

# SELECTION AND DEVELOPMENT OF NEW GROUNDNUT VARIETY GV3

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## ABSTRACT

*Groundnut variety GV3 was selected from the cross ICGV 95276/Cuc Nghe An by pedigree at Hung Loc Agricultural Research Center.*

*Results obtained in the adaptation experiments showed that groundnut variety GV3 gave higher pod yield than control variety, short growth duration from 84 to 95 days, potentiality resistant to late leaf spot and rust grade 4-6. the Weight of 100 seeds was 39-42 grams meanwhile the local check gave only 31- 40 grams. In addition, GV3 had high percentage of sound mature seeds of 70-74 % in rainy conditions whereas local check gave only 56-60.*

*In the demonstration trials on grey posolic soil in Dong Nai, Baria- Vung Tau and Binh Thuan provinces, GV3 yielded 1800-3100 kg/ ha; and on red latozol soil in Daklak and Dongnai province it yielded 1800-2500 kg/ha.*

## 1. BACKGROUND

Groundnut (*Arachis hypogaea* L.) is an important oilseed crop of Viet Nam with an export amount of 45-103 thousands tons/year (General Department of Statistics of Vietnam). In 2008, Viet Nam cultivated 254,000 ha of groundnut with pod yield of 1.98 tons/ha (FAO, 2008)



The existing varieties have long maturity duration and fresh seed dormancy, low shelling percent and yield; high proportion of small seeds. Viet Nam succeeded in developing several large seed varieties such as: MD7, L05, V79. However, the results of adaptation trials of these new groundnuts in Southeastern, Central Highlands and Southwestern gave low yield (Pham Ngoc Quy, and Tran Van Sy 2000, 2001). In other hand, most of local groundnut varieties (Ly, Giay, Se) gave low pod yield and small seed mass. Thus, selection of new groundnut varieties with high yield, wide adaptation is an urgent and important task for production.

## 2. MATERIALS AND METHODS

The new groundnut variety GV3 was bred and developed from the crosses ICGV95276 x Cuc Nghe An and HL 25

**Table 1** Morphological and agronomical characteristics of GV3 and Ly

Characteristics	GV3	Local var.(Ly)
Pedigree	ICGV95276 x Cuc Nghe An	Local
Growth duration (days)	84-95	87- 97
Pod yield in adaptation trials (kg/ha)	2300 - 3100	2000- 2700
Form of pod	straight	light waist
No. of primary branches	4.4- 6.8	4- 6.2
Resistant to foliar disease (grade)	4- 6	4- 5
Seed color	pinky-white	pinky-white

Form of seed	round	round
Weight of 100 pods (g)	108 – 130	95- 126
Weight of 100 seeds (g)	39- 42	31- 40,5
Plant height (cm)	45 - 58	42- 68
Shelling percent (%)	73 -74	74- 75,5
Sound mature seeds (%)	70- 83	56- 83
Oilseed content (%)	52.5	50.1

### 3. RESULTS AND DISCUSSION



Percentage of sound mature seeds of GV3, GV6, HL25, MD7 reached from 68- 83% while local check and VD1 gave 56- 83 %. Resistant to foliar disease of GV3 and MD7 were weak (5-6 grade) whereas others were at 4- 5 on the 1-9 scale

**Table 2.** Growth parameters and reactions of 8 groundnut varieties to foliar disease <sup>1</sup> period 2007-2008

Variety	Days to maturity	Plant height (cm)	No. of branches	Shelling percent (%)	Sound mature seed (%)	Weight of 100 seeds (g)	Score	
							LLS (1- 9)	Rust (1- 9)
MD7	91	64.6	4.8	69	67.5	38.1	4-5	4
VD1	91	63.7	4.7	75	60.2	35.1	4-5	4
HL25	90	66.8	4.7	69	67.5	38.4	4-5	4
GV10	93	61.9	5.6	68	68.8	43.9	4-5	4
GV6	89	63.3	5.2	69	69.6	41.0	4-5	4
GV3	86	61.4	5.2	73	72.5	39.2	4-6	4
VD7	90	65.6	5.2	74	62.9	35.9	4-5	4
OMDP13	95	65.3	5.2	71	67.0	37.0	3-4	3
L9801-3	91	66.6	4.8	72	63.0	36.4	4-5	4
L9803-8	91	64.8	5.2	74	63.5	37.1	4-5	4
VD01-2	90	65.1	4.7	74	63.0	38.0	4-5	4
Local check	91	65.8	4.6	73	61.5	35.9	4-5	4

1: Data are means of 3 years from 12 testing trials .

Rust: *Puccinia arachidis*: scored on a 1-9, where 1= no incidence and 9 = > 50% incidence  
 LLS: Late leaf spot: *Phaeoisariopsis personata* (1-9)

**Table 3.** Dry pod yield (kg/ha) of groundnut varieties in on-farm-demonstration period from 2007- 2008 in Dong Nai , Tay Ninh and Dak Lak provinces.

Varieties	Dong Nai		Dak Lak			Tay Ninh		
	AS 2007	WA 2007	AS 2008	AS 2007	WA 2007	AS 008	AS 2007	WA 2008
MD7	2237	2343	2166	1500	1600	1917	1200	1722
VD1	2104	2146	1933	1400	1520	1688	1250	1667
HL25	2212	2175	2033	1660	1720	2083	1050	1722
GV10	2487	2383	2266	1820	1800	2167	1460	1889
GV6	2429	2098	2033	1620	1720	1625	1320	1694
GV3	2490	2308	2166	1760	1780	2208	1400	1778
VD7	2187	2308	2000	1780	1720	1875	1360	1639
OMDP13	2140	2200	2100	1700	1720	2375	1240	1722
L9801-3	2424	2192	1800	1460	1500	1833	1100	1611
L9803-8	2137	2250	1733	1500	1580	1625	1240	1583
VD01-2	2195	2050	2100	1660	1680	1875	1100	1639
Local check	2083	2079	1800	1600	1520	1583	1150	1611
CV (%)	5.3	9.0	9.5	5.3	6.8	9.9	7.1	9.4
LSD 05	123	250	92.5	118	105	188	158	154

**Note:** AS: Autumn-Summer; WA: Winter- Autumn

The results indicated that GV10, GV3 and OMDP13 gave higher pod yield as compared to other test varieties and local check during Autumn-Summer and Winter- Autumn in both 2007 and 2008 (Table 3)

**Table 4.** Dry pod yield (kg/ha) of GV3 on-farm trials 2005-2008 in Southeastern & Central Highlands

Year	Season	Location	Area (ha)	Pod yield (kg/ha)
2005	W- S	Xuan Tam commune, Xuan Loc district, Dong Nai province	2	2471
	A-S and W- A	CuMgar and Quang Hiep communes, CuMgar district, Dak Lak province	2	2405
	W- A	Xuan Tam commune, Xuan Loc district, Dong Nai province	10	2400
	W- A	CuMgar and Quang Hiep communes, CuMgar district, Dak Lak province	15	2000
2006	A-Sr	CuMgar commune, CuMgar district, Dak Lak province	10	1800
2007	A-S and W- A	Quang Hiep commune, CuMgar district, Dak Lak province	80	2200
2008	W- S	Xuan Tam commune, Xuan Loc district, Dong Nai province	2	2350
	A-S	Song Binh and Hoa Thang communes, Bac Binh district, Binh Thuan province	2	2500
	A-S	Da Bac commune, Chau Duc district, Baria- Vung Tau province	0.5	3100
		Total	123.5	

#### 4. CONCLUSIONS

GV3 has an erect growth habit and medium stalk height. The leaves are elliptical and green. This variety has mainly two-seed pod types, pinky-white color. The oil



content is 52.5%. The variety has no dormancy, hence the harvested product can be used for immediate sowing. Groundnut variety GV3 gave higher pod yield than control with significant difference, short growth duration from 84 to 95 days, potentiality resistant to late leaf spot and rush grade 4 – 6. Weight of 100 seeds was 39-42 grams. In addition, GV3 had high percentage of sound mature seeds (70-74 %) in rainy conditions meanwhile local check gave only 56-60%. GV3 is suitable to recommend in rainy season production. With its wide adaptation, GV3 can be released widely in Southeastern & Central Highlands

#### REFERENCES

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