

PLANT: WIDTH (cm)		
mean	69.5	63.3
Std deviation	8.2	6.5
LSD/sig	5.7	P≤0.01
STEM: INTERNODE LENGTH		
	short (av. 34mm)	long (av. 82mm)
LEAF: LENGTH (mm)		
mean	12.1	9.2
Std deviation	2.8	1.7
LSD/sig	2.4	P≤0.01
LEAF: WIDTH (mm)		
mean	11.1	8.8
Std deviation	2.0	2.0
LSD/sig	1.6	P≤0.01
FLOWER	absent	present
SEED	absent	present

Arachis hypogaea
Peanut

‘Middleton’

Application No: 2003/048 Accepted: 3 Jun 2003.

Applicant: **The State of Queensland through its Department of Primary Industries**, Brisbane, QLD and **Grains Research and Development Corporation**, Barton, ACT.

Characteristics (Table 2, Figure 37) Plant: growth habit prostrate to semi-erect, branching medium. Time of maturity: late. Leaflet: size medium, colour medium green. Flowering: general pattern sequential, pattern of main stem none. Pod: size large, constrictions medium, texture of surface coarse, number of kernels few, prominence of beak prominent, shape of beak curved. Kernel: colour of uncured mature testa monochrome pink, shape cylindrical, size large, weight per 1000 kernels 1052g, dormancy period medium, percentage of shell medium. Oleic to linoleic acid ratio: high. Commercial grouping: Virginia.

Origin and Breeding Controlled pollination: ‘Middleton’ (designated D48-4-p4-2) is an F_{4:8} line derived from cross D48 (Streton x D1-p49). The seed parent ‘Streton’ is characterised by low oleic acid content. The pollen parent D1-p49 was a high oleic F₂ plant from the cross D1 (VA-C92R x F435). F435 is the original donor of the high oleic trait. The cross was made in 1995-96 and the F₁ (D48-4) grown in the Kairi glasshouse. In the following summer some single F₂ plant selections were made on the basis of pod and kernel appearance. Some F₃ kernel from those single plants was sent for analysis, the remainder was planted as F_{2:3} rows in the 1997-98 summer. These rows were selected on the basis of low Specific Leaf Area (SLA) (and hence high transpiration efficiency) and high pod yield. The D48-4-p4 had the lowest SLA of all the Streton derived progenies. Subsequently F₄ single plants were selected in the summer of 1998-99 and F_{4:5} rows grown in the winter nursery. A Preliminary Yield Test planted quite late in 1999-2000 summer failed as an experiment but some promising lines including D48-4-p4-2 generated enough seed to advance to Regional Variety Trials in 2000-01. The value of the line was established in a special experiment comparing lines derived from crosses by various means. Two sibling lines of D48-4-p4-2 yielded

well in the special test but did not have the pod drying characteristics of this line. Some lines from other progenies had the drying characteristics but not the yield potential. Selection criteria: high oleic acid content, high kernel percentage and high yield. Propagation: by seed. Breeder: Alan Cruickshank, Queensland Department of Primary Industries.

Choice of Comparators The grouping characteristics used to identify the most similar varieties of common knowledge were – Oleic to linoleic acid ratio: high, Commercial grouping: Virginia and Runner. High oleic acid kernel is a qualitative trait of great commercial importance and high stability across environments. Grouping by the commercial classes excludes high oleic lines such as F435, which has very small pods and is commercially unrelated. Based on these characters the following comparators were chosen: ‘SO95R’, ‘Menzies’^{7(d)}, and another candidate variety ‘Wheeler’. The seed parent ‘Streton’ was excluded because of its low oleic acid content.

Comparative Trial Location: J. Bjelke-Petersen Research Station, Kingaroy, QLD (Latitude 27°S), between 17 Dec 2002 and 22 May 2003. Conditions: the trial was conducted under standard management practices. Trial design: 60-80 plants in four separate replicates were grown per variety. Measurements: following inspection of inverted plots each replicate was threshed as a bulk and pod samples compared.

Prior Applications and Sales nil.

Description: Alan Cruickshank, QDPI, Kingaroy, QLD.

‘Wheeler’

Application No: 2003/049 Accepted: 3 Jun 2003.

Applicant: **The State of Queensland through its Department of Primary Industries**, Brisbane, QLD and **Grains Research and Development Corporation**, Barton, ACT.

Characteristics (Table 2, Figure 37) Plant: growth habit semi-erect, branching medium. Time of maturity: medium. Leaflet: size medium, colour medium green. Flowering: general pattern sequential, pattern of main stem none. Pod: size large, constrictions shallow, texture of surface fine, number of kernels few, prominence of beak absent or very inconspicuous. Kernel: colour of uncured mature testa monochrome pink, shape cylindrical, size large, weight per 1000 kernels 1094g, dormancy period short, percentage of shell medium. Oleic to linoleic acid ratio: high. Commercial grouping: Virginia.

Origin and Breeding Controlled pollination: ‘Wheeler’ is an F_{4:10} line from the cross D66 (Conder x D28-p6) made in the 1996-97 summer. The seed parent ‘Conder’ is characterised by low oleic acid content. The pollen parent D28-p6 was a high oleic F₂ plant from the cross D28 (Conder x D1-p52), where D1-p52 was a high oleic F₂ plant from the cross D1 (VA-C92R x F435). F435 is the original donor of the high oleic trait. Where F₂ plants are used for crossing, F₁ plants are kept separate within a cross. In this case the F₁ plant was grown in the Kairi glasshouse in winter 1997 and designated D66-1. In the following summer F₂ individuals were selected for high oleic acid with a part-seed analysis: D66-1-p17 was selected. The F_{2:3} row was grown in the winter nursery and F₄ single plants selected the following summer. ‘Wheeler’ was tested (as D66-1-p17-3) in a preliminary yield test in 1999-2000 and regional variety trials in 2000-01 and 2001-02. Selection