 3.8 | 1.7 | 0.8 | 1.9 |
| Lentil | 10 | 37 | 3.3 | 8.2 | 1.4 | 0.9 | 1.4 |
| Lupin (Sweet) | 9 | 48 | 3.2 | 8.3 | 2.6 | 2.3 | 1.8 |
| Lupin (Albus) | 9 | 55 | 3 | 8.8 | 2.4 | 2 | 1.5 |
| Lupin (Sandplain) | 8 | 51 | 3.8 | 8.8 | 3.1 | 1.7 | 1.7 |
| Lupin (Yellow) | 9 | 64 | 4.2 | 9.5 | 4.4 | 2.2 | 2.4 |
| Mung bean | 9 | 41 | 7.7 | 4.7 | 1.9 | 1 | 1.8 |
| Green Mung bean | 9 | 42 | 7.2 | 4.1 | 2 | 1 | 1.8 |
| Black Mung bean | 10 | 40 | 6 | 5.3 | 1.8 | 0.9 | 1.7 |
| Narbon bean | 11 | 39 | 4.4 | 9.9 | 3.2 | 1.4 | 1.1 |
| Navy bean | 10 | 39 | 4.5 | 13.5 | 2.1 | 1.7 | 1.5 |
| Pigeon pea | 10 | 31 | 7.6 | 6.1 | 1.5 | 1 | 1.3 |
| Vetch (common) | 10 | 42 | 4.2 | 9 | 1.9 | 0.8 | 1.1 |
| PASTURE LEGUMES | | | | | | | |
| Lucerne seed | | 60 | 6.8 | 11 | 2.5 | 1.3 | 2.2 |
| Medic seed | 10 | 64 | 6.8 | 8.9 | 2.7 | 1.3 | 2 |
| Serradella | 10 | | 4.9 | | 2.8 | 16.7 | |
| OILSEED CROPS | | | | | | | |
| Canola / Rape | 8.5 | 31 | 5.1 | 7.4 | 5 | 3.9 | 2.8 |
| Cottonseed | | 31 | 4.4 | 13.4 | 2.9 | 1.5 | 3.8 |
| Linola | w/w | 31 | 4.2 | 6.5 | 1.9 | 1.7 | 2.7 |
| Linseed / Flax | 8.5 | 30 | 4.2 | 6.6 | 2 | 1.8 | 2.8 |
| Mustard | 8.5 | 35 | 6.5 | 5.8 | 9.3 | 3.8 | 2.7 |
| Peanut | 10 | 36 | 3.2 | 10 | 2.3 | 0.9 | 2.4 |
| Safflower | 8.5 | 29 | 3.1 | 6.1 | 1.7 | 1.7 | 1.8 |
| Soybean | 8.5 | 62 | 5.5 | 18.5 | 3.5 | 2.3 | 2.6 |
| Sunflower | 8.5 | 30 | 7.8 | 5.9 | 1.7 | 1.1 | 2.3 |
| OTHER CROPS | | | | | | | |
| Hops | 0 | 54 | 7.4 | 61 | 3.6 | | |
| Lavender | 30 | 4.5 | 0.45 | 3.6 | 2 | 3.9 | |
| Poppy | 11.5 | 21 | 5.7 | 18 | 2.7 | 14.3 | 2.6 |
| Pyrethrum | | 17 | 2.2 | 15 | 1.8 | 7 | 2.9 |
| Tobacco (cured leaves) | | 39 | 2.5 | 32 | 3.5 | 20 | 3.6 |

* Grain nitrogen concentrations in barley and wheat vary markedly with region, cultivar and seasonal conditions.

Nutrient concentrations in harvested sugar cane crops

| Region | % crop burnt | Mean nutrient concentrations (kg/t FW) | | | | | |
|-------------------------|--------------|--|------|------|------|------|------|
| | | N | P | K | S | Ca | Mg |
| Mossman–Gordonvale | 10 | 0.75 | 0.1 | 1.12 | 0.21 | 0.13 | 0.13 |
| Babinda–Tully | 12 | 0.75 | 0.11 | 1.22 | 0.16 | 0.11 | 0.10 |
| Herbert | 5 | 0.67 | 0.11 | 0.76 | 0.15 | 0.15 | 0.19 |
| Burdekin | 91 | 1.11 | 0.24 | 2.05 | 0.35 | 0.28 | 0.29 |
| Central | 17 | 0.9 | 0.15 | 1.53 | 0.21 | 0.15 | 0.21 |
| Bundaberg | 32 | 0.88 | 0.16 | 1.93 | 0.35 | 0.18 | 0.28 |
| Maryborough–Rocky Point | 59 | 1.15 | 0.17 | 2.18 | 0.36 | 0.17 | 0.26 |
| Queensland | 32 | 0.89 | 0.15 | 1.54 | 0.26 | 0.17 | 0.21 |

* The primary mean data for this compilation were produced by Dr. John Reghenzani (Bureau of Sugar Experiment Stations, Tully) and incorporates all regional nutrient monitoring data collected by the Bureau since the early 1980s. It includes the earlier published data of:

Chapman *et al.* (1981) Proceedings of the Australian Society of Sugar Cane Technologists 3:325–32; and

Calcino, D.V (1992) Australian Sugarcane Nutrition Manual (Bureau of Sugar Experiment Stations and Sugar Research and Development Corporation):60 pp

In addition, Dr. Bernard Schroeder (BSES, Brisbane) recalculated the primary data to account for the regional variations in the proportion of cane harvested by the "green cane trash blanket" (GCTB) technique or following crop burning.

Thus, under GCTB, all nutrients in the cane tops and trash were assumed to remain on–farm. Where cane was burnt before harvest, 15% of the N and S and 50% of the P, K, Ca and mg respectively in the cane tops and trash were assumed to be retained on–farm. The estimates also account for 15% of the cane being ploughed out each year, 30% of which would have had the residues burnt.

No comparable data exists for sugar grown in northern New South Wales. On advice from BSES, the tabulated data for Queensland should be used for this region

Nutrient concentrations in harvested vegetable crops

| Species | Moisture (%) | Nutrient Concentration (kg/t FW) | | | | | |
|-----------------------|--------------|----------------------------------|------|-----|------|------|------|
| | | N | P | K | S | Ca | Mg |
| Artichoke (edible) | 84 | 4.3 | 0.77 | 4 | 0.23 | 0.48 | 0.47 |
| Asparagus | 94 | 2.2 | 0.41 | 2.1 | 0.35 | 0.14 | 0.12 |
| Beans (all types) | 91 | 3.8 | 0.39 | 2.8 | 0.24 | 0.44 | 0.32 |
| Beetroot | 91 | 2 | 0.3 | 2.2 | 0.13 | 0.09 | 0.16 |
| Broccoli (all types) | 90 | 5.4 | 0.82 | 4 | 0.81 | 0.37 | 0.18 |
| Brussel sprouts | 88 | 5.9 | 0.86 | 4.6 | 1.2 | 0.18 | 0.21 |
| Cabbage (all types) | 92 | 3.4 | 0.6 | 3.3 | 0.41 | 0.54 | 0.19 |
| Capsicum | 92 | 2.2 | 0.31 | 2.9 | 0.23 | 0.14 | 0.23 |
| Carrot | 89 | 1.6 | 0.4 | 2.3 | 0.15 | 0.45 | 0.16 |
| Cassava | 66 | 2.6 | 0.4 | 2.9 | 0.06 | 0.18 | 0.09 |
| Cauliflower | 91 | 3.1 | 0.59 | 3.6 | 0.6 | 1.3 | 0.23 |
| Celery | 95 | 1.3 | 0.29 | 2.8 | 0.13 | 0.49 | 0.25 |
| Chicory (roots) | 80 | 2.2 | 0.61 | 2.9 | 0.12 | 0.41 | 0.22 |
| Chilli (red) | 82 | 2.2 | 1.2 | 3 | 0.23 | 0.16 | 0.28 |
| Chilli (green) | 81 | 4.5 | 1.2 | 2.8 | 0.38 | 0.12 | 0.11 |
| Chives | 90 | 2.4 | 0.51 | 2.1 | 0.5 | 0.9 | 0.12 |
| Chokos | | 2.1 | 0.56 | 2.7 | 0.19 | 0.26 | 0.2 |
| Cucumber | 96 | 1.4 | 0.26 | 1.9 | 0.16 | 0.3 | 0.12 |
| Egg plant | 93 | 1.8 | 0.25 | 2.1 | 0.19 | 0.07 | 0.16 |
| Fennel | 94 | 1.5 | 0.26 | 4.4 | 0.15 | 0.24 | 0.08 |
| Garlic (bulbs) | 61 | 8.2 | 1.7 | 5.3 | 1.7 | 0.2 | 0.25 |
| Gherkin | 93 | 2.2 | 0.38 | 2.9 | 0.18 | 0.26 | 0.32 |
| Ginger | 89 | 1.8 | 0.4 | 2 | 0.23 | 0.23 | 0.28 |
| Horse Radish | 76 | 7.2 | 0.8 | 5.8 | 2.2 | 1.1 | 0.62 |
| Leek | 91 | 2 | 0.19 | 2 | 0.44 | 0.73 | 0.11 |
| Lettuce | 96 | 1.9 | 0.37 | 2.7 | 0.1 | 0.35 | 0.1 |
| Mushroom | 91 | 6 | 0.8 | 4.2 | 0.48 | 0.05 | 0.12 |
| Okra (edible portion) | 90 | 3.1 | 0.6 | 3 | 0.26 | 0.74 | 0.57 |
| Onion | 89 | 1.9 | 0.42 | 1.9 | 0.37 | 0.28 | 0.1 |
| Parsley | 83 | 5.8 | 0.7 | 8.3 | 0.41 | 2.2 | 0.46 |
| Parsnip | 81 | 3.8 | 0.88 | 5.1 | 0.77 | 0.47 | 0.29 |
| Peas | 75 | 11.2 | 1.33 | 2.7 | 0.54 | 0.32 | 0.42 |
| Peas (snow) | 88 | 4.8 | 3.6 | 4.2 | 2.1 | 0.25 | 0.36 |
| Peppers | 74 | 5.9 | 0.78 | 2.8 | 0.21 | 0.29 | 0.22 |
| Potato (tubers) | 80 | 3 | 0.42 | 4.4 | 0.28 | 0.14 | 0.12 |
| Potato (sweet) | 76 | 2.4 | 0.53 | 3.7 | 0.22 | 0.31 | 0.2 |
| Pumpkin | 90 | 2.1 | 0.56 | 2.7 | 0.19 | 0.26 | 0.2 |
| Radish | 93 | 3.5 | 0.31 | 2.2 | 0.55 | 1.9 | 0.41 |
| Rhubarb | 95 | 1.3 | 0.17 | 3.1 | 0.06 | 0.84 | 0.11 |
| Silverbeet | 93 | 2.9 | 0.42 | 4.4 | 0.27 | 0.7 | 0.63 |
| Squash | 92 | 3.9 | 0.34 | 1.6 | 0.33 | 0.13 | 0.12 |
| Spinach | 93 | 3.2 | 0.3 | 4.7 | 0.32 | 0.88 | 0.59 |
| Swede | 91 | 1.1 | 0.4 | 1.7 | 0.39 | 0.53 | 0.09 |
| Sweet corn (ears) | | 3.9 | 0.56 | 2.1 | 1.1 | 0.11 | 1.2 |
| Tomato | 94 | 1.6 | 0.33 | 2.4 | 0.19 | 0.13 | 0.12 |
| Turnip | 93 | 1.9 | 0.5 | 3.1 | 0.51 | 0.28 | 0.14 |
| Zucchini | 94 | 2.9 | 0.28 | 1.9 | 0.24 | 0.16 | 0.15 |

Nutrient concentrations in harvested fruit crops

| Crop Species | Crop Moisture (%) | Mean Nutrient Concentration (kg/t FW) | | | | | |
|--------------------------------------|-------------------|---------------------------------------|------|------|------|------|------|
| | | N | P | K | S | Ca | Mg |
| Apple | 84 | 0.32 | 0.08 | 1.1 | 0.02 | 0.04 | 0.04 |
| Apricot | 83 | 2.3 | 0.32 | 3.6 | 0.09 | 0.17 | 0.17 |
| Avocado | 63 | 4.1 | 0.76 | 6.1 | 0.4 | 0.72 | 0.77 |
| Babaco | 94 | 2.1 | 0.24 | 1.4 | 0.14 | 0.11 | 0.06 |
| Banana (NSW) | | 2.4 | 0.64 | 8.8 | 0.13 | 0.31 | 0.31 |
| Banana (QLD) (whole bunch and stalk) | | 1.6 | 0.2 | 5.2 | 0.13 | 0.17 | 0.21 |
| Berries | | 1.7 | 0.28 | 1.6 | 0.11 | 0.29 | 0.15 |
| Black currant | 80 | 1.8 | 0.34 | 3.6 | 0.32 | 0.5 | 0.27 |
| Blackberry | 84 | 1.9 | 0.22 | 1.8 | 0.09 | 0.41 | 0.27 |
| Blueberry | 85 | 1.1 | 0.13 | 0.8 | 0.06 | 0.15 | 0.05 |
| Cantaloupe/melon | 87 | 1.9 | 0.59 | 4.5 | 0.21 | 0.33 | 0.33 |
| Carambola | 91 | 1.2 | 0.17 | 1.1 | 0.08 | 0.03 | 0.03 |
| Casimiroa | 80 | 1.4 | 0.2 | 2.4 | 0.08 | 0.1 | 0.29 |
| Cherry | 80 | 1.5 | 0.21 | 2.2 | 0.08 | 0.15 | 0.12 |
| Citrus fruit | | 2.9 | 0.4 | 6.3 | 0.3 | 2.6 | 0.5 |
| Coffee | | 46 | 3.4 | 3.2 | 2.1 | 2.4 | 2.3 |
| Cranberry | 88 | 0.5 | 0.1 | 0.6 | 0.08 | 0.12 | 0.07 |
| Currants | 82 | 2.2 | 0.48 | 2.9 | 0.29 | 0.46 | 0.18 |
| Custard apple | | 2.6 | 0.3 | 2.6 | 0.14 | 0.7 | 0.34 |
| Date | 21 | 3.6 | 0.46 | 6.5 | 0.7 | 0.4 | 0.39 |
| Fig | 83 | 2.2 | 0.28 | 1.9 | 0.17 | 0.44 | 0.09 |
| Gooseberry | 87 | 1.3 | 0.35 | 1.4 | 0.13 | 0.2 | 0.1 |
| Grape (table) | ~80 | 1.3 | 0.27 | 2.1 | 0.08 | 0.22 | 0.1 |
| Grape (wine berries) | | 1 | 0.26 | 3.1 | 0.11 | 0.46 | 0.14 |
| Grapefruit | 89 | 1.1 | 0.21 | 1.6 | 0.12 | 0.33 | 0.11 |
| Guava | 83 | 1.2 | 0.26 | 2.3 | 0.07 | 0.16 | 0.11 |
| Kiwifruit | ~84 | 1.5 | 0.21 | 3.2 | 0.2 | 0.32 | 0.15 |
| Lemon & Limes | 87 | 1.9 | 0.15 | 1.5 | 0.12 | 0.6 | 0.12 |
| Longan | 72 | 1.6 | 0.06 | 2.4 | 0.09 | 0.02 | 0.29 |
| Loganberry | | 2.8 | 0.24 | 2.6 | 0.18 | 0.35 | 0.25 |
| Lychee | | 2 | 0.4 | 2.4 | 0.11 | 0.24 | 0.42 |
| Mandarin | | 1.6 | 0.16 | 1.4 | 0.13 | 0.37 | 0.13 |
| Mango (NSW) | 79 | 1.1 | 0.19 | 1.5 | 0.13 | 0.18 | 0.18 |
| Mango (QLD) | | 0.8 | 0.2 | 2.1 | 0.09 | 0.3 | 0.2 |
| Mangosteen | 85 | 0.8 | 0.2 | 2.1 | 0.09 | 0.1 | 0.2 |
| Mulberry | 89 | 3.5 | 0.38 | 3.1 | 0.27 | 0.2 | 0.12 |
| Nectarine | 86 | 1.4 | 0.22 | 2.3 | 0.06 | 0.06 | 0.1 |
| Olive | 55 | 2.3 | 0.39 | 4 | 0.24 | 0.32 | 0.18 |
| Orange | 82 | 1.3 | 0.18 | 1.8 | 0.11 | 0.6 | 0.16 |
| Passionfruit | 81 | 2.8 | 0.32 | 3.9 | 0.28 | 0.27 | 0.2 |
| Pawpaw | | 1.3 | 0.3 | 3.2 | 0.09 | 0.43 | 0.3 |
| Peach/Peacharine | 86 | 1.2 | 0.2 | 1.9 | 0.06 | 0.04 | 0.1 |
| Pear | 85 | 0.24 | 0.03 | 0.33 | 0.01 | 0.01 | 0.01 |
| Pepino | 93 | 1 | 0.33 | 1.2 | 0.19 | 0.05 | 0.08 |
| Persimmon | | 1 | 0.22 | 1.7 | 0.1 | 0.14 | 0.08 |
| Pineapple | | 0.78 | 0.07 | 2 | 0.07 | 0.13 | 0.09 |
| Plum | 86 | 1.5 | 0.19 | 1.6 | 0.09 | 0.05 | 0.09 |

Nutrient concentrations in harvested fruit crops cont'd

| Crop Species | Crop Moisture (%) | Mean Nutrient Concentration (kg/t FW) | | | | | |
|--------------------|-------------------|---------------------------------------|------|-----|------|------|------|
| | | N | P | K | S | Ca | Mg |
| Quince | | 0.32 | 0.08 | 1.1 | 0.02 | 0.04 | 0.04 |
| Rambutan | | 1.6 | 0 | 1.4 | 0 | 0.08 | 0.1 |
| Raspberry | 84 | 1.8 | 0.29 | 1.7 | 0.14 | 0.36 | 0.15 |
| Stone fruit | | 1.3 | 0.21 | 2.1 | 0.06 | 0.05 | 0.1 |
| Strawberry | 91 | 1.9 | 0.26 | 1.5 | 0.11 | 0.19 | 0.08 |
| Tangelo | | 2.9 | 0.4 | 6.3 | 0.3 | 2.6 | 0.5 |
| Tea (pluck leaves) | | 40 | 4 | 20 | 2.6 | 4.9 | 2.5 |
| Watermelon | 94 | 1.5 | 0.25 | 2.2 | 0.09 | 0.11 | 0.12 |

Nutrient concentrations in harvested nut crops

| Nut Crop | Moisture (%) | Mean Nutrient Concentration (kg/t FW) | | | | | |
|-------------------------|--------------|---------------------------------------|------|------|------|------|------|
| | | N | P | K | S | Ca | Mg |
| Almond* (whole fruit) | 12 | 13.2 | 1.9 | 17.6 | 0.68 | 2.1 | 1.4 |
| Cashew | | 14 | 2 | 6.5 | 0.7 | 1 | 1.6 |
| Chestnut (whole fruit) | 23 | 9.2 | 0.88 | 6.3 | 0.65 | 0.62 | 0.83 |
| Hazelnut / Flibert | | 25 | 3.1 | 5.6 | 0.7 | 1 | 1.6 |
| Macadamia | | 11 | 1.6 | 9.2 | 1.3 | 0.41 | 0.82 |
| Pecan | | 10 | 2.3 | 4.5 | 0.67 | 3.7 | 0.6 |
| Pistachio (whole fruit) | 52 | 8.6 | 1.5 | 9.4 | 0.6 | 0.43 | 0.38 |
| Walnut | | 26.6 | 3.6 | 4.7 | 1.8 | 0.8 | 1.5 |

*Whole fruit = hulls + shell + kernel for almond & pistachio & shell + kernel for chestnut.

Typical nutrient content of livestock and livestock products

| Product | Units | N | P | K | Mg | S | Ca | Na | Comments* |
|----------------------------|-------|------|------|------|------|------|------|------|------------------------------|
| Sheep | | | | | | | | | |
| Merino greasy fleece | kg/t | 119 | 0.3 | 15 | 0.59 | 22 | 1.8 | 1.0 | |
| Xbred greasy fleece | kg/t | 125 | 0.3 | 35 | 0.43 | 23 | 1.5 | 2.4 | |
| Live, shorn, ex farm gate | kg/t | 23 | 5.9 | 2.1 | 0.4 | 1.4 | 11 | 2.1 | Gut fill = 15% LW and 12% DM |
| Cattle | | | | | | | | | |
| Whole milk (cow) | kg/kL | 5.3 | 0.93 | 1.6 | 0.10 | 0.3 | 1.2 | 0.53 | NZ for S |
| Live, ex farm gate | kg/t | 26 | 7.2 | 2.0 | 0.4 | 1.4 | 12 | 2.3 | Gut fill = 12% LW and 12% DM |
| Poultry | | | | | | | | | |
| Whole egg | kg/t | 16.8 | 2.63 | 1.20 | 0.61 | 1.45 | 48.5 | 1.22 | USA |
| Live broiler, ex farm gate | kg/t | 31.8 | 6.1 | 2.9 | 0.38 | 2.6 | 9.1 | 1.4 | |
| Pigs | | | | | | | | | |
| Empty body | kg/t | 24 | 5.6 | 2.2 | 0.37 | | 9.2 | 1.3 | USA, UK |

* Australian values except as shown

| Type feed supplement | Mean (& SD) Nutrient Concentration (kg/t FW) | | | | | |
|----------------------|--|-----|------|-----|------|-----|
| | N | P | K | S | Ca | Mg |
| HAY | | | | | | |
| Lucerne (A) | 28 | 2 | 24 | 2.6 | 9.9 | 2.7 |
| Clover or medic (B) | 22* | 1.7 | 18 | 1.6 | 8.6 | 2.3 |
| Clover/grass (B) | 21* | 2 | 18 | 1.7 | 5.3 | 1.9 |
| Oaten (A) | 13 | 1.6 | 17 | 1.1 | 2.3 | 1.2 |
| Pasture (B) | 18* | 1.8 | 15 | 1.6 | 5 | 1.8 |
| Sorghum (C) | 16 | | | | | |
| Chopped corn (C) | 12 | 2.4 | 10.8 | 1 | 1.5 | 1.4 |
| SILAGE | | | | | | |
| Grass (B) | 24* | 2.8 | 24 | 2.2 | 5.3 | 2.1 |
| Pasture (B) | 26* | 2.8 | 26 | 2.3 | 5.9 | 2.1 |
| Maize (B) | 12* | 1.9 | 15 | 1 | 2.1 | 2.4 |
| Oaten (B) | 20* | 2.5 | 23 | 1.8 | 3.7 | 1.7 |
| Sorghum (C) | 15 | | | | | |
| Unspecified (C) | 13 | | | | | |
| GRAIN | | | | | | |
| Barley (D) | 16 | 2.7 | 4.6 | 1.2 | 0.65 | 1.2 |
| Oats (E) | 15 | 3.2 | 3.8 | 1.2 | 1 | 1.1 |
| Sorghum (D) | 15 | 3.2 | 3.6 | 0.8 | 1.6 | 1.3 |
| Wheat (D) | 28 | 3.2 | 3.7 | 1.1 | 0.65 | 1.2 |

* Expressed on an oven-dry basis

- A. Weighted means derived from combining data from Agritech Laboratory Services (Toowoomba) and the Pastoral and Veterinary Institute, Hamilton (P. Flinn, pers. comm).
- B. Data from the Pastoral and Veterinary Institute, Hamilton (P. Flinn, pers. comm).
- C. Data from Agritech Laboratory Services (Toowoomba)
- D. Weighted means derived from combining data from Leche *et. al.* (1982) and Agritech Laboratory Services (Toowoomba)
- E. Data from Leche *et. al.* (1982)