# Effect of Different Seed Moisture Contents and Storage Containers on Seed Quality of Green Gram (Vigna radiata L. Wilczek) and Chickpea (Cicer arietinum)

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**Abstract**

The experiments were conducted separately for green gram and chickpea at laboratory of the Department of Agronomy, Yezin Agricultural University, from March to December 2016. The objectives were (1) to study the effect of seed moisture content and storage container on seed quality, (2) to investigate the interaction effect of seed moisture content and storage container on seed quality, and (3) to find out the optimum seed moisture content and proper storage container to preserve seed quality of green gram and chickpea. For each crop, the factorial experiment (6 x 3) was laid out in randomized complete block (RCB) design comprising of six levels of seed moisture contents (7%, 8%, 9%, 10%, 11%, 12%) as factor A and three types of storage container (air tight tin bin, bamboo basket, woven plastic bag) as factor B with three replications. Green gram was stored for six months and chickpea for nine months at ambient condition. Evaluation of seed quality parameters was done before and after storage for comparison. After storage, significant variations were observed in seed quality parameters in both crops, but no interaction effect between seed moisture content and storage container in all observations except in seed moisture of stored seeds. In green gram, germination percentage, germination index, seed vigour index I and II were relatively higher in air tight tin bin than other containers at all seed moisture levels tested. In case of chickpea, maximum values were recorded in germination percentage, germination index, seed vigour index I and seed vigour index II at seed moisture content of 7 % and 8 % in the storage with air tight container. Seed quality decreased with increase in moistue of seeds to be stored. Based on the finding of this research, it can be recommended that the range of seed moisture contents from 7 % to 12 % was the optimal during six months of air tight storage for seed quality of green gram. For chickpea seed quality, storage in air tight tin bin at 7 % seed moisture content was appropriate for nine months.

**Key words: Seed quality, seed moisture content, storage container, green gram, chickpea**

## Introduction

Pulses are important not only for local consumption but also for export in Myanmar. Major exportable pulses are black gram, green gram, pigeon pea, soybean and cowpea (DAP 2011). In Myanmar, total sown areas of pulses are about 4.55 million hectares (MOAI 2015). Pulses are grown and used for food in nearly all the temperate and tropical area of the world. Pulses are important crops both economically and nutritionally. Their importance is increasing day by day due to high nutritive value. Pulses have been used as a source of protein in the diet of people in many regions of the world, especially where the animal proteins are scarce or expensive as food ingredient (Sawant et al. 2010).

Seeds need to be stored from the day of harvest till the time of next sowing. Physiological deterioration of seeds during storage is one of the major factors preventing seeds from normal germination and vigorous growth. The deterioration of physiological quality of seeds during storage is mainly attributed

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by period of storage, containers, seed moisture content and seed treatment (Sujatha and Ramamoorthy 2009). Seed quality is the most important input in agricultural production. It ensures better germination as well as better yield. Appropriate container can save the seed from deterioration of seed quality and viability (Islam et al. 2013). Moreover, as seed is highly hygroscopic living material, it absorbs moisture from air if it is stored in an environment where relative humidity is higher than seed moisture level (Copeland 1976). Therefore, storage containers are important for seed storage. Good seed alone can give an increased production (10 to 15%) compare to the poor seed stock (Alim 1977; Islam et al. 2013). To get the higher yield, quality seed is essential both for vegetables and seed production (Shaheb et al. 2015).

The maintenance of seed quality during storage is the most important and challenging process for crop due to problem of store pests and quick loss of seed quality (Basavegowda et al. 2013). Seed quality is influenced by stored conditions. However, there was not much research work carried out for seed quality and storability of green gram and chickpea in Myanmar. Therefore, the experiments were conducted (1) to study the effect of seed moisture content and storage container on seed quality, (2) to study the interaction effect of seed moisture content and storage container on seed quality, and (3) to find out the optimum seed moisture content and proper storage container to preserve seed quality of green gram and chickpea.

## Materials and Methods

The experiments were conducted at laboratory of the Department of Agronomy, Yezin Agricultural University from March to December, 2016. Green gram seed (Yezin 14 variety) were collected from farmer fields of Sein Zar Bin village, Zayar Thiri Township, Nay Pyi Taw and chickpea seeds (Yezin 3 variety) from farmer fields of Dikaung Kone village, Win Dwin Township, Mandalay Region. Randomized complete block (RCB) design was used in 6 x 3 factorial experiments with three replications. The initial seed moisture level: 7 %, 8 %, 9 %, 10 %, 11 % and 12 % were set by natural sun drying and measured using a moisture meter. The seeds attained at the desired moisture level were placed in air tight (tin bins), bamboo baskets and woven plastic bags. The tin containers were tightly covered, and the woven plastic bags were tightly tied with rope. Green gram seed samples were stored at ambient conditions for 6 months and for 9 month for chickpea. Before storage, laboratory experiments were carried out for recording the initial seed quality to compare with stored seeds. Seed quality parameters were determined by the following methods.

### Moisture content

The moisture content of seed samples was determined according to ISTA (1976). Moisture content data were taken after storage. Ten grams of grinded seed samples were put into moisture cup and placed into the oven at temperature of 105°C for one hour. Three replications were performed. Before heating the samples into the oven, the weight of the container with its cover was recorded. The seed samples were cooled down in the desiccators. After cooling, the weight of the container with its cover and contents were recorded to work out moisture content of the seeds. The seed moisture contents were determined by dry weight basis and were calculated by the following formula:

$$\text{Moisture content} = \{(M2-M3) / (M2-M1)\} \times 100$$

Where, M1= the weight of the container and its cover (g)

M2 = the weight of the container, its cover and its contents before drying (g)

M3 = the weight of the container, its cover and contents after drying (g)

### Germination percentage

Germination percentage was determined according to ISTA (1996). Germination test was conducted using the medium of sand and soil mixture. The sand was sieved to discard unwanted particles. Germination trays were filled with the medium. One hundred seeds were placed in each plastic tray and then lightly covered with sand. Three replications were taken. The trays were watered at every day using a rose can. At ten days after sowing, the germination percentages were recorded.

Germination (%) = Number of normal seeds germinated x 100

**Number of seeds tested**

**Germination index**

To determine the germination index, the germination was observed daily for 10 days. The numbers of seeds germinated in each tray were counted and germination index was calculated according to the method of Heydecker (1969) by the following formula.

N1, N2, …, Nn: Number of emerged seedlings on 1st, 2nd and nth day after sowing

D1, D2, …, Dn: Number of days after sowing

Seedling length

After emerging the seedlings for 10 days, ten normal seedlings were randomly selected and the seedling lengths were measured by using ruler for each replication.

**Fresh and dry weight of seedlings**

Fresh weights of seedlings were recorded at ten days after emergence. To measure dry weight, the seedlings were put into paper pocket, and dried in the oven set at a temperature of 70°C for 48 hours. After cooling down the samples in the desiccators, dry weights of seedlings were recorded.

**Seed vigour**

**Seed vigour index**

I was calculated according to the formula (Reddy and Khan 2001).

Vigour index I = Germination (%) x total dry weight of seedling

Seed vigour index II was calculated by using the following formula (ISTA 1993),

Vigour index II = Germination percentage x Seedling length (cm)

**Statistical analysis**

All the data were analyzed by analysis of variance (ANOVA) using Statistix (version 8.0) and comparison of treatment means was done by LSD test at 5% level of significance.

**Results and Discussion**

**Effect of different seed moisture contents and storage containers on the germination percentage of green gram seeds after six months storage**

**Table 1. Mean values of moisture (%), germination percentage and germination index of green gram seeds after six months storage as affected by different seed moisture**

| Treatment | Moisture (%) | Germination (%) | Germination index (GI) |
|---|---|---|---|
| Moisture content (%) | | | |
| MC 7 | 5.77 d | 89.52 a | 44.08 a |
| MC 8 | 7.30 b | 88.68 ab | 42.21 b |
| MC 9 | 6.70 c | 87.83 abc | 42.48 ab |
| MC 10 | 8.13 a | 87.09 abc | 41.86 b |
| MC 11 | 7.47 b | 85.60 bc | 42.07 b |
| MC 12 | 8.19 a | 84.23 c | 40.97 b |
| $LSD_{0.05}$ | 0.45 | 3.65 | 1.76 |
| Storage containers | | | |
| AT | 4.78 c | 91.32 a | 44.05 a |
| BB | 9.13 a | 83.22 c | 40.85 b |
| WPB | 7.87 b | 86.93 b | 41.93 b |
| $LSD_{0.05}$ | 0.32 | 2.58 | 1.25 |
| Pr>F | | | |
| Moisture | <0.001 | 0.06 | 0.033 |

**Means in the same column followed by the same letters are not significantly different at 5% level of LSD.**

**MC = seed moisture content**

**AT = Air tight container (Tin bin), BB = Bamboo**

Before storage, the germination percentages of green gram seeds showed non-significant differences from each other, ranging from 90.79 % to 94.44 %. After six months storage, the germination percentage of green gram seeds ranged from 84.23 % to 89.52 % as an effect of difference in initial seed moisture content at entering storage (Table 1). Among the seed moisture contents from 7 % to 12 %, means germination of the seeds were not significantly different from one another after six months storage. Average germination percentage with 7 % initial seed moisture content was found to be maximum (89.52 %) and significantly differed from seed moisture content higher than 10 % after storage.

The minimum germination percentage of green gram seeds (84.23 %) was found in stored seeds with 12 % seed moisture content after storage. Germination decreased with the increase in initial seed moisture contents for six months storage. Similar finding was observed in the report of Khalequzzaman et al. (2012). Hasan et al. (2016) also indicated that germination percentage gradually decreased with the increasing moisture levels of seeds. These results indicated that the storage of green gram seeds with 7 % moisture level was found to maintain the higher germination percentage for six month storage. The increasing germination percentages were recorded as 84.23 %, 85.60 %, 87.09 %, 87.83 %, and 88.68 % with the decreasing seed moisture contents at 12 %, 11 %, 10 %, 9 % and 8 % respectively. Delouche (1968) reported that seed should never be stored at high moisture contents because they loss viability at the faster rate compared to the low moisture content.

Storage containers exhibited a significant effect on the germination percentage of green gram seeds after six months storage. Among three different storage containers, mean germination percent of the seeds were significantly different at 1 % level of significance (Table 1). Germination of stored seeds in air tight container (tin bin) was the highest (91.32 %) that significantly varies from those stored in bamboo basket and woven plastic bag. The lowest germination percentage of green gram seeds (83.22 %) was found in storage with bamboo basket. Generally, germination percentage of green gram seeds in different containers decreased after storage. Salimath et al. (2014) reported that germination percentage decreased in all containers with the advancement of storage period.

The interaction effect between seed moisture contents and storage containers was not found on the germination percentage of green gram seeds at 5 % level of significance (Table 1). The maximum germination percentage was observed in air tight tin bin at all tested seed moisture contents after six months storage.

**Effect of different seed moisture contents and storage containers on the germination index of green gram seeds after six months storage**.

Before storage of green gram seed, the germination index was not significantly different from one another. After six months storage, the germination index of green gram seeds at all tested moisture contents ranged from 40.97 to 44.08 (Table 1). Among the different seed moisture contents, mean germination indices of the seeds were significantly different from one another after six months storage at 5 % level of significance. Germination index of the seeds stored with 7 % seed moisture content was the maximum (44.08) followed by 9 % moisture content of seed (42.48), but they were somewhat similar. However, germination indices were not significantly different from each other among the seed moisture level of 8 % to 12 %. The minimum germination index of green gram seeds (40.97) was found in the seed samples stored with the highest initial seed moisture content 12 %.

Moreover, the germination index showed significantly different among the storage containers after six months storage. After storage, the highest germination index of green gram seeds (44.05) was

**Table 2. Mean values of seedling length, dry weight of seedlings, seed vigour index I and seed vigour index II of green gram seeds after six months storage as affected by different seed moisture contents and storage con-**

| Treatment | Seedling length (cm) | Dry weight of seedling (g) | Seed vigour index I | Seed vigour index II |
|---|---|---|---|---|
| Moisture content (%) | | | | |
| MC 7 | 31.58 a | 0.13 a | 11.35 a | 2829.70 a |
| MC 8 | 30.71 a | 0.12 ab | 10.66 ab | 2724.70 ab |
| MC 9 | 29.92 ab | 0.12 ab | 10.36 abc | 2636.30 abc |
| MC 10 | 29.35 abc | 0.11 bc | 9.70 bcd | 2560.30 bc |
| MC 11 | 27.97 bc | 0.11 bc | 9.32 cd | 2394.60 cd |
| MC 12 | 27.28 c | 0.10 c | 8.83 d | 2299.50 d |
| $LSD_{0.05}$ | 2.40 | 0.01 | 1.22 | 243.57 |
| Storage containers | | | | |
| AT | 30.16 a | 0.12 a | 11.18 a | 2759.30 a |
| BB | 27.96 b | 0.11 b | 9.06 b | 2331.30 b |
| WPB | 30.28 a | 0.11 ab | 9.87 b | 2632.00 a |
| $LSD_{0.05}$ | 1.69 | 0.01 | 0.86 | 172.23 |

**Means in the same column followed by the same letters are not significantly different at 5% level of LSD.**

**MC = seed moisture content**

**AT = Air tight container (Tin bin), BB = Bamboo basket, WPB = Woven plastic bag**

observed in air tight container (tin bin) which was followed by woven plastic bag and bamboo basket (41.93 and 40.85), respectively (Table 1). Germination index varied due to different seed moisture content and different storage containers. The minimum germination index of seed stored in bamboo basket was mainly due to the effect of seed moisture depending on humidity in storage environment due to weather condition. Similar results were observed by Monira et al. (2012). No interaction effect between seed moisture content and storage container on germination index was recorded. However, air tight containers gave the maximum germination index than the other two types at all tested moisture contents. The germination index decreased with storage in all treatment combinations.

**Table 3. Mean values of moisture (%), germination percentage and germination index of chickpea seeds after nine months storage as affected by different seed moisture con-**

| Treatment | Moisture (%) | Germination (%) | Germination index (GI) |
|---|---|---|---|
| Moisture content (%) | | | |
| MC 7 | 9.89 e | 65.11 a | 13.48 a |
| MC 8 | 10.16 d | 63.56 ab | 13.21 ab |
| MC 9 | 10.48 c | 62.11 bc | 12.60 bc |
| MC 10 | 10.69 b | 60.44 cd | 12.48 cd |
| MC 11 | 10.87 ab | 58.89 d | 12.11 cd |
| MC 12 | 10.98 a | 57.78 d | 11.87 d |
| $LSD_{0.05}$ | 0.21 | 2.71 | 0.72 |
| Storage containers | | | |
| AT | 7.01 c | 74.83 a | 16.97 a |
| BB | 12.37 a | 49.44 c | 9.46 c |
| WPB | 12.15 b | 59.67 b | 11.45 b |
| $LSD_{0.05}$ | 0.15 | 1.92 | 0.51 |
| Pr>F | | | |
| Moisture content | < 0.001 | < 0.001 | < 0.001 |
| Storage containers | < 0.001 | < 0.001 | < 0.001 |
| Moisture content x storage containers | < 0.001 | 0.99 | 0.993 |
| CV % | 2.07 | 4.62 | |

Means in the same column followed by the same letters are not significantly different at 5% level of LSD.
MC = seed moisture content
AT = Air tight container (Tin bin), BB = Bamboo basket, WPB = Woven plastic bag

**Effect of different seed moisture contents and storage containers on seed vigour index I and seed vigour index II of green gram seeds after six months storage**

The variations of the seed vigour index I of green gram seeds were observed in different seed moisture contents and storage containers after six months storage (Table 2). Effects of seed moisture contents on the seed vigour index I of green gram seeds were significantly different (Pr < 0.01). The maximum seed vigour index I (11.35) was found in 7 % seed moisture content which was followed by 8 % seed moisture contents (10.66), and 9 % seed moisture contents (10.36). This was mainly due to higher germination percentage and dry weight. The minimum seed vigour index I (8.83) was observed in 12 % seed moisture content followed by 11 % (9.32) and 10 % seed moisture contents (9.7). Low seed vigour index was recognized as the effect of high seed moisture content resulting in poor viability. Similar findings were observed by Matthews (1973) and Khatun et al. (2009).

After six months storage, the responses of seed vigour index I of green gram seeds to storage containers were significantly different (Pr <0.01) (Table 2). Among three storage containers, air tight containers gave higher seed vigour index I than woven plastic bags and bamboo baskets. Mean values of seed vigour index I were 11.18 in air tight, 9.87 in woven plastic bag, and 9.06 in bamboo basket containers respectively. Similar findings were observed by Khalequzzaman et al. (2012). Vigour index I decreased in all levels of moisture contents after storage. This might be due to low vigour of seeds for long storage periods. Similar findings were observed by Islam et al. (2013).

After six months storage, seed vigour index II of green gram seeds at tested moisture contents were significantly different (Pr < 0.01), ranging from 2299.5 to 2829.7 (Table 2). The maximum seed vigour index II resulted from 7 % seed moisture content whereas the minimum value was resulted from 12 % seed moisture content that was not significantly different from seed moisture content of 11 %. The mean values of seed vigour index II of seeds stored at 7 %, 8 % and 9 % seed moisture contents did not significantly differ from each other. This was due to lower germination percentage and

seedling length. Khare and Satpute (1999) and Khatun et al. (2009) also reported that decreasing of vigour index II was due to lower germination percentage and seedling length.

Effect of storage containers on the seed vigour index II of green gram seeds after six months storage were significantly different (Pr <0.01) (Table 2). Among three storage containers, the higher seed vigour index II was obtained from air tight containers and woven plastic bags. Vigour index II decreased in all moisture contents after storage. This was due to the effect of storage period. Similar findings were observed by Islam et al. (2013). The interaction between seed moisture contents and storage containers for seed vigour index I and seed vigour II were not significant as shown in Table 2 (Pr < 0.05). Seed moisture content, 7 % and 8 % gave the maximum seed vigour index I and II and they were not significantly different between air tight tin bin and woven plastic bag. The minimum values were found in storage at seed moisture content higher than 9 % with bamboo basket containers.

**Effect of different seed moisture contents and storage containers on germination percentage of chickpea seeds after nine months storage**

After nine months storage, the variations in germination percentage of chickpea seeds were found among different seed moisture contents (Table 3). Germination percentages of chickpea seeds stored at different moisture contents were ranged from 57.78 % to 65.11 %. There were significantly different at 1 % level of significance and mean germination of the seeds stored at 7 % seed moisture content (65.11 %) was the maximum after storage. It was not significantly different from germination percentage of seeds stored at 8 % seed moisture content (63.56 %). The minimum germination percentage of chickpea seeds was found in 12 % seed moisture content after storage. There was no significant difference in germination percentage among the treatments from 10 % to 12 % seed moisture content. Germination decreased with increase in initial seed moisture content and storage period. These results indicated that 7 % seed moisture content was found to give good seed quality up to nine months storage of chickpea with the germination percentage of 65.11 %. Other mean values of germination percentage were recorded as 63.56 %, 62.11 %, 60.44 %, 58.89 %, and 57.78 % at the storage of seed moisture contents 8 %, 9 %, 10 %, 11 % and 12 % respectively. As a result, 7 % seed moisture content is suitable for storage of chickpea seeds. The longer the seeds needs to be stored, the lower the required seed moisture content (Agrodok 2014).

After nine months storage, the germination percentages of chickpea seeds at all storage containers were ranged from 49.44 % to 74.83 %. Mean differences in germination of the seeds were highly significant after storage (Pr < 0.01) (Table 3). Mean germination of the seeds in air tight container (tin bin) was the highest (74.83 %) and significantly varied from bamboo basket and woven plastic bag. This might be less fluctuation of moisture in tin bin due to its moisture proofing nature compared to seed stored in woven plastic bag and bamboo basket. The lowest germination percentage of chickpea seeds was found in the bamboo basket (49.44 %). Germination percentage was decreased in woven plastic bag and bamboo basket due to high moisture. These results indicated that air tight container is suitable to store for nine months chickpea seeds to achieve good quality seeds. Germination percentage of chickpea seeds stored in different containers decreased after storage. Similar results were observed by Alam et al. (2010) and Bortey et al. (2016). The interaction effect between seed moisture contents and storage containers was not significant on the germination percentage of chickpea seeds at 5 % level of significance (Table 3). The maximum germination percentages were observed in initial moisture content 7 % and 8 % at air tight container (tin bin) and they were significantly different from other initial moisture contents at three different containers.

**Effect of different seed moisture contents and storage containers on germination index of chickpea seeds after nine months storage**

After nine months storage, the germination indices of chickpea seeds at all the seed moisture contents were ranged from 11.87 to 13.48 and significantly different between six different seed moisture contents (Pr < 0.01) (Table 3). The maximum

**Table 4. Mean values seedling length, dry weight of seedling, seed vigour index I and seed vigour index II of chickpea seeds after nine months storage as affected by different seed moisture**

| Treatment | Seedling length (cm) | Dry weight of seedling (g) | Seed vigour index I | Seed vigour index II |
|---|---|---|---|---|
| Moisture content (%) | | | | |
| MC 7 | 21.87 a | 0.180 a | 11.80 a | 1449.50 a |
| MC 8 | 21.05 b | 0.177 b | 11.32 a | 1362.90 b |
| MC 9 | 20.48 b | 0.170 c | 10.66 b | 1299.30 b |
| MC 10 | 19.70 c | 0.168 c | 10.26 b | 1220.50 c |
| MC 11 | 18.82 d | 0.162 d | 9.62 c | 1139.90 d |
| MC 12 | 17.94 e | 0.161 d | 9.36 c | 1063.00 e |
| $LSD_{0.05}$ | 0.74 | 0.003 | 0.49 | 67.02 |
| Storage containers | | | | |
| AT | 23.77 a | 0.181 a | 13.56 a | 1781.40 a |
| BB | 17.55 c | 0.162 c | 8.05 c | 872.30 c |
| WPB | 18.61 b | 0.166 b | 9.90 b | 1113.90 b |
| $LSD_{0.05}$ | 0.52 | 0.002 | 0.35 | 47.39 |
| Pr>F | | | | |
| Moisture content | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| Storage containers | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| Moisture content x storage containers | 0.996 | 0.048 | 0.964 6 | 0.9841 |
| CV % | 3.870 | 1.810 | 4.90 | 5.57 |

Means in the same column followed by the same letters are not significantly different at 5% level of LSD.
MC = seed moisture content
AT = Air tight container (Tin bin), BB = Bamboo bas-

germination index of the seeds (13.48) was observed in 7 % seed moisture content which was not significantly different from 8 % seed moisture content (13.21). The minimum germination index was found in 12 % seed moisture (11.87) but it was not significantly different from seed moisture content 10 % and 11%.

The germination indices of chickpea were significantly different from each other among the three storage containers after nine months storage (Table 3).) In all tested seed moisture contents, the highest germination index was observed in storage with air tight container (16.97), whereas the lowest germination index was found in bamboo basket (9.46). The seedling emergence from lower seed moisture content was faster than the higher seed moisture content because of difference in the rate of respiration. Therefore, the higher germination index was found in lower seed moisture content due to higher seed vigour. Copeland (1976) reported that seedling vigor declined rapidly with the length of seed storage. No interaction effect between seed moisture content and storage container was recorded in germination index (Table 3).

**Effect of different seed moisture contents and storage containers on the seed vigour index I and seed vigour index II of chickpea seeds after nine months storage**

The variations of the seed vigour index I and seed vigour index II of chickpea seeds were observed in different tested seed moisture contents and storage containers after nine months storage (Table 4). Initial moisture contents 7 % and 8 % of chickpea seeds gave the maximum seed vigour index I and they were significantly different from other initial moisture contents and storage containers after nine months storage. Initial moisture content 7 % at tin bin of chickpea seeds gave the maximum seed vigour index II and they were significantly different from other initial moisture contents and storage containers after nine months storage. The lower seed vigour index I and seed vigour index II were observed in the range of initial moisture contents from 8 to 12 %, stored in using woven plastic bags and bamboo basket containers.

**Conclusion**

The storage experimental results showed significant variations in seed moisture content, germination percentage, germination index, seedling length, dry weight of seedlings, seed vigour index I and II among the treatments of different seed moisture contents and storage containers in both green gram and chickpea.

The storage in air tight container was safe for seed quality within the range of seed moisture contents from 7 % to 10 % up to six months in green gram. It could maintain the germination percentage greater than 87 %, germination index greater than 41, seed vigour index I greater than 9.5 and seed vigour index II greater than 2500.

In case of nine months storage of chickpea, 7 % seed moisture content in air tight container was the

most optimum for seed quality in terms of high germination percentage, germination index, seed vigour index I and II giving 78 %, 17.68, 14.98, and 1996.2, respectively. Within the same type of containers, the differences in response of varied seed moisture contents in major seed quality parameters between green gram and chickpea may be due to the effect of difference in seed size.

Therefore, it can be concluded that, the optimum seed moisture content is within the range of 7 % to 11 % with the proper container, air tight tin bin for six months storage of green gram seeds, whereas seed moisture content of 7 % and air tight tin bin is optimum for nine months storage of chickpea seeds.

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