

Australian Oilseed Federation

Canola meal workshop

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Protein and Glucosinolate content of Australian canola

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Protein Content

Measuring Protein

Protein = total nitrogen content x 6.25

(Based on protein containing 16% nitrogen)



Kjeltec nitrogen analyzer

Dumas (Leco) analyzer



Protein content

- **Presentation of protein content**
 - Protein in seed at 8.5% moisture (22%)
 - Protein in meal at 13% moisture (35%)
 - Protein in meal at 10% moisture (36%)
 - Protein in dry meal (40%)

Mean Protein Content 2002/3

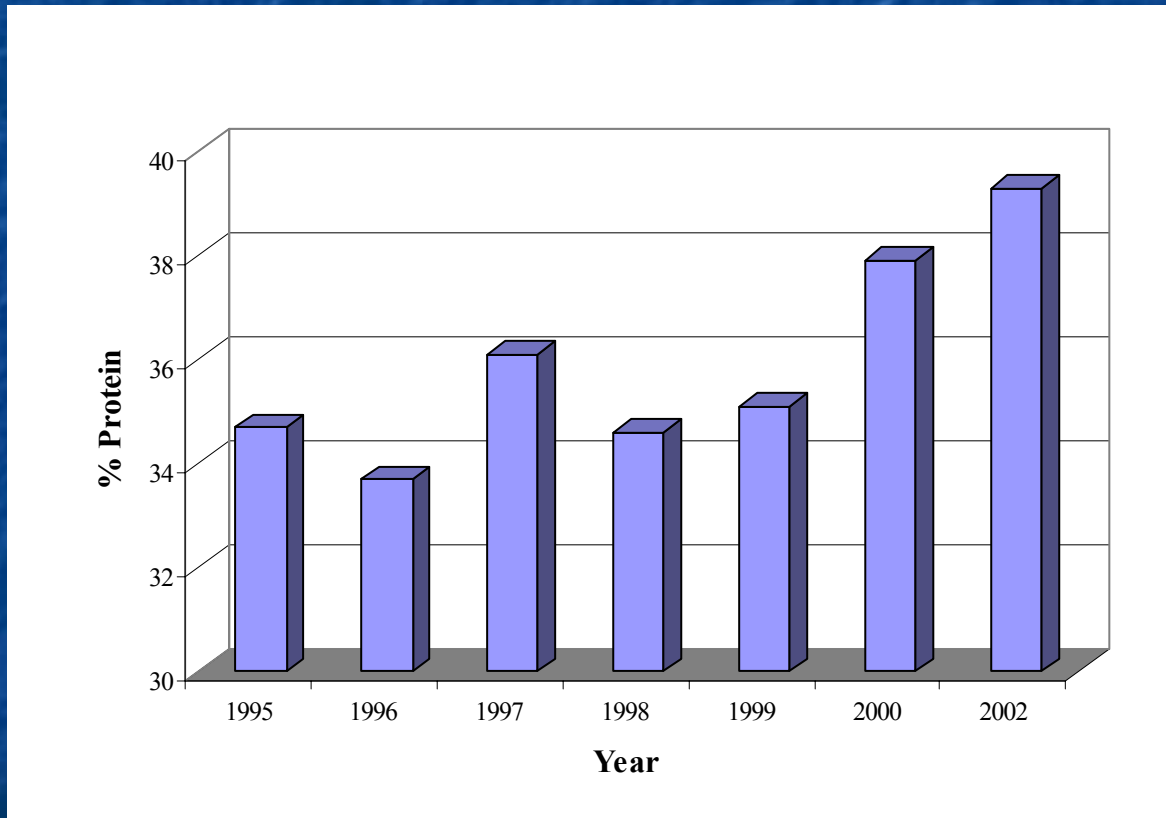
Oil-free meal @ 13% moisture = 39.3%

@ 10% moisture = 40.7%

Protein vs. Oil Content

Site	Oil	Protein	Total
1	35.2	44.5	79.7
2	39.2	42.5	81.7
3	43.2	38.6	81.8
4	48.0	34.0	82.0

Protein Content 1995-2003



Range of Proteins

■ 1994	33 - 42
■ 1995	28 - 40
■ 1996	29 - 36
■ 1997	29 - 40
■ 1998	31 - 39
■ 1999	31 - 40
■ 2000	32 - 43
■ 2002	37 - 45

Glucosinolate Content

Canola standard

- 4 aliphatic glucosinolates
- oil-free meal
- < 30 $\mu\text{mol/g}$ oil-free meal

(17 $\mu\text{mol/g}$ seed @ 8.5% moisture)

Glucosinolate Content

Total Glucosinolates

- Canola Standard + Indole Glucosinolates

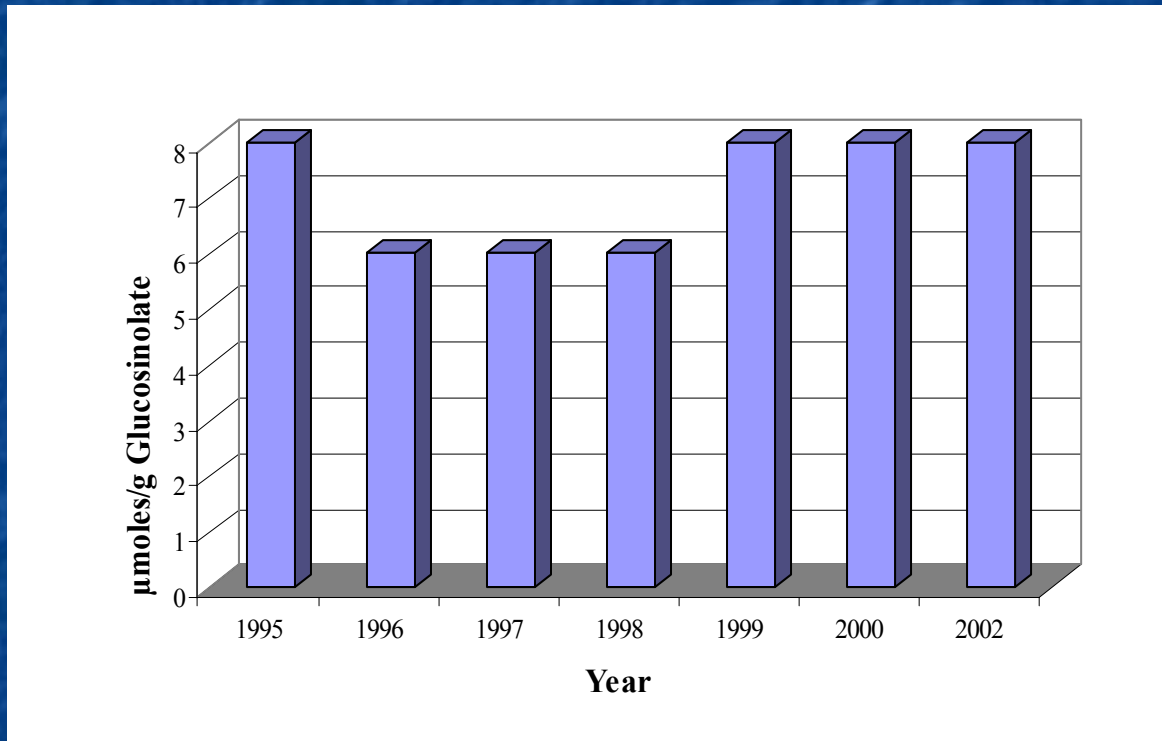
(30 + 10)

Glucosinolate Content

Total Glucosinolates

- Glucosinolates in whole seed - ($\sim 10 \mu\text{mol/g}$)
- Glucosinolates in meal - ($17 \mu\text{mol/g}$)

Glucosinolate Content 1995-2002



8 $\mu\text{mol/g}$ whole seed 8.5% moisture = (~ 15 in meal)

Sinapine Content 1995-2003

Concentration in canola meal 9.1 – 15.5 g/kg

Average 12.0 g/kg

Concentration in canola seed 5.2 – 9.6 g/kg

Average 7.2 g/kg

Ref: Amanda McFadden, ARAB, 2003

Additional Factors

- Fibre (crude, NDF, ADF)
- Carbohydrates
- Amino acids
- Minerals
- Vitamins

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