

**A PROMISING EARLY MATURING, CONFECTIONARY TYPE GROUNDNUT  
(*ARACHIS HYPOGAEA L.*) VARIETY WELL ADAPTABLE TO LOCAL  
CROPPING SYSTEMS IN SRI LANKA**

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**EXTENDED ABSTRACT**

Groundnut is considered as an important source of edible oil throughout the world, in which nutritionally unique and healthy. Groundnut cultivation in Sri Lanka is in increasing trend. In recent years Jumbo peanuts has become popular within the country. But the total requirement for the jumbo peanut production is imported from other countries. As there is a demand for confectionary groundnut at present, development of varieties acceptable for local conditions is a timely need. Therefore present experiments were conducted to identify a promising large seeded groundnut variety suitable for local cropping systems in Sri Lanka.

Eighteen large seeded groundnut lines received from International Crops Research Institute for Semi Arid Tropics (ICRISAT) were evaluated and six lines were advanced to yield trials at GLORDC, Angunakolapelessa and tested for three consecutive seasons. National Co-ordinated Variety Testing (NCVT) and Variety Adaptability Trials (VAT) were conducted since the year 2011 to 2015. Four promising lines (ICGV 05200, ICGV 05198, ICGV 06216 and ICGV 06189) were advanced to NCVT and two promising lines (ICGV 05200 and ICGV 05198) were selected for VAT along with the check variety Walawa. Pod yield data were analyzed using the ANOVA procedure in Statistical Analysis Software 9.1.3 (SAS) and means were compared using least significant difference. Stability of the lines was calculated using the ranking method proposed by Abesiriwardhana *et al.* (1991). Sensory evaluation was analyzed by Freidman nonparametric techniques by using SPSS windows 16.1. Considering Pod yield, Days to maturity and 100 Seed weight four lines (ICGV 05200, ICGV 05198, ICGV 06189 and ICGV 06216) were advanced for the NCVT (Table 1). Considering the results of all NCVT trials and with an informal sensory evaluation, two promising lines namely ICGV 05198 and ICGV 05200 were nominated for the Varietal Adaptability Trials (VAT).

Table 1. Mean Pod Yield (kg/ha), Days to Maturity and 100 Seed Weight (g) of tested lines at GLORDC, Angunakolapelessa.

Accession Number/ Variety name	Mean Pod Yield (kg/ha)			Days to Maturity			100 seed weight		
	2011/12 <i>maha</i>	2012 <i>yala</i>	2012/13 <i>maha</i>	2011/12 <i>maha</i>	2012 <i>yala</i>	2012/13 <i>maha</i>	Average (g)	*STD	Range
ICGV 05198	1,955.6 d	2,529.2 a	2,733.3 ab	120	125	120	83.0	14.1	93-73
ICGV 06216	4,440.3 a	2,447.2 a	2,818.0 a	124	130	125	82.5	10.6	90-75
ICGV 06189	3,366.7 b	1,402.8 b	3,176.7 a	130	126	132	77.8	8.8	84-71
ICGV 05200	2,065.3 d	965.3 c	2,157.0 b	115	112	115	79.0	1.4	78-80
ICGV 06229	4,288.9 a	666.7 cd	666.7 c	132	125	130	74.0	2.8	76-72
ICGV 06227	3,194.4 bc	651.4 cd	2,747.3 ab	135	128	125	77.5	3.5	80-75
Zambia	2,598.6 cd	422.2 d	422.3 c	132	130	132	69.5	0.7	69-70
Walawa (Check)	3,005.6 bc	772.2 cd	2,582.0 ab	136			68.0	0.7	67-68
CV %	13.7	18.20	15.70						
LSD	751.4	393.08	598.43						

Note: means followed by the same letter are not significantly different at p=0.05; \*STD: Standard Deviation



**Table 2: Pod yield (kg/ha) and adaptability rank of tested lines in NCVT 2013/14 Maha.**

Variety/line	Locations and ranks						Variance	Mean rank	Overall rank
	Vavuniya		Angunakola		Aralaganwila				
	Yield (kg/ha)	Rank	Yield (kg/ha)	Rank	Yield (kg/ha)	Rank			
ICGV 05200	1,326.5a	6	3271ab	5.5	1,543.2a	6	0.083	5.8	2
ICGV 06189	1,322.2a	6	3301.2ab	5.5	1,666.7a	6	0.083	5.8	2
ICGV 06216	1,385.2a	6	3029ab	5.5	1,432.1a	6	0.083	5.8	2
ICGV 05198	1,174.7a	6	3754.9a	6.0	1,728.4a	6	0.00	6.0	1
Walawa(check)	1,209.3a	6	2369.8b	5.0	1,370.4a	6	0.33	5.6	3
Indi(check)	796.9b	5	980.2c	4.0	1,364.2a	6	1.00	5.0	4

Note: means followed by the same letter are not significantly different at  $p=0.05$

**Table 3: Average Pod Yield (kg/ha) and adaptability rank of two testing lines with comparison to the standard variety walawawhen tested over three locations in 2014 yala.**

Variety	Kalpitiya	Locations and ranks						Overall rank
		Days to maturity	Galkulama	Days to maturity	Panwewa	Days to maturity		
ICGV 05200	4,074 a	116	4,888.9 a	112	1,492.5 ab	114	2	
ICGV 05198	4,044.4 a	124	4,148.1 a	120	1,625.1 a	125	1	
Walawa	2,799.9 b	132	3,629.6 b	135	1,010.2 b	132	3	
CV%	9.5		13.5		17.2			
LSD	790.8		1,300.7		538.7			

Note: means followed by the same letter are not significantly different at  $p=0.05$ .

**Table 4: Median ranks for sensory evaluation of jumbo type roasted groundnuts.**

Tested samples	Colour	Taste	Size of seed	Crunchiness	Overall Acceptability
ICGV 05200	1.50a	1.00b	1.50a	1.00a	1.00b
Market product	1.00a	2.00a	1.50a	1.50a	2.00a
Significance	0.18	0.03	0.31	0.25	0.02

Note: means followed by the same letter are not significantly different at  $p=0.05$ .

ICGV 05200 was a promising confectionary type groundnut line, when considering the yield performance and the maturity under NCVT and VAT. It has given a highest yield of 4.8 t/ha during VAT trials and especially this line can be harvested within 105 to 110 days. Sensory properties were compatible with the market type when considering colour, Seed size and crunchiness of ICGV 05200 except taste and overall acceptability, because the processing procedure of market type jumbo peanut was different. The new variety was released as Lanka jumbo, having early maturing ability and it will be a better replacement for Variety Walawa.

#### REFERENCES

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