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# Growth and Yield Performance of Peanut *(Arachis hypogaea)* Lines in Pampanga, Philippines

**MARY GRACE B. GATAN**
http://orcid.org 0000-0002-6083-0060
mbgatan.mgbg@gmail.com
Pampanga State Agricultural University
Magalang, Pampanga, Philippines

## ABSTRACT

Peanut (*Arachis hypogaea* Linn) is grown on nearly 23.95 million hectares worldwide with a total production of 36.45 million tons. In the country, peanut is one of the food legumes with commercial importance that contributed much to domestic earnings. There are promising peanut lines that need to be evaluated to pass the National Seed Industry Council (NSIC) Certification. Hence, the National Cooperative Trials from 2011-2014 were conducted to evaluate their agronomic characteristics, reaction to diseases and yield potential in Pampanga, Philippines. Experimental trials were laid out following Randomized Complete Block Design (RCBD). Data were subjected to Analysis of Variance (ANOVA) and treatment means were compared using Least Significant Difference (LSD). At wet season trials, results revealed significant differences in all treatments relative to days to flower, number of pods/plant, weight of 100 seeds, shelling percentage and pod yield except days to maturity. The ICGV 00350 and ICGV 99046 obtained the highest pod yield with 2.1 and of 2.4 tons/ha, respectively. During dry season, significant differences were noted among peanut lines in relation to days to flower, days to maturity, number of pods/ plant, weight of 100 seeds, shelling percentage and pod yield (tons/ha). The ICGV 01273 out yielded the 10 peanut lines.

***Keywords*** **-** Agriculture, National Cooperative Trials, *Arachis hypogaea*, experimental trials, Philippines, Asia

## INTRODUCTION

Developing countries in Asia, Africa, and South America account for over 97% of world peanut area and 95% of total production. The production is concentrated in Asia (50% of global area and 64% of global production) and Africa (46% of global area and 28% of global production), where the crop is grown mostly by smallholder farmers under rainfed conditions. Globally, farmers tend about 24 million hectares of peanut each year, producing about 40 million metric tons (International Crops Research Institute for the Semi-Arid Tropics, 2014).

According to United States Department of Agriculture (USDA), China leads in production of peanuts, having a share of about 42% of overall world production, followed by India with 12% and the United States (8%). In Southeast Asia, the top producing countries includes Burma, Indonesia, Vietnam and Thailand. The peanut production in Vietnam slightly increased in 2012 from 469 TMT to 471 TMT in 2011 and is expected to increase in 2013 to about 10 %. The increase in peanut production may possibly due to the favorable weather and variety improvement (USDA, 2012, 2013).

In the country, peanut is one of the food legumes with commercial importance that contributed much to domestic earnings. Though peanut is considered less important as a food crop in Papua New Guinea and Australia, it ranked among the top five crops generating income for the family and was reported as the top ranking cash crop (Rachaputi, 2006). However, in the Philippines, about 95% of the peanut areas are planted with the low yielding “native” Spanish-type variety (Department of Agriculture-Regional Field Unit 6, n.d.). Low yields of peanut are mainly attributed to lack of high-yielding adapted cultivars, damage by diseases and pests, poor agronomic practices, unreliable rainfall patterns with frequent droughts, and limited use of inputs (Sharma & Bhatnagar, 2006).

The traditional variety is the popular variety being used by farmers due to unavailability of improved varieties in the provinces (Huelgas, 1990). To improve the peanut production, international breeding programs such as United States and Development Authority (USDA) and International Crops Research Institute for Semi-Arid Tropics (ICRISAT, n.d.) are developing cultivars that are high yielding with desirable characteristics such as large seed size, early maturing and tolerance to foliar diseases and acidic soils (University of Florida, n.d.).

Varietal trials conducted at Aiyura, Keravat and Ramu Sugar showed that some of the new introductions from ICRISAT have out-yielded local checks by 2-3 times at all locations. Verification trials have also resulted in the identification of promising peanut varieties with potential to yield 50-100% greater than the local check varieties (ACIAR, 2001). It is estimated that improved peanut varieties currently occupy more than 60% of the total area for peanut production in Malawi due to significant yield advantage over local checks (ICRISAT, n.d.).

New peanut varieties are released and introduced every year to evaluate their yield potential. Asha peanut variety was introduced and promoted by ICRISAT in 2005 to address farmers' continuous demand for new and much better variety. Results from national cooperative trials (NCT) showed that Asha consistently ranked number one in yield surpassing the NSIC Pn 11 by 22% and 10% during wet and dry seasons. Asha is the only variety released in the Philippines that produced the highest recorded yield of 3.99 tons/ha (Bureau of Agricultural Research, 2010).

In addition, Dela Cruz (2011) reported two potential lines of peanut developed by ICRISAT have been selected for national testing. The ICGV 00350 and ICGV 99046 were found to be consistent high yielders. Promising lines were subjected to adaptability trials to determine yield performance in different agro-climatic conditions in seven regions of the country. These peanut lines were compared to the existing national varieties (check variety) like Namnama 1 and 2, Ilocos Pink, Asha peanut, and (Bureau of Agricultural Research, 2010) farmers' variety. Compared with other peanut lines, ICGV 00350 and ICGV 99046 consistently performed well in two seasons. The ICGV 99046 is color red, large-seeded, moderately sweet with medium duration while ICGV 00350 is rose tan in color, medium long seeds, and sweet in taste also with medium duration (Bureau of Agricultural Research, 2011). Moreover, ICGV 99046 is recommended in areas with continuous irrigation and clay loam soil type; NSIC Pn14 is best suited for rainfed areas with sandy loam soil while red seeded farmer's variety performs well in rainfed areas with clay loam soil (Santos, 2012).

Despite the abundance of released improved varieties, only a few are best adapted for production. It is believed that peanut varieties differ in their agronomic characteristics and yield potential due to different agro-climatic adaptation because varietal response in terms of productivity is largely determined by soil factor, climatic conditions and cultural practices.

The conduct of NCT is required before seeds are certified by the National Seed

Industry Council (NSIC). Seed certification is important as it ensures varietal purity, genetic identity, and the overall quality of the seeds that effect production, processing, storage, and distribution (Bureau of Agricultural Research, 2010).

There are peanut lines that need to be evaluated to pass the NSIC Certification, hence, this study was conducted to evaluate their agronomic characteristics and yield performance which will eventually improve production and profit of farmers.

## OBJECTIVE OF THE STUDY

The general objective of the study is to identify the most promising peanut line in Pampanga, Philippines. Specifically, it aimed to determine the agronomic characteristics of different peanut lines; evaluate the reaction to diseases, and determine the yield potential

## MATERIALS AND METHODS

### Experimental Areas

An area measuring about $600m^2$/planting season was used in conducting the experiment that can accommodate 11 peanut lines coming from different breeding stations of the country. The soil type in the area is sandy loam that is suited for peanut production.

### Land Preparation and Cultural Management Practices

The area was thoroughly prepared by plowing two times followed by two to three harrowing to obtain fine tilth that is essential to achieve good germination. After the final harrowing, the field was furrowed at a distance of 50cm.

### Treatments and Experimental Trial

The experimental area was laid out following the Randomized Complete Block Design (RCBD) with four replications. Each plot measures 2m in width and 5m in length comprising of four rows spaced 0.5 m apart. An alleyway of one meter between replications was provided for ease in placing stakes, plot tags, data gathering, weeding, and harvesting.

***Treatments*** (Wet and Dry Season)

$T_1$ - ICGV 00350

$T_2$ - ICGV 01273
$T_3$ - ICGV 95390
$T_4$ - ICGV 96176
$T_5$ - ICGV 97120
$T_{6}$ - ICGV 99046
$T_7$ - LG Pn 11-C
$T_8$ - LG Pn 56
$T_{9}$ - NSIC Pn 11 (NC)
$T_{10}$ - NSIC Pn13 (NC)
$T_{11}$ - NSIC Pn14 (NC)

**Planting and Planting Dates**

For the wet season cropping, sowing was done between June-July while during the dry season planting was done during the month of November. Planting was done by sowing one seed per hill. A total of 10 seeds were planted per linear meter. Replanting was done one week after planting to replace the missing hills.

**Fertilizer Application and Seed Inoculation**

Complete fertilizer (14-14-14) was applied basally at the rate of 54g per 5m row which is equivalent to 214 g per plot (4 rows/entry). The fertilizer was applied uniformly along the rows and was covered with 2-3 cm layer of soil prior to planting. Prior to planting, seeds of peanut were inoculated with *Rhizobium* at the rate of 2 g/kg of peanut seeds. The inoculum was thinly spread over the seeds and was sowed few hours after inoculation.

**Cultivation, Weeding and Construction of Canal**

Hilling-up was done 15 days after planting. In addition, weeding was done to prevent the growth of weeds that usually compete for nutrients, light, space and water. Weeding was done manually until the flowering stage. During rainy season, appropriate canal was provided to prevent the plants from water logging.

**Parameters**

1. Days to flower. This was recorded as the number of days from emergence to that day when 50% of the plants in a row have produced their first open flower.

2. Days of maturity. This will be recorded as the number of days from emergence to such time when at least 75% of the pods in a plot show signs of maturity (dark brown pods with deep ridges) for peanut.
3. Number of pods per plant. This was determined by computing the average number of pods per plant at harvest using the 10 sample plants used for height determination.
4. Weight of 100 seeds (g). Select at random 100 seeds from each plot, and it will be recorded the weight in grams.
5. Shelling percentage. This was obtained by weighing the shelled seeds from the 100 gram pod sample from each plot.
6. Reaction to diseases. This was done by randomly selecting 10 plants per entry. Field reactions of plants to diseases was recorded, using the rating scale below:

*Common Diseases of Peanut* *(Cercospora Leaf Spot and Rust)*

| *Scale* | *Description* |
|---|---|
| 1 | No infection |
| 2 | 1-5% infection |
| 3 | 6-25% infection |
| 4 | 26-50% infection |
| 5 | More than 50% infection |

The disease rating was converted using this guide to get the final disease reaction as follows:

| *Range of Average Scale* | *Final Disease Reaction* |
|---|---|
| 1 | Immune/Highly Resistant |
| 2 | Resistant |
| 3 | Moderately resistant |
| 4 | Moderately Susceptible |
| 5 | Highly susceptible |

7. Pod yield (tons/ha). The pod yield from 1m2 of each plot was weighed and recorded, and the computed pod yield from one m2 served as a basis for computing the pod yield in tons/ha.
8. Agro-meteorological Data. The agro-meteorological data composed of relative humidity, rainfall and temperature (minimum and maximum) were recorded during the whole duration of the study.

## Statistical Analysis

All data were subjected to statistical analysis under Analysis of Variance (ANOVA). Comparison of treatment means was done using Least Significant Difference (LSD) test.

## RESULTS AND DISCUSSION

Table 1 presents the summary of plant growth characteristics of different peanut entries planted in PAC for three wet seasons. Significant differences were noted in all treatment means in terms of days to flowering except days to maturity.

Among the peanut lines tested, NSIC Pn 11 significantly had the shortest day to produce flower while the rest of the treatments were found comparable to each other.

Relative to days to maturity, the ICGV 95390 had the shortest day of maturity but did not significantly differ with the remaining treatments. This could be because most of the treatments tested are medium to large seeded and needs longer days to maturity to full pod development.

Table 1. Summary of plant growth characteristics of peanut lines evaluated for three wet seasons (2011-2014)

| Line/Variety | Days to flower | Days to maturity |
|---|---|---|
| $T_1$ - ICGV 00350 | 26.4 ab | 112.9 |
| $T_2$ - ICGV 01273 | 26.5 ab | 115.0 |
| $T_3$ - ICGV 95390 | 26.5 ab | 110.0 |
| $T_4$ - ICGV 96176 | 25.2 ab | 116.5 |
| $T_5$ - ICGV 97120 | 27.1 ab | 111.9 |
| $T_{6}$ - ICGV 99046 | 26.2 ab | 115.0 |
| $T_7$ - LG Pn 11-C | 26.2 ab | 112.0 |
| $T_8$ - LG Pn 56 | 27.5 ab | 112.0 |
| $T_{9}$ - NSIC Pn 11 (NC) | 24.2 a | 113.8 |
| $T_{10}$ - NSIC Pn13 (NC) | 26.0 ab | 110.5 |
| $T_{11}$ -NSIC Pn14 (NC) | 27.3 ab | 112.5 |

During the conduct of the experiments, two major fungal leaf diseases were observed namely, Cercospora leaf spot (CLS) and peanut rust. Although, no significant differences were noted in all treatments in terms of CLS and rust

(Table 2), the variation in foliar disease reaction among genotypes has been reported elsewhere between short duration and medium duration varieties (Saese, Fahey & Bafui, 2006).

Three ICRISAT lines, the 01273, 97120, 99046 and the NSIC Pn11 significantly obtained the greatest number of pods per plant. On the other hand, ICGV 95390 got the fewest number of pods (Table 3). The result confirms with the findings of Gatan and Gonzales (2014) during the on-farm trials that introduced varieties such as ICGV 99046, and NSIC Pn 11 are consistent high yield varieties due to a greater number of pods.

During the conduct of the experiments, two major fungal leaf diseases were observed namely, Cercospora leaf spot (CLS) and peanut rust. The ICGV 96176 and ICGV 01273 were noted to be highly resistant against CLS while the two check varieties, NSIC Pn 13 and 14 were found to be moderately resistant. Meanwhile, ICGV 99046 and ICGV 95390 were resistant to peanut rust while the La Granja (LG) peanut entries 11-C and Pn-56 were moderately resistant and at par with the two check varieties namely, NSIC Pn 13 and NSIC Pn 14.

Table 2. Summary of reaction to diseases and agronomic characteristics of peanut lines evaluated for three wet seasons (2011-2014).

| **Line/Variety** | **Cercospora leaf spot rating** | **Rust Rating** |
|---|---|---|
| $T_1$ - ICGV 00350 | 2.0 | 2.1 |
| $T_2$ - ICGV 01273 | 1.1 | 1.6 |
| $T_3$ - ICGV 95390 | 1.5 | 1.3 |
| $T_4$ - ICGV 96176 | 1.0 | 2.2 |
| $T_5$ - ICGV 97120 | 1.6 | 1.6 |
| $T_{6-}$ ICGV 99046 | 1.6 | 1.2 |
| $T_7$ - LG Pn 11-C | 1.8 | 2.6 |
| $T_8$ - LG Pn 56 | 2.4 | 2.7 |
| $T_{9-}$ NSIC Pn 11 (NC) | 1.9 | 2.3 |
| $T_{10}$ - NSIC Pn13 (NC) | 2.6 | 2.6 |
| $T_{11}$ - NSIC Pn14 (NC) | 2.6 | 2.5 |

All the treatment means were significantly different in terms of weight of 100 seeds (g), shelling percentage and pod yield (tons/ha) (Table 3). Among the lines used, the NSIC Pn11 obtained the heaviest weight of 100 seed (g) while ICGV 99046 was the lightest. Two check varieties, NSIC Pn11 and NSIC Pn 14 registered the highest shelling percentage but were found comparable with the rest of the treatments except ICGV 01273 and ICGV 95390. On the other hand, the ICGV 99046 and ICGV 00350 produced the heaviest pod yield garnering a pod of 2.4 and 2.1 tons/ha, respectively but were also found similar with the remaining treatments.

Table 3. Summary of yield potential of peanut lines evaluated for three wet seasons (2011-2013).

| Line/Variety | Pods per plant | Weight of 100 seed (g) | Shelling percentage | Pod yield (tons/ha) |
|---|---|---|---|---|
| $T_1$ - ICGV 00350 | 27.96 bc | 59.20 cd | 71.51abcd | 2.1ab |
| $T_2$ - ICGV 01273 | 34.75 ab | 49.57 de | 65.82cde | 1.7ab |
| $T_3$ - ICGV 95390 | 12.25 d | 53.25 de | 63.83e | 1.6ab |
| $T_4$ - ICGV 96176 | 29.38 bc | 59.14 cd | 69.86abcd | 1.5ab |
| $T_5$ - ICGV 97120 | 33.02 ab | 65.41 bc | 65.93bcde | 1.6ab |
| $T_{6-}$ ICGV 99046 | 33.27 ab | 48.88 f | 69.25abcde | 2.2ab |
| $T_7$ - LG Pn 11-C | 20.00 cd | 64.18 bc | 71.59abcd | 1.4ab |
| $T_8$ - LG Pn 56 | 24.52 bc | 58.70 cd | 68.84abcde | 1.4ab |
| $T_9$- NSIC Pn 11 (NC) | 32.25 ab | 81.65 a | 75.63a | 1.9ab |
| "$T_{10}$ -NSIC Pn13 (NC) | 19.79 cd | 60.36 cd | 71.64abc | 1.9ab |
| $T_{11}$ -NSIC Pn14 (NC) | 19.57 cd | 70.84 b | 74.84a | 0.9b |

Significant differences were noted among peanut lines in terms of days to flower and days to maturity (Table 4). The data significantly reveals that ICGV 95390 and NSIC Pn13 were the first peanut lines to produce flower while the remaining nine treatments were comparable to each other. The ICGV 95390 and ICGV 97120 significantly have the shortest days to maturity with 101.0 days from planting while six treatments were comparable except ICGV 01273, ICGV 96176 and ICGV 99046.

Table 4. Summary of agronomic characteristics of peanut lines evaluated for three dry seasons (2012-2013)

| Line/Variety | Days to flower | Days to maturity |
|---|---|---|
| $T_1$ - ICGV 00350 | 29.7 abc | 108.0 ab |
| $T_2$ - ICGV 01273 | 30.5 bc | 109.8 b |
| $T_3$ - ICGV 96176 | 30.5 bc | 110.5 b |
| $T_4$ - ICGV 95390 | 28.5 a | 101.0 a |
| $T_5$ - ICGV 97120 | 30.0 abc | 101.0 a |
| $T_{6-}$ ICGV 99046 | 28.6 bc | 110.5 b |
| $T_7$ - LG Pn 11-C | 30.2 ab | 106.8 ab |
| $T_8$ - LG Pn 56 | 29.0 abc | 106.8 ab |
| $T_{9-}$ NSIC Pn 11 (NC) | 30.0 abc | 108.0 ab |
| $T_{10}$ - NSIC Pn13 (NC) | 28.5a | 106.8 ab |
| $T_{11}$ - NSIC Pn14 (NC) | 29.6 abc | 104.5 ab |

During dry season planting, no significant differences were noted among peanut lines evaluated. However, figuratively speaking, the ICGV 00350 and ICGV 96176 obtained the lowest infection against CLS, which is also considered highly resistant whereas NSIC Pn11 was found to be resistant. Meanwhile, most of the ICGV peanut entries were resistant to highly resistant to rust while check varieties, NSIC Pn 11, NSIC Pn 13 and NSIC Pn 14 including the La Granja lines were recorded resistant (Table 5).

Table 5. Summary of reaction to diseases of peanut lines evaluated for three dry seasons (2012-2014).

| Line/Variety | Cercospora leaf spot Rating | Rust Rating |
|---|---|---|
| $T_1$ - ICGV 00350 | 1.4 | 1.5 |
| $T_2$ - ICGV 01273 | 1.5 | 1.7 |
| $T_3$ - ICGV 96176 | 1.4 | 1.6 |
| $T_4$ - ICGV 95390 | 1.6 | 1.6 |
| $T_5$ - ICGV 97120 | 2.2 | 1.7 |
| $T_{6-}$ ICGV 99046 | 1.5 | 1.3 |
| $T_7$ - LG Pn 11-C | 1.6 | 2.0 |

| | | |
|---|---|---|
| $T_8$ - LG Pn 56 | 2.2 | 2.3 |
| $T_{9}$ - NSIC Pn 11 | 2.8 | 2.2 |
| $T_{10}$ - NSIC Pn13 (NC) | 2.6 | 2.2 |
| $T_{11}$ - NSIC Pn14 (NC) | 2.0 | 2.1 |

Results showed significant differences among the treatments relative to the number of pods per plant, weight of 100 seeds, shelling percentage and pod yield (tons/ha) (Table 6).

The ICGV 01273 and NSIC Pn11 significantly obtained the numerous number of pods per plant while the nine peanut lines obtained the lowest number of pods and were found comparable to each other. Furthermore, the NSIC Pn14 garnered the heaviest weight of 100 seeds while ICGV varieties, 95390, 96176, and 97120 were the lightest. On the other hand, ICGV 96176 and NSIC Pn 13 registered the highest shelling percentage when compared to the rest of the treatments. Among the peanut lines tested, the ICGV 01273 significantly produced the highest pod yield of 3.78tons/ha. In addition, the rest of the treatments are comparable to each other in terms of pod yield.

Table 6. Summary of agronomic characteristics and yield potential of peanut lines evaluated during for three dry seasons (2011-2013).

| Line/Variety | Pods per plant | Weight of 100 seed (g) | Shelling percentage | Pod yield (tons/ha) |
|---|---|---|---|---|
| $T_1$ - ICGV 00350 | 12.67 bc | 55.88 bc | 67.11 ab | 2.90ab |
| $T_2$ - ICGV 01273 | 20.55 a | 59.42 bc | 66.39 ab | 3.78a |
| $T_3$ - ICGV 95390 | 12.57 bc | 49.05 c | 67.15 ab | 2.30b |
| $T_4$ - ICGV 96176 | 12.90 bc | 48.76 c | 72.94 a | 2.78ab |
| $T_5$ - ICGV 97120 | 9.40 c | 48.75 c | 63.12 ab | 1.93b |
| $T_{6}$ - ICGV 99046 | 9.95 c | 56.44 bc | 66.20 ab | 2.00b |
| $T_7$ - LG Pn 11-C | 9.49 c | 57.80 bc | 69.11 ab | 2.25b |
| $T_8$ - LG Pn 56 | 13.12 bc | 56.48 bc | 69.34 ab | 3.23ab |
| $T_{9}$ - NSIC Pn 11 | 21.0 a | 64.58 bc | 64.20 ab | 2.65ab |
| $T_{10}$ - NSIC Pn13 (NC) | 11.18 c | 64.39 bc | 74.96 a | 3.15ab |
| $T_{11}$ -NSIC Pn14 (NC) | 10.55 c | 69.64 ab | 65.08 ab | 2.08b |

The environmental conditions during the conduct of the study, particularly temperature, and relative humidity favor disease development (Table 7). The minimum air temperature ranged from 21.2$^0$C-32.7$^0$C for wet season while the maximum air temperature ranged from 22.9$^0$C -34.7$^0$C during the dry season planting. According to Subrahmanyan, Subba, Reddy, and McDonald (1993), rust developed in all peanut genotypes from 10-30C but not at 35-40C. In addition, infection is high for susceptible genotypes at 20C for resistant genotypes at 30C. In addition, conidial germination was greatest at 16-20C (Sommartya & Beute, 1986).

On the other hand, the relative humidity (RH) of 61.6$^0$C -73.7$^0$C is also within the range that favors CLS. Alderman and Nutter (1994) reported that more than 95RH is required for conidial production by *Cercosporidium personatum*. In addition, highest number of conidia were produced when lesions were subjected to daily periods of 16hrs or more of RH. The optimum temperature for spore production is near 20C. Moreover, an average rainfall of 414mm was recorded during the wet season.

Table 7. Agro-meteorological data for wet and dry season (2011- 2014)

| **Month (Wet Season)** | **Air Temperature (C)** | | **Air Humidity** | **Rainfall (mm)** |
|---|---|---|---|---|
| | **Minimum** | **Maximum** | | |
| July | 21.6 | 34.7 | 70.9 | 465.9 |
| August | 22.4 | 32.9 | 73.7 | 567.2 |
| September | 22.9 | 34.1 | 72.2 | 359.8 |
| October | 21.2 | 32.7 | 61.6 | 264.7 |
| **Average** | **22.03** | **33.6** | **69.6** | **414.4** |

| **Month (Dry Season)** | **Air Temperature (C)** | | **Air Humidity** | **Rainfall (mm)** |
|---|---|---|---|---|
| | **Minimum** | **Maximum** | | |
| November | 21.5 | 32.2 | 66.9 | 114.8 |
| December | 22.0 | 31.0 | 63.2 | 34.5 |
| January | 18.9 | 29.3 | 60.5 | 18.7 |
| February | 20.6 | 31.2 | 61.7 | 15.2 |
| March | 21.2 | 32.5 | 58.3 | 19.4 |
| **Average** | **20.8** | **31.2** | **62.1** | **40.5** |

This study was delimited on the national cooperative trials of different peanut lines grown in the province of Pampanga mainly to determine its agronomic characteristics, reaction to diseases and yield potential.

## CONCLUSIONS

Experimental trials were conducted for three years in both seasons to evaluate their agronomic characteristics, reaction to diseases and yield potential under Pampanga condition. Experimental trials were laid out following the Randomized Complete Block Design (RCBD) and each treatment was replicated four times. Data were subjected to analysis under Analysis of Variance (ANOVA) and treatment means were compared using Least Significant Difference (LSD).

Findings revealed significant differences in all treatment means during wet season in terms of days to flower, number of pods per plant, weight of 100 seeds, shelling percentage and pod yield (tons/ha) except days to maturity and reaction to CLS and rust. The ICGV 00350 and ICGV 99046 surpassed the remaining nine peanut lines registering pod yield of 2.1 and 2.4 tons/ha, respectively.

At dry season, significant differences were noted among peanut lines in all agronomic characteristics including yield potential except CLS and rust rating. Among the 11 peanut entries, the ICGV 01273 significantly obtained the highest pod yield with 3.78 tons/ha. The high yield was associated with the greater number of pods per plant and longer days to maturity.

The environmental conditions favored disease development and recorded heavy rainfall during the whole duration of the experiment.

## TRANSLATIONAL RESEARCH

The results of the study would provide awareness to marginal farmers, peanut growers and other stakeholders on the available promising peanut lines that can be grown during either or both wet and dry season. Through National Cooperative Trial (NCT), promising lines of peanut are evaluated based on the distinct agronomic characteristics, resistance to major diseases such as peanut rust and Cercospora leaf spot including its optimum yield. The use of these promising lines will improve peanut production, increase farmers' profit that will eventually help the peanut industry as a whole.

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