

## Effect of harvesting stages on seed quality parameters of groundnut (*Arachis hypogaea* L.)

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### SUMMARY

The studies revealed that, in six varieties of groundnut seed quality parameters viz., number of well developed pods per plant increased after physiological maturity. 100 seed weight (g) and seed moisture content (%) decreased after physiological maturity.

**Key Words :** Groundnut, Pods, 100 seed weight, Moisture

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Groundnut (*Arachis hypogaea* L.) is a valuable food and oilseed crop. In groundnut crop for getting highest seed yields well developed pods are needed. Therefore, harvesting stages are essentials. Early harvested groundnut seeds are mostly immature and have highest moisture content due to this seed deterioration occurs and reduction in seed yields too. For getting higher yield well developed mature pods should be harvest. Therefore, higher seed yield should obtained from that pods.

### MATERIAL AND METHODS

The present investigation entitled, effect of harvesting stages on seed quality parameters of groundnut (*Arachis hypogaea* L.), was conducted during summer, 2012 at All India Co-ordinated Research Project on Summer Groundnut, Mahatma Phule Krishi Vidyapeeth, Rahuri. The experiment was laid out in a Factorial Randomized Block Design with three replications. The gross plot size was 5.00 x 0.60 m<sup>2</sup>,

while the net plot size was 4.80 x 0.60 m<sup>2</sup>. The row to row spacing was 30 cm, while plant to plant spacing was 10 cm for Spanish bunch varieties and the row to row spacing was 30 cm, while plant to plant spacing was 15 cm for Virginia bunch varieties. The treatment 24 consisted of four harvesting stages, viz., (M<sub>1</sub>) Physiological maturity, (M<sub>2</sub>)10 DAPM, (M<sub>3</sub>)20 DAPM, (M<sub>4</sub>)30 DAPM and six varieties (V<sub>1</sub>) RHRG-6021, (V<sub>2</sub>) RHRG-6083, (V<sub>3</sub>) JL-501, (V<sub>4</sub>) TAG-24, (V<sub>5</sub>) SB-XI and (V<sub>6</sub>) TPG-41. The laboratory analysis was carried out by using Factorial Completely Randomized Design with three replications. The field observation was recorded number of well developed pods per plant and laboratory observations were recorded 100 seed weight and moisture content of seed for each treatment and after every harvesting stages. The data on field observation was analysed as per method suggested by Panse and Sukhatme (1985) and laboratory observations were analysed as per method suggested by Snedecor and Cochran (1967).

### RESULTS AND DISCUSSION

The experimental findings obtained from the present study have been discussed in following heads:

#### Number of pods per plant:

The genotype V<sub>2</sub> (RHRG-6083) (30.46 pods/plant) recorded highest number of pods/plant. The highest number

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of pods/plant (29.55) was recorded at M<sub>4</sub> (30 DAPM). The lowest number of pods/plant was observed at M<sub>1</sub> (PM) (16.34 pods/plant). At physiological maturity number of mature pods were found lowest and thereafter it increased up to 30 DAPM (Table 1).

### 100 seed weight:

The genotype V<sub>6</sub> (TPG-41) (61.21 g) recorded highest 100 seed weight. The lowest 100 seed weight was observed at M<sub>4</sub> (30 DAPM) (43.89 g). At physiological maturity M<sub>1</sub>

recorded the highest 100 seed weight (52.06 g) thereafter it was found to be decreased because seed moisture content was decreased after physiological maturity (Table 2).

### Moisture content of seed:

The genotype V<sub>3</sub> (JL-501) recorded highest moisture content (39.50 %). The highest moisture content (40.28 %) was recorded at M<sub>1</sub> (PM). The lowest moisture content was observed at M<sub>4</sub> (30 DAPM) (35.71 %). Decrease in seed moisture content (%) after physiological maturity was

**Table 1 : Effect of genotypes and harvesting stages on number of pods/plant of groundnut cultivars**

Sr. No.	Harvesting stages	Genotypes						Mean
		V <sub>1</sub>	V <sub>2</sub>	V <sub>3</sub>	V <sub>4</sub>	V <sub>5</sub>	V <sub>6</sub>	
1.	M <sub>1</sub> (PM)	15.00	24.73	13.53	12.40	11.20	21.19	16.34
2.	M <sub>2</sub> (10DAPM)	16.13	29.27	14.87	16.00	13.87	23.37	18.92
3.	M <sub>3</sub> (20DAPM)	19.60	31.43	19.87	21.47	16.73	31.11	23.37
4.	M <sub>4</sub> (30DAPM)	25.33	36.40	25.05	30.73	24.07	35.73	29.55
	Mean	19.02	30.46	18.33	20.15	16.47	27.85	22.04
			S.E. ±				C.D. (P=0.05)	
	M		0.79				2.20	
	V		0.97				2.69	
	M x V		1.94				NS	

NS=Non-significant

**Table 2 : Effect of genotypes and harvesting stages on 100 seed weight (g) of groundnut cultivars**

Sr. No.	Harvesting stages	Genotypes						Mean
		V <sub>1</sub>	V <sub>2</sub>	V <sub>3</sub>	V <sub>4</sub>	V <sub>5</sub>	V <sub>6</sub>	
1.	M <sub>1</sub> (PM)	47.33	53.80	51.11	47.30	47.23	65.58	52.06
2.	M <sub>2</sub> (10DAPM)	44.14	51.53	50.68	47.20	44.74	64.32	50.44
3.	M <sub>3</sub> (20DAPM)	40.67	47.72	47.70	45.67	41.55	59.17	47.08
4.	M <sub>4</sub> (30DAPM)	40.30	43.81	43.17	42.77	37.50	55.79	43.89
	Mean	43.11	49.22	48.17	45.74	42.76	61.21	48.37
			S.E. ±				C.D. (P=0.05)	
	M		1.01				2.80	
	V		1.23				3.43	
	M x V		2.47				NS	

**Table 3 : Effect of genotypes and harvesting stages on seed moisture content (%) of groundnut cultivars**

Sr. No.	Harvesting stages	Genotypes						Mean
		V <sub>1</sub>	V <sub>2</sub>	V <sub>3</sub>	V <sub>4</sub>	V <sub>5</sub>	V <sub>6</sub>	
1.	M <sub>1</sub> (PM)	39.42	39.23	40.95	40.82	41.95	39.30	40.28
2.	M <sub>2</sub> (10 DAPM)	38.73	37.04	40.82	38.27	37.71	37.25	38.30
3.	M <sub>3</sub> (20 DAPM)	37.59	36.67	39.15	35.92	35.89	37.24	37.08
4.	M <sub>4</sub> (30 DAPM)	36.34	35.84	37.08	35.68	33.83	35.51	35.71
	Mean	38.02	37.20	39.50	37.67	37.35	37.33	37.84
			S.E. ±				C.D. (P=0.05)	
	M		0.41				1.14	
	V		0.50				1.40	
	M x V		1.01				NS	

PM - Physiological maturity

DAPM - Days after physiological maturity

NS=Non-significant

observed under delayed harvesting (Table 3).

## REFERENCES

- Coolbear, P. (1994). Reproductive biology and development. In: The Groundnut Crop. A. Scientific basis for improvement (Ed. J. Smartt), Chapman and Hall, London, UK, pp.700-720.
- Kakralaya, B.L., Singh Karan and Singh, K. (1994). Seed quality and productivity of peanut in relation to physiological maturity and stage of crop harvest. *Indian J. Pl. Physiol.*, **37**(1) : 9-11.
- Moctezuma, E. (2003). The peanut gynophore: A developmental and physiological perspective. *Can. J. Bot.*, **81** (3) :183-190.
- Panse, V.G. and Sukhatme, P.V. (1967). *Statistical methods for agricultural workers*. ICAR Publication, New Delhi (INDIA).
- Snedecor, G.W. and Cochran, W.G. (1967). *Statistical methods*. Oxford and IBM Pub. Co., New Delhi (INDIA).
- Vijaysekhar, C., Reddy Sekhar, M. and Laxmikantha Reddy, G. (2005). Studies on genetic divergence in Spanish bunch groundnut, *Arachis hypogaea* L. genotypes. *J. Oilseeds Res.*, **22** (2) : 350-352.

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