PERFRORMANCE EVALUATION OF AVRDC AND ICRISAT FIELD LEGUMES UNDER LA GRANJA AGRO-CLIMATIC CONDITIONS

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ABSTRACT

The project aimed to assess the adaptability and performance of selected ICRISAT peanut entries and AVRDC mungbeans to the prevailing La Granja agro-climatic conditions. It was conducted for two years at the experimental field of Bureau of Plant Industry-La Granja National Crop Research and Development Center. Twenty one ICRISAT confectioner's peanut entries and a local check variety; and thirteen AVRDC mungbeans and one check variety were evaluated for four seasons (two wet and two dry). Treatments were laid out in Randomized Complete Block Design (RCBD) in three replications. Relevant data were gathered and analyzed through SAS.

Four peanut entries had fresh pod yields of more than 4.0 t/ha in both wet and dry season trials. These are: ICGVT (SB) ICGV 01395(6.71 and 4.66 t/ha); ICGVT (SB) ICGV 02234 (5.36 and 6.5 t/ha); ICGS 76 (4.37 and 4.22 t/ha); and ICGVT (SB) ICGV 02227 (5.34 and 6.0 t/ha). Nine entries, including check variety NSIC Pn 13 were identified for inclusion in the second phase of the project.

Entries were observed to be resistant to moderately resistant to Cercospora Leaf Spot, Bacterial wilt and peanut rust in both wet and dry seasons. Damage of aphids was higher in the dry than in the wet season trials. On the other hand, damage of semi-looper was higher during the wet than in the dry season.

Six mungbean entries, namely: VC 6510-152 (1.92 t/ha), VC 6506-127 (1.91 t/ha); VC 1973 A(1.87 t/ha); VC 6469-12-2-6A (1.8 t/ha); VC 6509-125-1 (1.69 t/ha); and VC 6469-12-3-4A (1.67 t/ha) had better yield performance than the check variety NSIC Mg11(1.65 t/ha) during the wet season. In the dry season, only VC 6506-127 (1.52 t/ha) and VC 1973 A (1.40 t/ha) outyielded the check variety.

Entries were observed to be moderately resistant to Cercospora leaf spot(CLS) in both wet and dry seasons. There was no statistical difference with regards to insect pest damage of aphids, beanfly, leaf folder, pod borer and green soldier bug on mungbean between wet and dry season trials.

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RATIONALE

Legumes play an important role in the nutrition of both humans and animals due to their high quality protein content; mungbean has 20 to 25 percent and peanut has 25 to 30 percent. In addition, peanut has 46 to 50 percent oil. These crops are ideal intercrops, rotation or relay crops to cereal-based farming systems. In addition, they have the ability to fix nitrogen from the air or have symbiosis with nitrogen-fixing bacteria in its nodules, thus only need inoculants instead of nitrogen fertilizer application for their growth and development.

Pulses or legumes are an important protein source for Asian people, many of whom largely depend upon cereals and pulses for their daily requirements. South Asian countries together are the world's largest producers and consumers of pulses comprising mainly chickpea, pigeonpea and mungbean. Mungbean, being high in protein and easily digestible, constitutes a balanced diet in combination with cereals. Moreover, being one of the most short duration legumes, it has great scope of fitting in between rice-wheat cropping system in entire Indo-Gangetic plains (Paroda, 2010).

Mungbean (*Vigna radiata* (L.) Wilczek) is considered as an ancient and well-known crop in Asia. In the February 2012 issue of Reader's Digest United Kingdom edition, it was cited as one of the five foods that can save the world. Because of its iron content, it plays a vital role in feeding the most vulnerable people of South Asia. In the Philippines, it is one of the most important and widely grown legume crops. It is a very popular vegetable and considered one of the cheapest sources of protein in the Filipino diet. In addition, it is also used as raw material for food processing.

Traditional mungbean cultivars cultivated in Asia had long growth duration (90-110 days), indeterminate growth habit, and were multiple harvesting types. They were low yielding (400 kg/ha), small seed-sized, susceptible to Mungbean Yellow Mosaic Virus (MYMV) and insects. Therefore, the Asian Vegetable Research and Development Center (AVRDC) directed its research activities on the development of cultivars with short growth duration (55 to 65 days), high yield potential (up to 2000 kg/ha), synchronous maturity (single harvest), resistance to MYMV, Cercospora leaf spot, and powdery mildew, and the bold shiny seeds preferred by the market (Chadha, 2010).

Data from the Bureau of Agricultural Statistics (BAS) reveal that in 2011, domestic mungbean production reached 32,960 metric tons utilizing an area of 45,278 hectares. Growth rate of 21.80 % was achieved since production in 2010 was only 27,060 metric tons. The increase can be attributed to the expansion of area harvested from 40,080 hectares in 2010 to 45,278 hectares in 2011. However, national average yield per hectare remains quite low at 0.73 metric tons.

Philippine Council for Agriculture Resources Research and Development (PCARRD) cited three weaknesses of the Philippine mungbean industry. These are: lack of quality seeds for planting, low local production and susceptibility of the crop to various pests. Most of our mungbean varieties are early and uniform maturing but are susceptible to diseases such as Cercospora leaf spot (CLS) and powdery mildew;

and low-yielding compared to other foreign varieties. It is in this light that the use of better, high yielding and disease resistant entries be introduced or developed so as to improve the local mungbean industry.

From the past three decades of research, the potential yield of the crop has improved to 2.70 t/ha in the experimental field. High yielding, early, synchronously maturing, bold seeded, short growth duration mungbean varieties with resistance to Mungbean Yellow Mosaic Virus (MYMV), Cercospora leaf spot and powdery mildew constitute more than 25% of world mungbean production (Shanmugasundaram, 2006, as cited by Chadha, 2010).

Peanut (*Arachis hypogaea* L.), has very nutritious seeds which contain high quality protein and oil. It is also a major source of food shortening, confectionery and other industrial products. In 2009, local production reached 30,980 metric tons, then decreased to 29,610 metric tons the following year. In 2011, it increased by 0.44 % (29,740 metric tons). Of the total peanut production in the country, 66% is consumed as food, 26% as feeds and 8% is used as seeds.

In 2009, peanut or groundnut is grown on nearly 23.95 million hectares worldwide with the total production of 36.45 million tons and an average yield of 1,520 kg/ha (FAOSTAT 2011, as cited on http://www.icrisat.org/crop-groundnut.htm). It is the sixth most important oil seed crop in the world. Its grains contain 48-50% oil, 26-28% protein as well as a rich source of dietary fiber, minerals and vitamins. Over 100 countries worldwide grow peanut with China, India, Nigeria, USA, and Myanmar as the leading producers.

Peanut significant contributions to the Filipino diet have been recognized only when the prices of milk, meat, eggs, and fish are getting beyond the reach of the ordinary citizens. Last year, the national average yield per hectare was 1.11 metric tons but this is still low compared to the top peanut-producing countries like China and India.

AVRDC-The World Vegetable Center and the International Crop Research Institute for the Semi-Arid Tropics (ICRISAT) maintain genetic resources that are available particularly for the world's research community. Both organizations also develop new high yielding varieties of crops which could possibly perform well in the Philippines. As such, BPI LGNCRDC took advantage of requesting promising legume accessions for field evaluation through assistance of the Bureau of Agricultural Research, the focal DA agency that coordinates the agricultural R and D Programs of the country. Promising accessions from AVRDC and ICRISAT are well adapted to some Asian locations but their adaptability should be tried under Philippine local conditions, hence this project.

In the Philippines, Asha is the only introduced peanut variety released by the National Seed Industry Council (NSIC) that produced the highest recorded yield of 3,991 kg per hectare which is double the yield of commercialized peanut varieties in the country. This variety from India is resistant to bacterial wilt and other foliar diseases such as Cercospora leaf spot and rust. It is also an ideal livestock forage due to its high fresh biomass and dry matter content. Asha, which means 'hope' in the

Hindi language, was introduced to the Philippines from India through the International Crops Research Institute for Semi-Arid Tropic (ICRISAT) in 2005, and was initially field tested and evaluated to determine and compare its adaptability and agronomic performance with the commercially grown peanut varieties in Region 2 (dela Cruz, 2010).

To increase agricultural production, the introduction of improved and high yielding accessions and cultivars of peanut and mungbean from other countries could help address this growing concern, not to mention that the Philippines has very limited parent materials for the development of new, high yielding varieties. BPI-LGNCRDC, being given the responsibility as a BPI legume center, focuses its activities toward germplasm collection and the development of high yielding varieties of field legumes. Germplasm acquisition is of high priority since this activity is closely associated with being able to have a good collection of potential parent materials for crop improvement works. These acquisitions are potential sources of desirable traits essential for varietal development and crop improvement of these legumes.

OBJECTIVES

General Objective:

To assess the adaptability and performance of selected ICRISAT peanut entries and AVRDC mungbeans to the prevailing local agro-climatic conditions of La Granja, La Carlota City, Negros Occidental

Specific Objectives:

1. To evaluate the yield potential and agronomic characteristics of selected ICRISAT peanut and AVRDC mungbean entries under BPI La Granja conditions;
2. To select peanut and mungbean entries that could possibly be utilized by farmer-clientele for local commercial production; and
3. To conserve collected legume entries and accessions.

METHODOLOGY

a. Scope and Location of the Project

The project consisted of two phases: Phase 1. Field Evaluation of Selected ICRISAT Peanuts and AVRDC Mungbeans; Phase 2. On-Farm Evaluation of Promising ICRISAT Peanut and AVRDC Mungbean Entries. This report covered only Phase 1 of the project.

Phase 1 was conducted at the Bureau of Plant Industry-La Granja National Crop Research and Development Center, La Carlota City, Negros Occidental from 2009-2012.

b. Acquisition of the Test Materials

Peanut

Twenty-one peanut accessions were sourced from the International Crop Research Institute for the Semi-Arid Tropics (ICRISAT), India through the facilitation of the Bureau of Agricultural Research (BAR). BPI La Granja NCRDC received the initial peanut seeds on December 10, 2008. During the first semester of 2009, these seed materials including NSIC Pn 13, which served as local check, were seed increased to have ample test materials for the field experiment.

Mungbean

Due to some quarantine regulations, seeds of 13 mungbean test materials from AVRDC-Office of the East and Southeast Asia, Thailand arrived only on December 3, 2009. These were propagated during the first quarter of 2010. NSIC Mg 11 served as the check variety.

c. Experimental Design and Lay-out

Treatments were laid out in Randomized Complete Block Design (RCBD) in three replications. A 4-row plot measuring 2.4 m x 5 m for each test crop per replication was established with two inner rows designated as the sample area.

d. Field Experiment

A. Peanut

A total of 22 entries (21 ICRISAT entries and one local check) were evaluated starting 2009-2010 dry season up to 2011 wet season. These were:

1. ICGS 37
2. ICGS 44
3. ICGV 86015
4. ICGVT (SB) ICGV 02229
5. ICGVT (SB) ICGV 02227
6. ICGVT (SB) ICGV 01434
7. ICGVT (SB) ICGV 02234
8. ICGS 76
9. ICGVT (SB) ICGV 01393
10. ICGVT (SB) ICGV 01447
11. ICGVT (SB) ICGV 01433
12. ICGVT (SB) ICGV0136
13. ICGV 86590
14. ICGV 91114
15. ICGVT (SB) ICGV 03137
16. ICGVT (SB) ICGV 02242
17. ICGVT (SB) ICGV 01379
18. ICGVT (SB) ICGV 01376
19. ICGVT (SB) ICGV 01432
20. ICGVT (SB) ICGV 01395
21. ICGVT (SB) ICGV 02240
22. NSIC Pn 13 (local check)

The following conventional cultural management practices were employed in peanut experiment:

1. **Land preparation** – The experimental field was thoroughly prepared by plowing alternated by harrowing at weekly interval to attain good soil tilth and eradicate weeds. Furrows were set 60 cm apart.

2. **Planting and Fertilizer Application** - Before planting, complete fertilizer (Triple 14) was basally applied at the rate of 4 bags per hectare. Peanut seeds

were sown in furrows at 2 seeds per hill spaced 20-25 cm apart and covered thinly with soil. Calcium Nitrate was sidedressed 25-30 days after planting at the rate of 4 bags per hectare.

3. **Cultivation and Weeding** – After 20-25 days from planting, off-barring was done to loosen the soil and eradicate weeds. This was followed by handweeding to totally eradicate remaining weeds while hilling-up was subsequently employed to cover the applied fertilizer and improve plant anchorage. Moreover, spot weeding was employed when weed population was high during the growth and development of the peanut crop.

4. **Water Management** – When soil moisture was insufficient during the growth and development of the peanut crop, irrigation was provided to sustain the water requirement of the crops. During the 2010 dry season trial, weekly irrigation was done since there was no rain during the growing season brought about by the El Niño phenomenon.

5. **Crop Protection** – Spraying of pesticides was only done when there was a need to do so.

6. **Harvesting** - This was done when pods are hard, have darkened veins in the inner portion of the shell and 75% of the pods are mature. The two inner rows per plot served as sample area for the collection of data.

B. Mungbean

Fourteen entries, including local check, NSIC Mg 11 were planted as test materials. Due to the late arrival of seeds, field evaluation for the crop started only in 2010 wet season and ended 2011-2012 dry season. The following were the mungbean test materials:

1. VC 6510-151
2. VC 6469-12-3-4A
3. VC 6469-12-1-1A
4. VC 6489-10-S1
5. VC 6492-59 A
6. VC 6469-12-2-6 A
7. VC 1973 A
8. VC 6495-32
9. VC 6518-5
10. VC 6506-127
11. VC 6509-125-1
12. VC 6465-8-5-2A
13. 6494-986-31
14. NSIC Mg 11(check variety)

For mungbean, the following cultural management practices were employed:

1. **Land preparation** - The same procedure as in peanut was observed.

2. **Planting and Fertilizer application** - Prior to planting, complete fertilizer (14-14-14) at the rate of 4 bags per hectare was uniformly drilled in furrows and covered thinly with fine soil. Mungbean seeds were then drilled in furrows at the rate of 20-25 seeds per linear meter.

3. **Cultivation and Weeding** - After 15-20 days from planting, off-barring was done to loosen the soil and eradicate weeds. This was followed by handweeding. Spot weeding was likewise employed when weed population was high during the growth and development period of the mungbean crop.

4. **Water Management and Crop Protection** - The same practices as in peanut were employed.

5. Harvesting - Mungbean was harvested by priming which commenced about 60 days from planting. The frequency of harvesting was dependent on available mature pods. Two inner rows per replicate served as sampling area.

Data gathered

Parameters gathered for peanut and mungbean were discussed among the proponents and evaluators during the pre-implementation meeting held in June 2009. These include:

A. For peanut

1. Days to 75% emergence
2. Days to 75% flowering
3. Final Stand Count (using two sample rows)
4. Days to Harvest
5. Pod Yield (t/ha), fresh and dry
6. 100 seed weight
7. Shelling Percentage
8. Percentage of Sound Mature Seeds
9. Seed Appearance and Uniformity (based on Visual Score of 1-5 where 1 is excellent appearance and uniformity and 5 is poor appearance and uniformity)
    1- 95-100% filled
    2- 86-94% filled
    3- 76-85% filled
    4- 66-75% filled
    5- 65% and below
10. Seed grade
    Small (200 to 280 seeds/100 g)
    Medium (140 to 199 seeds/100 g)
    Large (100 to 139 seeds/100 g)
    Extra Large (99 or less seeds/100 g)
11. Disease Rating
    a. Cercospora Leaf Spot
    b. Peanut Rust
    c. Bacterial Wilt
        Rating Scale
        1- resistant, no plant infected
        2- 30% or less of plants infected
        3- more than 30% of plants infected

12. Insect Pest Rating
    a. Semi-looper
    b. Cutworm
    c. Aphids
    d. Bean Fly

    Rating Scale
        1- No damage
        2- Moderate Damage
        3- Severe Damage

B. For mungbean

1. Days to emergence
2. Crop Stand after thinning
3. Days to First Flower
4. Days to Complete Flower
5. Days to Maturity
6. Plant Height at Flowering (75% in bloom)
7. Plant Height at Maturity (cm)
8. Lodging
9. Shattering
10. Number of nodes per plant
11. Number of branches per plant
12. Grain Yield (t/ha)
13. 100-seed weight (g)
14. Seed quality Rating
    1.0 Seeds of uniform size and shape with less than 1% shriveled, cracked or discolored
    2.0 One to 20% shriveled, cracked or discolored
    3.0 21-40% shriveled, cracked or discolored
    4.0 41- 60% shriveled, cracked or discolored
    5.0 More than 60% shriveled, cracked or discolored
15. Disease Rating
    a. Cercospora Leaf Spot
    b. Downy Mildew
    c. Mosaic Virus

    Rating Scale (same with that of peanut)
16. Insect Pest Rating
    a. Bean Fly
    b. Leaf Roller
    c. Pod Borer
    d. Leaf Folder
    e. Aphid
    f. Green Soldier Bug

RESULTS AND DISCUSSION

A. Peanut

1. Days to Emergence and Flowering

Table 1 shows the mean number of days from planting to seedling emergence during the wet and dry season trials. Mean number of days to emergence of 22 ICRISAT peanut entries including check variety, NSIC Pn 13 was observed to range from 9.00 to 22.17 days in the two wet season trials, and 9.67 to 20.34 days during the two dry season trials. ICGS 44 days consistently emerged the earliest (9.17 days) in both season trials while ICGVT (SB) ICGV 03137 was the last to emerge in both dry and wet seasons with a mean of 21.26 days from planting.

Most of the entries flowered earlier in the dry season (36.50 to 48.34 days) than in the wet season (38 to 49.5 days). This could probably be attributed to higher solar radiation in the dry season which is favorable for the flowering of the crop. Despite being the first to emerge, it was observed that ICGS 44 was not the first to bear flowers among the 22 entries. Moreover, ICGVT (SB) ICGV 01447 consistently flowered the earliest in both wet and dry seasons at 38 and 36.50 days, respectively. However, two other entries ICGVT (SB) ICGV 0227 and ICGVT (SB) ICGV 02242 flowered also at the same time (38 days) during the wet season.

Table P1. Days to emergence and flowering of ICRISAT peanuts in 2010 and 2011 wet and dry season trials; BPI-LGNCRDC, La Carlota City, Negros Occidental.

ENTRIES		Days to Emergence			Days to Flowering		
		WS	DS	Mean	WS	DS	Mean
1	ICGS 37	9.00	9.67	9.34	38.50	38.67	38.59
2	ICGS 44	9.00	9.34	9.17	42.00	42.34	42.17
3	ICGV 86015	11.17	10.84	11.00	49.50	47.67	48.59
4	ICGVT (SB) ICGV02229	11.50	12.50	12.00	44.50	43.00	43.75
5	ICGVT (SB) ICGV02227	13.00	13.17	13.09	38.00	38.67	38.34
6	ICGVT (SB) ICGV01434	14.50	16.42	15.46	48.00	47.84	47.92
7	ICGVT (SB) ICGV02234	11.00	12.67	11.84	46.00	45.67	45.84
8	ICGS 76	12.67	10.00	11.33	48.50	47.67	48.09
9	ICGVT (SB) ICGV01393	14.67	14.17	14.42	43.50	42.17	42.84
10	ICGVT (SB) ICGV01447	11.00	10.17	10.59	38.00	36.50	37.25
11	ICGVT (SB) ICGV01433	15.50	14.84	15.17	39.00	39.17	39.09
12	ICGVT (SB) ICGV01369	11.50	11.34	11.42	45.50	40.00	42.75
13	ICGV86590	14.50	15.00	14.75	39.50	38.34	38.92
14	ICGV91114	12.00	13.67	12.84	40.00	38.00	39.00
15	ICGVT (SB) ICGV03137	22.17	20.34	21.26	49.00	48.34	43.67
16	ICGVT (SB) ICGV02242	15.00	13.84	14.42	38.00	37.00	37.50
17	ICGVT (SB) ICGV01379	15.17	15.84	15.51	45.50	45.84	45.67
18	ICGVT (SB) ICGV01376	14.00	14.34	14.17	41.50	39.67	40.59
19	ICGVT (SB) ICGV01432	15.67	18.34	17.00	48.00	47.17	47.59
20	ICGVT (SB) ICGV01395	12.67	12.84	12.76	42.00	41.17	41.59
21	ICGVT (SB) ICGV02240	11.00	10.34	10.67	42.50	40.17	41.34
22	NSIC Pn 13 (local check)	15.00	14.17	14.59	47.00	42.17	44.59

NOTE: Means of two wet and two dry season trials, respectively.

WS = wet season

DS = dry season

2. Days to Harvest

Twelve entries including the check variety, NSIC Pn 13 were harvested earlier during the wet season than in the dry. The mean number of days to harvest ranged from 97.50 to 117.50 days during the wet season, and 101 to 117.00 days in the dry season (Table 2). In both wet and dry season trials, ICGS 37 was the earliest to be harvested with a mean of 97.50 and 101 days, respectively. It took this entry 59 days to mature from the day it flowered during the wet season, and 62.33 days during the dry season. On the other hand, ICGVT (SB) ICGV03137 was the latest to mature (117.50) in both wet and dry season trials.

Table P2. Days to harvest ICRISAT peanuts in 2010 and 2011 wet and dry season trials; BPI-LGNCRDC, La Carlota City, Negros Occidental.

ENTRIES		WET SEASON	DRY SEASON	MEAN
1	ICGS 37	97.50	101.00	99.25
2	ICGS 44	107.50	111.00	109.25
3	ICGV 86015	107.50	106.50	107.00
4	ICGVT (SB) ICGV02229	109.00	114.50	111.75
5	ICGVT (SB) ICGV02227	110.00	110.50	110.25
6	ICGVT (SB) ICGV01434	111.00	114.50	112.75
7	ICGVT (SB) ICGV02234	111.00	110.50	110.75
8	ICGS 76	116.00	110.00	113.00
9	ICGVT (SB) ICGV01393	116.00	117.00	116.50
10	ICGVT (SB) ICGV01447	105.50	107.50	106.50
11	ICGVT (SB) ICGV01433	112.00	112.00	112.00
12	ICGVT (SB) ICGV01369	107.50	107.50	107.50
13	ICGV86590	109.00	109.00	109.00
14	ICGV91114	100.00	104.00	102.00
15	ICGVT (SB) ICGV03137	117.50	117.00	117.25
16	ICGVT (SB) ICGV02242	115.00	113.50	114.25
17	ICGVT (SB) ICGV01379	117.50	111.00	114.25
18	ICGVT (SB) ICGV01376	112.50	111.50	112.00
19	ICGVT (SB) ICGV01432	110.50	116.50	113.50
20	ICGVT (SB) ICGV01395	111.00	116.00	113.50
21	ICGVT (SB) ICGV02240	105.00	111.00	108.00
22	NSIC Pn 13 (local check)	100.50	104.00	102.25

NOTE: Means of two wet and two dry season trials, respectively.

3. Stand Count

Stand count of different peanut entries are reflected in Table P3. Eighteen entries had higher stand count in the dry season than in the wet season trials. Statistically, significant differences were noted in both season trials. ICGVT (SB) ICGV 01395 produced the highest mean stand count during the wet season trials at 99,305.40 plants per hectare. On the contrary, ICGVT (SB) ICGV 01369 had the lowest with 72,222.11 plants per hectare.

In the two dry season trials, ICGVT (SB) ICGV02234 had the highest mean stand count at 103,819.28 plants per hectare. ICGVT (SB) ICGV01433 exhibited the lowest at 83,680.43 plants per hectare.

Table P3. Stand count of ICRISAT peanuts in 2010 and 2011 dry season trials, BPI-LGNCRDC.

ENTRIES		WET SEASON				DRY SEASON			
		2010		2011		Mean	2010	2011	Mean
1	ICGS 37	83,333.20	ghi	86,790.42	fgh	85,061.81	90,277.63 fg	83,333.20 bcde	86,805.42
2	ICGS 44	102,777.61	a	93,749.85	bcde	98,263.73	95,138.73 defg	82,638.76 cde	88,888.75
3	ICGV 86015	97,222.07	abc	91,666.52	cdef	94,444.30	106,943.79 abcde	98,610.95 a	102,777.37
4	ICGVT (SB) ICGV02229	76,388.77	ijk	79,860.98	ij	78,124.88	104,166.50 abcdef	83,333.20 bcde	93,749.85
5	ICGVT (SB) ICGV02227	92,360.96	bcdef	98,610.95	ab	95,485.96	109,722.05 abc	93,749.85 a	101,735.95
6	ICGVT (SB) ICGV01434	70,472.11	kl	76,388.77	jk	73,430.44	98,998.40 bcdefg	69,444.30 f	84,221.35
7	ICGVT (SB) ICGV02234	94,444.29	abcde	97,222.07	abc	95,833.18	111,805.38 ab	95,833.18 a	103,819.28
8	ICGS 76	99,999.84	ab	97,916.51	abc	98,958.18	106,944.27 abcde	86,805.42 bc	96,874.85
9	ICGVT (SB) ICGV01393	86,110.97	gh	86,405.82	fgh	86,258.40	108,333.16 abcde	84,027.64 bcde	96,180.40
10	ICGVT (SB) ICGV01447	75,694.32	ijkl	77,777.65	ijk	76,735.99	113,888.71 a	82,638.76 cde	98,263.74
11	ICGVT (SB) ICGV01433	77,361.00	l	78,472.10	ijk	77,916.55	101,388.73 abcdefg	65,972.12 f	83,680.43
12	ICGVT (SB) ICGV01369	71,527.66	kl	72,916.55	k	72,222.11	97,222.07 cdefg	86,110.97 bcd	91,666.52
13	ICGV86590	85,416.53	fgh	93,749.85	bcde	89,513.19	106,249.83 abcde	84,722.09 bcde	95,485.96
14	ICGV91114	88,194.30	defgh	97,222.07	abc	92,708.19	99,305.40 bcdefg	93,749.85 a	96,527.63
15	ICGVT (SB) ICGV03137	80,555.43	hij	80,555.43	hij	80,555.43	97,222.07 cdefg	80,555.43 e	88,888.75
16	ICGVT (SB) ICGV02242	93,749.85	cdef	93,749.85	bcde	93,749.85	106,249.83 abcde	88,194.30 b	97,222.07
17	ICGVT (SB) ICGV01379	72,222.11	jkl	76,388.77	jk	74,305.44	110,416.49 abc	81,249.87 de	95,833.18
18	ICGVT (SB) ICGV01376	90,277.63	cdefg	89,583.19	de	89,930.41	102,083.17 abcdefg	86,055.42 bcde	94,069.30
19	ICGVT (SB) ICGV01432	88,888.75	cdefgh	87,499.86	bcde	88,194.31	88,888.75 g	84,722.09 bcde	86,805.42
20	ICGVT (SB) ICGV01395	96,527.62	abcd	102,083.17	bcde	99,305.40	107,638.72 abcde	84,027.64 bcde	95,833.18
21	ICGVT (SB) ICGV02240	90,972.08	cdefg	84,027.64	bcd	87,499.86	109,027.60 abcd	86,110.97 bcd	97,569.29
22	NSIC Pn 13 (local check)	90,277.63	cdefg	95,138.74	a	92,708.19	94,444.28 efg	95,138.76 a	94,791.52
	CV (%)	6.35		4.46			8.45	3.70	

Note: In a column, means followed by the same letter are not significantly different at 5% level, DMRT.

4. Number of Pods

Significant differences on number of pods per plant among peanut entries were noted in both wet and dry season trials (Table P4). ICGVT (SB) ICGV01379 had the most number of pods per plant for two wet seasons giving a mean of 29.84. On the other hand, ICGVT (SB) ICGV01393 gave the lowest number of pods per plant with a mean of 16.45.

During the dry season, the mean number of pods per plant ranged from 18.34 to 29.97, with ICGS 76 having the most and ICGVT (SB) ICGV 01393, the least.

Table P4. Number of pods per plant of ICRISAT peanuts during 2010 and 2011 wet and dry season trials; BPI- LGNCRDC, La Carlota City, Negros Occidental.

ENTRIES		WET SEASON			DRY SEASON		
		2010	2011	Mean	2010	2011	Mean
1	ICGS 37	22.27 cdef	21.93 fghi	22.10	35.90 a	23.63 bcd	29.77
2	ICGS 44	18.50 gh	18.77 klm	18.64	23.70 fgh	19.57 efg	21.64
3	ICGV 86015	22.67 cde	28.87 bc	25.77	27.83 cde	22.83 cde	25.33
4	ICGVT (SB) ICGV02229	19.20 efg	20.03 ijkl	19.62	25.47 efg	18.23 ghi	21.85
5	ICGVT (SB) ICGV02227	15.13 h	29.87 ab	22.50	25.43 efg	29.53 a	27.48
6	ICGVT (SB) ICGV01434	17.63 gh	20.40 hijk	19.02	26.53 def	15.60 hi	21.07
7	ICGVT (SB) ICGV02234	15.30 hi	23.83 ef	19.57	26.07 defg	23.53 bcd	24.80
8	ICGS 76	17.43 gh	25.63 de	21.53	34.90 ab	25.03 bcd	29.97
9	ICGVT (SB) ICGV01393	13.43 i	19.47 jkl	16.45	20.70 h	15.97 hi	18.34
10	ICGVT (SB) ICGV01447	27.97 ab	20.63 hijk	24.30	22.33 gh	23.17 cd	22.75
11	ICGVT (SB) ICGV01433	23.8 cd	27.1 cd	25.45	31.57 bc	18.90 fgh	25.24
12	ICGVT (SB) ICGV01369	19.93 efg	23.83 ef	21.88	23.00 fgh	25.50 bc	24.25
13	ICGV86590	18.50 gh	26.17 d	22.34	19.90 h	23.80 bcd	21.85
14	ICGV91114	25.73 abc	22.40 fgh	24.07	29.80 cd	23.30 cd	26.55
15	ICGVT (SB) ICGV03137	19.67 efg	16.93 mn	18.30	21.37 h	22.33 cde	21.85
16	ICGVT (SB) ICGV02242	18.07 gh	18.00 lm	18.04	22.23 gh	23.67 bcd	22.95
17	ICGVT (SB) ICGV01379	28.33 a	31.35 a	29.84	25.90 defg	26.83 ab	26.37
18	ICGVT (SB) ICGV01376	21.10 defg	23.20 fg	22.15	20.10 h	18.67 fghi	19.39

19	ICGVT (SB) ICGV01432	22.90 cde	23.57 ef	23.34	30.70 c	15.33 i	23.02
20	ICGVT (SB) ICGV01395	18.83 fgh	15.17 n	17.00	22.33 gh	21.93 def	22.13
21	ICGVT (SB) ICGV02240	18.87 fgh	19.53 jkl	19.20	21.10 h	25.07 bcd	23.09
22	NSIC Pn 13 (local check)	24.40 bcd	21.30 ghij	22.85	30.70 c	24.33 bcd	27.52
CV (%)		11.08	5.90		9.31	9.26	

Note: In a column, means followed by the same letter are not significantly different at 5% level, DMRT.

5. Fresh Pod Yield

Table P5 shows data on fresh pod yield of peanut during the wet and dry season trials. In the two wet season trials, ICGVT (SB) ICGV01395 gave the highest mean fresh pod yield of 6.71 t/ha. Its yield performance was consistent in both 2010 and 2011 wet seasons; and statistically significant over the other 21 peanut entries evaluated including check variety, NSIC Pn 13. Eleven other entries yielded more than 4.0 t/ha of fresh pods, namely: ICGVT (SB) ICGV 02234 (5.36 t/ha), ICGVT (SB) ICGV 02227 (5.34 t/ha), ICGV 86590 (4.69 t/ha), ICGVT (SB) ICGV 01432 (4.63 t/ha), ICGV 91114 (4.52 t/ha), ICGVT (SB) ICGV 01369 (4.40 t/ha), ICGS 76 (4.37 t/ha), NSIC Pn 13, check variety (4.35 t/ha), ICGVT (SB) ICGV 01376 (4.19 t/ha), ICGVT (SB) ICGV 01447 (4.17 t/ha), and ICGVT (SB) ICGV 03137 (4.11 t/ha).

Significant differences were also observed in the dry season results although mean fresh pod yield of more than 4.0 t/ha was noted only in four entries. ICGVT (SB) ICGV02234 gave the highest mean fresh pod yield of 6.52 t/ha. In addition, the same entry produced the highest fresh pod yield of 8.0 t/ha during the 2010-2011 dry season which was the highest yield obtained from a peanut entry during the whole duration of the study. Other entries with more than 4.0 t/ha fresh pod yield were: ICGVT (SB) ICGV 02227 (6.0 t/ha), ICGVT (SB) ICGV 01395 (4.66 t/ha), and ICGS 76 (4.22 t/ha).

Table P5. Fresh pod yields (kg/ha) of ICRISAT peanuts during 2010 and 2011 wet and dry season trials; BPI LGNCRDC, La Granja, La Carlota City, Negros Occidental.

ENTRIES		WET SEASON			DRY SEASON		
		2010	2011	MEAN	2010	2011	MEAN
1	ICGS 37	2.88 gh	2.31 i	2.60	3.244 ghi	2.23 ghij	2.74
2	ICGS 44	2.58 gh	1.80 j	2.19	2.636 i	1.76 hijk	2.20
3	ICGV 86015	3.03 fgh	1.99 j	2.15	3.649 fghi	3.46 cde	3.55
4	ICGVT (SB) ICGV02229	5.04 bc	1.31 k	3.18	4.946 bcde	1.46 ijk	3.20
5	ICGVT (SB) ICGV02227	5.40 bc	5.28 b	5.34	6.488 a	5.52 b	6.00
6	ICGVT (SB) ICGV01434	2.01 h	3.41 g	2.71	5.654 ab	1.090 k	3.37
7	ICGVT (SB) ICGV02234	5.50 b	5.22 b	5.36	5.032 bcd	8.00 a	6.52
8	ICGS 76	4.21 cdef	4.53 cd	4.37	3.219 ghi	5.23 b	4.22
9	ICGVT (SB) ICGV01393	3.26 efg	3.07 h	3.17	3.448 fghi	2.63 efgh	3.04
10	ICGVT (SB) ICGV01447	4.56 bcd	3.77 f	4.17	3.237 ghi	3.74 cd	3.49
11	ICGVT (SB) ICGV01433	1.82 h	1.99 j	1.91	5.798 ab	1.33 jk	3.56
12	ICGVT (SB) ICGV01369	4.59 bcd	4.20 e	4.40	3.420 fghi	3.24 cdef	3.33
13	ICGV86590	4.73 bcd	4.64 c	4.69	4.040 defgh	2.88 cdefg	3.46
14	ICGV91114	4.44 bcde	4.59 cd	4.52	4.223 defg	2.25 ghij	3.24
15	ICGVT (SB) ICGV03137	5.10 bc	3.12 h	4.11	3.188 hi	3.61 cd	3.40
16	ICGVT (SB) ICGV02242	3.24 efg	3.46 g	3.35	2.976 hi	2.35 fghi	2.66
17	ICGVT (SB) ICGV01379	2.70 gh	2.52 i	2.61	3.839 efgh	3.63 cd	3.73
18	ICGVT (SB) ICGV01376	4.91 bc	3.47 f	4.19	4.444 cdef	2.79 defg	3.62
19	ICGVT (SB) ICGV01432	4.89 bcd	4.37 de	4.63	4.851 bcde	1.34 jk	3.10
20	ICGVT (SB) ICGV01395	7.85 a	5.57 a	6.71	5.494 abc	3.83 c	4.66
21	ICGVT (SB) ICGV02240	3.67 defg	3.42 g	3.55	3.154 ghi	3.11 cdefg	3.13
22	NSIC Pn 13 (local check)	4.88 bcd	3.81 f	4.35	4.219 defg	3.50 g	3.86
CV (%)		18.02	4.28		16.75	18.56	

Note: In a column, means followed by the same letter are not significantly different at 5% level, DMRT.

6. Dry Pod Yield

This parameter was taken after the pods were sun-dried for two days and attained 14% moisture content. Dry pod yields of different peanut entries vary significantly during the wet and dry season trials. ICGVT (SB) ICGV 01395 still had the highest mean dry pod yield in the two wet season trials at 4.61 t/ha. Other entries with more than 3.0 t/ha of dry pod yield in the wet season were: ICGVT (SB) ICGV 02227 (3.52 t/ha), ICGVT (SB) ICGV 01432 (3.50 t/ha), ICGVT (SB) ICGV 02234 (3.37 t/ha), and ICGVT (SB) ICGV 01369 (3.18 t/ha) (Table P6).

Yield results of two dry season trials revealed that ICGVT (SB) ICGV 02234 gave the highest mean dry pod yield of 4.25 t/ha, followed by ICGVT (SB) ICGV 02227 (3.60 t/ha), and ICGVT (SB) ICGV 01395 (2.88 t/ha).

Table P6. Dry pod yields (kg/ha) of ICRISAT peanuts during 2010 and 2011 wet and dry seasons trials; BPI LGNCRDC, La Carlota City, Negros Occidental.

ENTRIES		WET SEASON			DRY SEASON		
		2010	2011	MEAN	2010	2011	MEAN
1	ICGS 37	1.73 h	1.49 i	1.61	1.819 fgh	1.4 fgh	1.61
2	ICGS 44	2.06 gh	1.17 j	1.62	1.588 h	1.32 ghi	1.45
3	ICGV 86015	2.23 fgh	1.3 j	1.77	1.725 fgh	2.410 d	2.07
4	ICGVT (SB) ICGV02229	4.11 b	0.86 k	2.49	3.003 abcd	0.75 j	1.88
5	ICGVT (SB) ICGV02227	3.60 bcd	3.43 ab	3.52	3.288 abc	3.91 b	3.60
6	ICGVT (SB) ICGV01434	1.62 h	2.19 fg	1.91	2.827 abcde	0.72 j	1.77
7	ICGVT (SB) ICGV02234	3.38 bcde	3.36 b	3.37	2.875 abcde	5.63 a	4.25
8	ICGS 76	3.06 cdef	2.67 d	2.87	2.113 efgh	3.35 c	2.73
9	ICGVT (SB) ICGV01393	2.21 fgh	2.04 gh	2.13	1.774 fgh	1.2 hij	1.49
10	ICGVT (SB) ICGV01447	3.61 bcd	2.49 e	3.05	1.669 gh	2.52 d	2.09
11	ICGVT (SB) ICGV01433	2.43 efgh	1.13 j	1.78	3.599 ab	0.83 ij	2.21
12	ICGVT (SB) ICGV01369	3.69 bcd	2.67 d	3.18	2.199 defgh	1.730 efg	1.96
13	ICGV86590	2.46 efgh	3.11 c	2.79	2.527 cdefg	2.070 de	2.3
14	ICGV91114	2.30 fgh	3.16 c	2.73	2.733 bcde	1.44 fgh	2.09
15	ICGVT (SB) ICGV03137	3.48 bcd	2.01 h	2.75	1.492 h	1.42 fgh	1.46
16	ICGVT (SB) ICGV02242	2.38 fgh	2.34 ef	2.36	1.672 gh	1.31 ghi	1.49
17	ICGVT (SB) ICGV01379	1.89 h	1.50 i	1.70	1.522 h	2.18 de	1.85
18	ICGVT (SB) ICGV01376	2.99 cdefg	2.36 e	2.68	3.025 abcd	1.52 fgh	2.27
19	ICGVT (SB) ICGV01432	3.90 bc	3.09 c	3.50	2.800 abcde	0.83 ij	1.82

20	ICGVT (SB) ICGV01395	5.68	a	3.53	a	4.61	3.616	a	2.14	de	2.88
21	ICGVT (SB) ICGV02240	2.95	cdefg	2.27	f	2.61	2.600	cdef	1.84	ef	2.22
22	NSIC Pn 13 (local check)	2.87	defg	2.35	ef	2.61	2.473	cdefg	2.22	de	2.35
	CV (%)	20.11		4.52			22.14		16.6		

Note: In a column, means followed by the same letter are not significantly different at 5% level, DMRT.

7. Percent Sound Mature Seeds

As shown in Table P7, ICGVT (SB) ICGV02227 obtained the highest mean percent mature seed pods of 90.36% during the wet season trial. In addition, it was the second highest during the dry season having 86.82% of sound mature seeds. ICGS 44 had the highest during the dry season at 87.43% while ICGVT (SB) ICGV01379 gave the lowest at 64.33%. Nine entries, namely: ICGS 37, ICGS 44, ICGV 86015, ICGVT (SB) ICGV02227, ICGVT (SB) ICGV02234, ICGS 76, ICGV86590, ICGV91114 ,and check variety NSIC Pn 13 had mean percent sound mature seeds of more than 80% in both wet and dry season trials.

Table P7. Percent sound mature seeds (%) of ICRISAT peanuts, 2010 and 2011 wet and dry season trials; BPI LGNCRDC, La Carlota City, Negros Occidental.

ENTRIES		WET SEASON			DRY SEASON		
		2010	2011	MEAN	2010	2011	MEAN
1	ICGS 37	84.67 ab	88.21 cd	86.44	82.83 abc	90.24 ab	86.54
2	ICGS 44	73.60 ef g	89.48 bc	81.54	85.33 ab	89.53 ab	87.43
3	ICGV 86015	79.88 cd	86.57 de	83.23	77.27 de	85.68 c	81.48
4	ICGVT (SB) ICGV02229	66.94 i	69.43 j	68.19	68.13 gh	68.75 h	68.44
5	ICGVT (SB) ICGV02227	88.08 a	92.63 a	90.36	80.95 bcd	92.69 a	86.82
6	ICGVT (SB) ICGV01434	62.32 j	66.52 k	64.19	66.85 hi	65.43 hi	66.14
7	ICGVT (SB) ICGV02234	79.84 cd	80.86 g	80.35	80.85 bcd	80.16 e	80.51
8	ICGS 76	80.48 cd	79.98 g	80.23	85.62 a	79.57 ef	82.60
9	ICGVT (SB) ICGV01393	75.58 ef	72.06 i	73.82	74.63 ef	74.99 g	74.81
10	ICGVT (SB) ICGV01447	68.17 hi	73.73 hi	70.95	58.18 k	73.64 g	65.91
11	ICGVT (SB) ICGV01433	72.56 fg	73.65 hi	73.11	58.60 jk	75.15 g	66.88
12	ICGVT (SB) ICGV01369	71.14 gh	73.57 hi	72.36	59.18 jk	76.30 fg	67.74
13	ICGV86590	76.79 de	83.77 f	80.28	76.67 cde	84.40 cd	80.54
14	ICGV91114	85.26 ab	86.31 e	85.79	80.70 cd	87.01 bc	83.86
15	ICGVT (SB) ICGV03137	65.78 ij	66.45 k	66.12	66.75 hi	67.68 h	67.22
16	ICGVT (SB) ICGV02242	73.15 ef g	75.33 h	74.24	55.00 k	73.69 g	64.35
17	ICGVT (SB) ICGV01379	73.11 ef g	74.74 h	73.93	55.47 k	73.18 g	64.33
18	ICGVT (SB) ICGV01376	76.79 de	64.97 kl	70.88	62.98 ij	66.36 hi	64.67
19	ICGVT (SB) ICGV01432	65.86 ij	64.35 l	65.11	76.75 de	63.44 i	70.10
20	ICGVT (SB) ICGV01395	82.57 bc	80.96 g	81.77	71.90 fg	80.59 e	76.25
21	ICGVT (SB) ICGV02240	65.20 ij	80.69 g	72.95	55.280 k	81.75 de	68.52
22	NSIC Pn 13 (local check)	82.63 bc	90.33 b	86.48	81.070 abcd	91.05 a	86.06
	CV (%)	13.18	1.44		3.93	2.61	

Note: In a column, means followed by the same letter are not significantly different at 5% level, DMRT.

8. Shelling Percentage

Shelling percentage vary significantly among entries in both dry and wet season trials (Table P8). It ranges from 59.50 to 75.32 % in the wet season, and 56.99 to 72.83 % in the dry seasons. ICGVT (SB) ICGV02227 had shelling percentage of more than 70% during the two wet seasons. On the other hand, ICGS 76 was the most consistent to have shelling percentage of more than 70% for the four season trials.

Table P8. Shelling percentage and seed grade of ICRISAT peanuts, 2010 and 2011 wet and dry season trials; BPI LGNCRDC, La Carlota City, Negros Occidental.

	ENTRIES	Shelling Percentage (%)						Seed Grade			
		WET SEASON			DRY SEASON			WET SEASON		DRY SEASON	
		2010	2011	MEAN	2010	2011	MEAN	2010	2011	2010	2011
1	ICGS 37	63.89 def	73.25 bc	68.57	67.58 ab	74.04 ab	70.81	S	S	S	S
2	ICGS 44	55.52 hi	74.98 ab	65.25	57.02 def	75.35 a	66.19	S	S	S	S
3	ICGV 86015	55.30 i	74.96 ab	65.13	67.08 ab	74.85 ab	70.97	S	S	S	S
4	ICGVT (SB) ICGV02229	56.42 hi	65.43 ef	60.93	56.22 def	67.42 d	61.82	L	L	M	M
5	ICGVT (SB) ICGV02227	74.51 a	76.13 a	75.32	64.51 abc	75.66 a	70.09	XL	XL	M	XL
6	ICGVT (SB) ICGV01434	57.93 ghi	61.06 h	59.50	62.24 bcd	60.89 g	61.57	L	L	L	L
7	ICGVT (SB) ICGV02234	74.35 a	73.55 bc	73.95	67.38 ab	73.86 ab	70.62	XL	XL	L	XL
8	ICGS 76	72.18 ab	74.25 ab	73.22	70.91 a	74.75 ab	72.83	M	M	M	M
9	ICGVT (SB) ICGV01393	69.54 abc	64.31 fg	66.93	55.58 def	60.96 g	58.27	L	L	L	L
10	ICGVT (SB) ICGV01447	62.60 efg	62.83 gh	62.72	51.88 f	62.10 fg	56.99	M	M	M	M
11	ICGVT (SB) ICGV01433	64.29 def	62.57 gh	63.43	58.52 cdef	60.77 g	59.65	M	M	M	M
12	ICGVT (SB) ICGV01369	62.20 fg	62.51 gh	62.36	55.29 ef	63.15 efg	59.22	L	L	M	L
13	ICGV86590	72.38 ab	68.06 d	70.22	68.33 ab	66.51 de	67.42	S	S	S	S
14	ICGV91114	62.88 efg	68.02 d	65.45	60.17 cde	67.20 d	63.69	S	S	S	S
15	ICGVT (SB) ICGV03137	60.47 efgh	65.27 ef	62.87	59.25 cde	65.87 de	62.56	L	L	L	L
16	ICGVT (SB) ICGV02242	70.39 ab	65.23 ef	67.81	61.54 bcde	66.02 de	63.78	L	L	M	L
17	ICGVT (SB) ICGV01379	59.19 fghi	64.82 fg	62.01	56.95 def	64.84 defgh	60.90	M	M	M	M
18	ICGVT (SB) ICGV01376	68.47 bcd	66.63 def	67.55	56.42 def	65.33 def	60.88	M	M	M	M
19	ICGVT (SB) ICGV01432	73.10 ab	67.25 de	70.18	70.23 a	68.15 cd	69.19	L	L	L	L
20	ICGVT (SB) ICGV01395	68.13 bcd	67.87 d	68.00	59.67 cde	66.78 d	63.23	XL	XL	L	XL
21	ICGVT (SB) ICGV02240	62.57 efg	71.68 c	67.13	54.88 ef	71.65 bc	63.27	M	M	M	M
22	NSIC Pn 13 (local check)	64.67 cde	74.30 ab	69.49	64.24 abc	74.45 ab	69.35	M	M	M	M
	CV (%)	4.81	2.08		6.76	3.14					

Note: In a column, means followed by the same letter are not significantly different at 5% level, DMRT.

Seed Grade:

S = small (45g/100 seeds or below) L = large (66g-85g/100 seeds)

M = medium (46g-65g/100 seeds) XL = extra large (86g/100 seeds or higher)

9. Seed Grade, Seed Appearance Rating, and 100-Seed Weight

Grading of peanut seeds was based on their 100-seed weight. Those weighing 45 g or below per 100 seeds were classified as small. Entries weighing 46-65 g per 100 seeds were classified as medium. Large means the 100 seeds weigh 66-85 g. On the other hand, heaviest entries like those with 86 g or higher per 100 seeds were classified as extra-large (Table P8).

Five entries were classified as small, seven as medium, seven as large and three as extra-large during the wet season trials. On the other hand, ICGVT (SB) ICGV02227, ICGVT (SB) ICGV02234, ICGVT (SB) ICGV01369, ICGVT (SB) ICGV02242, and ICGVT (SB) ICGV01395 had different seed grade in two dry season trials.

Rating on seed appearance among entries varies from 1.0 to 3.17 in the wet season trials and 1.0 to 3.5 in the dry season trials. ICGVT (SB) ICGV02227 exhibited excellent seed appearance (1.0) in both wet and dry season trials. Aside from this entry, nine others also had excellent seed appearance as these were given a rating of 1.0 to 2.0 (Table P9).

In terms of 100-seed weight, three entries: ICGVT (SB) ICGV01395, ICGVT (SB) ICGV02234 and ICGVT (SB) ICGV02227 had 100-seed weights of 96.33, 95.50 and 95.33 g, respectively during the wet season trials. On the contrary, ICGS 37 (41.33 g), ICGV91114 (42.83 g) and ICGS 44 (43.67 g) had the lowest seed weight for two wet seasons.

The same entries had the highest seed weights during the dry season trials but were a bit lower than those in the wet season.

Table P9. Seed appearance and 100-seed weight (g) of ICRISAT peanuts during 2010 and 2011 wet and dry season trials; BPI LGNCRDC, La Carlota City, Negros Occidental.

	ENTRIES	SEED APPEARANCE						100-SEED WEIGHT (g)					
		WET SEASON			DRY SEASON			WET SEASON			DRY SEASON		
		2010	2011	MEAN	2010	2011	MEAN	2010	2011	MEAN	2010	2011	MEAN
1	ICGS 37	2.00	1.00	1.50	2.00	1.00	1.50	42.33	40.33	41.33	34.00	40.67	37.34
2	ICGS 44	2.00	1.33	1.67	2.00	1.00	1.50	44.00	43.33	43.67	43.00	43.67	43.34
3	ICGV 86015	1.67	1.33	1.50	2.00	1.00	1.50	44.67	44.00	44.34	44.67	43.33	44.00
4	ICGVT (SB) ICGV02229	2.33	2.33	2.33	2.67	2.00	2.34	68.67	64.00	66.34	61.00	64.33	62.67
5	ICGVT (SB) ICGV02227	1.00	1.00	1.00	1.00	1.00	1.00	95.33	95.33	95.33	64.67	95.00	79.84
6	ICGVT (SB) ICGV01434	3.00	3.00	3.00	2.00	4.00	3.00	65.67	67.00	66.34	67.00	67.00	67.00
7	ICGVT (SB) ICGV02234	1.00	1.33	1.17	1.33	2.00	1.67	95.67	95.33	95.50	70.67	95.00	82.84
8	ICGS 76	2.33	2.33	2.33	1.67	4.00	2.84	53.33	53.67	53.50	53.33	52.67	53.00
9	ICGVT (SB) ICGV01393	1.67	3.00	2.34	3.00	3.00	3.00	84.67	81.67	83.17	66.67	81.67	74.17
10	ICGVT (SB) ICGV01447	2.00	3.00	2.50	3.00	4.00	3.50	59.00	59.67	59.34	55.00	59.33	57.17
11	ICGVT (SB) ICGV01433	3.33	3.00	3.17	3.00	3.00	3.00	61.00	57.67	59.34	64.67	57.33	61.00
12	ICGVT (SB) ICGV01369	3.00	3.00	3.00	3.00	4.00	3.50	81.33	80.67	81.00	63.67	80.67	72.17
13	ICGV86590	2.00	1.33	1.67	2.00	2.00	2.00	44.00	44.00	44.00	39.33	43.67	41.50
14	ICGV91114	1.33	1.00	1.17	1.67	1.00	1.34	42.33	43.33	42.83	39.33	43.67	41.50
15	ICGVT (SB) ICGV03137	2.00	3.00	2.50	2.33	3.00	2.67	75.00	73.00	74.00	76.00	72.33	74.17
16	ICGVT (SB) ICGV02242	1.67	2.00	1.84	2.00	2.00	2.00	67.67	67.33	67.50	48.67	67.67	58.17
17	ICGVT (SB) ICGV01379	2.00	2.67	2.34	1.67	3.00	2.34	50.67	51.67	51.17	50.67	51.67	51.17
18	ICGVT (SB) ICGV01376	2.33	1.67	2.00	1.67	2.00	1.84	64.33	60.67	62.50	50.33	61.67	56.00
19	ICGVT (SB) ICGV01432	2.33	2.67	2.50	1.00	3.00	2.00	76.00	78.67	77.34	74.67	78.33	76.50
20	ICGVT (SB) ICGV01395	1.33	2.33	1.83	1.33	2.00	1.67	96.33	96.33	96.33	67.00	96.00	81.50
21	ICGVT (SB) ICGV02240	2.33	2.33	2.33	2.00	2.00	2.00	61.33	59.00	60.17	63.67	58.67	61.17
22	NSIC Pn 13 (local check)	1.33	1.00	1.17	1.00	1.00	1.00	53.00	54.00	53.50	51.67	56.67	54.17

Seed Appearance and Uniformity:

1 = Excellent (95-100% filled) 3 = 76-85% filled 5 = 65% and below filled

2 = 86-94% filled 4 = 66-75% filled

10. Disease Ratings

Cercospora Leaf Spot (CLS), peanut rust and bacterial wilt were the diseases observed prevalent during the duration of the study. Disease rating was given on a scale of 1.0 to 4.0.

Disease infection of CLS ranges from 1.84 to 2.34 in the wet season trials while it was 1.50 to 2.34 during the dry season trials. Bacterial wilt rating ranges from 2.0 to 2.84 in the wet season and 1.5 to 2.34 in the dry season trials. ICGVT (SB) ICGV02227 was observed to be resistant during the 2009-2010 dry season.

On peanut rust, entries were rated from 1.84 to 2.17 in the wet season trials and 1.67 to 2.17 during the dry season trials.

Table P10. Disease ratings of ICRISAT peanuts during 2010 and 2011 during wet and dry season trials; BPI-LGNCRDC, La Carlota City, Negros Occidental.

ENTRIES		Disease Ratings					
		Cercospora Leaf Spot		Bacterial Wilt		Peanut Rust	
		WS	DS	WS	DS	WS	DS
1	ICGS 37	2.00	2.00	2.17	1.84	2.00	1.84
2	ICGS 44	2.00	2.34	2.33	2.17	2.00	2.00
3	ICGV 86015	2.00	2.00	2.17	1.84	2.00	1.84
4	ICGVT (SB) ICGV02229	2.17	2.17	2.17	2.00	2.00	2.00
5	ICGVT (SB) ICGV02227	2.00	2.00	2.00	1.50	1.84	1.84
6	ICGVT (SB) ICGV01434	2.34	2.17	2.84	2.34	2.17	2.17
7	ICGVT (SB) ICGV02234	1.84	1.84	2.00	1.84	2.00	1.67
8	ICGS 76	2.00	1.67	2.00	2.00	2.00	1.84
9	ICGVT (SB) ICGV01393	2.00	2.00	2.00	2.00	2.00	2.17
10	ICGVT (SB) ICGV01447	2.17	2.17	2.50	2.34	2.00	2.17
11	ICGVT (SB) ICGV01433	2.00	2.00	2.17	2.17	2.17	2.17
12	ICGVT (SB) ICGV01369	2.34	2.17	2.67	2.34	2.17	2.17
13	ICGV86590	2.17	2.00	2.00	2.00	2.00	2.17
14	ICGV91114	2.00	1.84	2.00	1.84	2.00	1.67
15	ICGVT (SB) ICGV03137	2.00	2.00	2.17	2.00	2.17	2.17
16	ICGVT (SB) ICGV02242	2.00	1.84	2.00	2.00	2.00	2.00
17	ICGVT (SB) ICGV01379	2.17	2.17	2.33	2.17	2.17	2.17
18	ICGVT (SB) ICGV01376	2.17	2.00	2.00	2.00	2.00	1.84
19	ICGVT (SB) ICGV01432	2.17	1.84	2.34	2.17	2.17	1.84
20	ICGVT (SB) ICGV01395	1.84	1.50	2.00	1.67	2.00	2.00
21	ICGVT (SB) ICGV02240	2.00	2.00	2.34	2.00	2.17	2.33
22	NSIC Pn 13 (local check)	2.00	1.87	2.00	1.84	1.84	1.84

Disease Rating:

1.0 - Resistant

2.0 - Moderately resistant

3.0 - Moderately susceptible

4.0 - Susceptible

WS = mean of two wet seasons

DS = mean of two dry seasons

11. Insect Pest Ratings

Entries were noted to have moderate to severe damage (2.0 to 3.0) from cutworm in both wet and dry season trials. Beanfly damage was likewise rated 1.67 to 3.0 in both trials. Damage of aphids was higher in the dry season (2.0 to 3.0) than in the wet season trials (2.0 to 2.67) because these insects are easily washed off during rainy season. On the other hand, damage of semi-looper was higher during the wet than in the dry season. The higher damage of semi-looper in wet season could be due to the fact that plants tend to be etiolated and become tender during rainy season, hence, semi-looper can easily defoliate them.

Table P11. Insect pest ratings of ICRISAT peanuts, 2010 and 2011 wet and dry season trials; BPI-LGNCRDC, La Carlota City, Negros Occidental.

ENTRIES		Aphid		Cutworm		Beanfly		Semi-looper	
		WS	DS	WS	DS	WS	DS	WS	DS
1	ICGS 37	2.17	2.00	2.00	2.00	2.33	2.17	2.00	2.17
2	ICGS 44	2.00	2.17	2.00	2.17	2.33	2.17	2.00	2.00
3	ICGV 86015	2.00	2.17	2.00	2.00	2.67	2.00	2.00	2.17
4	ICGVT (SB) ICGV02229	2.00	2.34	2.00	2.00	2.00	2.00	2.00	1.84
5	ICGVT (SB) ICGV02227	2.00	2.00	2.00	2.00	1.84	2.00	2.00	2.00
6	ICGVT (SB) ICGV01434	2.84	2.50	2.34	2.50	2.67	1.84	2.17	2.00
7	ICGVT (SB) ICGV02234	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
8	ICGS 76	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
9	ICGVT (SB) ICGV01393	2.33	2.50	2.17	2.34	2.17	2.34	2.00	2.34
10	ICGVT (SB) ICGV01447	2.33	2.67	2.00	2.17	2.17	2.50	2.00	2.17
11	ICGVT (SB) ICGV01433	2.00	2.34	2.00	2.00	2.17	2.17	2.00	2.00
12	ICGVT (SB) ICGV01369	2.34	2.00	2.50	2.00	2.67	2.33	2.34	2.00
13	ICGV86590	2.00	2.00	2.00	2.00	2.17	2.17	2.17	1.84
14	ICGV91114	2.00	2.00	2.00	2.00	2.00	2.00	2.00	1.84
15	ICGVT (SB) ICGV03137	2.34	2.67	2.50	2.00	2.33	2.50	2.00	1.84
16	ICGVT (SB) ICGV02242	2.00	2.17	2.00	2.00	2.17	2.17	2.00	2.00
17	ICGVT (SB) ICGV01379	2.17	2.34	2.34	2.00	2.17	2.17	2.00	2.00
18	ICGVT (SB) ICGV01376	2.00	2.00	2.00	2.00	2.00	2.00	2.00	1.84
19	ICGVT (SB) ICGV01432	2.50	2.50	2.34	2.50	2.34	2.17	2.34	1.84

20	ICGVT (SB) ICGV01395	2.17	2.00	2.17	2.17	2.00	2.00	2.00	2.00
21	ICGVT (SB) ICGV02240	2.33	2.33	2.00	2.17	2.17	2.00	2.00	2.00
22	NSIC Pn 13 (local check)	2.00	2.00	2.00	2.00	2.00	2.00	2.00	1.84

Insect Rating Scale:

1.0 - No damage

2.0 - Moderate damage
3.0 - Severe damage

WS = mean of two wet seasons

DS = mean of two dry seasons

12. Correlation Analysis Between Fresh Pod Yield and Other Parameters

Correlation analysis was done to determine if some of the characters or parameters have significant relationship with fresh pod yield. In the wet season trials, number of pods per plant had a -0.23 value. Despite having the most number of pods (29.84), the yield of ICGVT (SB) ICGV01379 was only 2.61 t/ha. On the other hand, stand count had a positive correlation with yield at 0.41. This is apparent since the entry ICGVT (SB) ICGV01395 which had the highest stand count had also the highest fresh pod yield.

Unlike the correlation analysis in the wet season, number of pods per plant was positively correlated (0.29) with yield in the dry season. Correlation coefficient for stand count was still positive at 0.55. The highest yield given by ICGVT (SB) ICGV02234 for the season can be attributed to its having the highest stand count of 103, 819.28 t/ha.

Data on percent sound mature seeds was also subjected to correlation analysis. Both wet and dry season trials had a positive value at 0.23 and 0.25, respectively. Six of those entries that had more than 80% sound mature seeds had yields of more than 4.0 t/ha during the wet season trials.

A correlation of 0.55 between shelling percentage and yield was obtained in the wet season and 0.34 in the dry season. ICGVT (SB) ICGV02227 and ICGS 76 had high yields in both season trials as already stated.

In the wet season, 100-seed weight appears to have the most significant correlation (0.59) to yield. This is evident in ICGVT (SB) ICGV01395, ICGVT (SB) ICGV02234 and ICGVT (SB) ICGV02227 as these entries produced highest yields for wet and dry seasons.

Summary of Two Wet and Two Dry Season Peanut Evaluation

Twenty one ICRISAT entries and one local check, NSIC Pn 13 were evaluated for four seasons (two wet and two dry). Data on fresh pod yield for two wet season trials reveal that 12 entries yielded more than 4.0 t/ha. ICGVT (SB) ICGV01395 obtained the highest at 6.71 t/ha, followed by ICGVT (SB) ICGV02234 and ICGVT(SB) ICGV02227 with 5.36 t/ha and 5.34 t/ha, respectively. Other high yielding entries include : ICGV 86590 (4.69 t/ha), ICGVT (SB) ICGV 01432 (4.63 t/ha), ICGV 91114 (4.52 t/ha), ICGVT (SB) ICGV 01369 (4.40 t/ha), ICGS 76 (4.37 t/ha), NSIC Pn 13,

check variety (4.35 t/ha), ICGVT (SB) ICGV 01376 (4.19 t/ha), ICGVT (SB) ICGV 01447 (4.17 t/ha), and ICGVT (SB) ICGV 03137 (4.11 t/ha).

In the two dry season trials, ICGVT (SB) ICGV 02234 gave the highest fresh pod yield with a mean of 6.52 t/ha. Other entries with more than 4.0 t/ha fresh pod yield were: ICGVT (SB) ICGV 02227 (6.0 t/ha), ICGVT (SB) ICGV 01395 (4.66 t/ha), and ICGS 76 (4.22 t/ha).

On dry pod yield, five entries yielded more than 3.0 t/ha during the wet season, namely: ICGVT (SB) ICGV 01395 (4.61 t/ha), ICGVT (SB) ICGV 02227 (3.52t/ha), ICGVT (SB) ICGV 01432 (3.50 t/ha), ICGVT (SB) ICGV 02234 (3.37 t/ha), and ICGVT (SB) ICGV 01369 (3.18 t/ha). On the other hand, only two entries had mean yields of more than 3.0 t/ha in the dry season. These are: ICGVT (SB) ICGV 02234 (4.25 t/ha), and ICGVT (SB) ICGV 02227 (3.60 t/ha).

Combining the results of four seasons, ICGVT (SB) ICGV02234 gave the highest fresh and dry pod yields of 5.94 t/ha and 3.81 t/ha, respectively. ICGVT (SB) ICGV01395 followed with fresh pod yield of 5.69 and dry pod yield of 3.74 t/ha. ICGVT (SB) ICGV02227 ranked third with fresh and dry pod yields of 5.67 t/ha and 3.56 t/ha, respectively. These three entries performed well in both wet and dry seasons based on pod yield (fresh and dry) data.

The shelling percentage of all entries varied from 60.53 to 73.02%. Three entries, namely: ICGS 76, ICGVT (SB) ICGV02227 and ICGVT (SB) ICGV02234 had more than 70%. The highest percent sound mature seeds of 88.59 was obtained from ICGVT (SB) ICGV02227. Other entries which also had percent sound mature seeds higher than 80 were: ICGS 37 (86.49), NSIC Pn 13 (86.27), ICGV91114 (84.82), ICGS 44 (84.49), ICGV 86015 (82.35), ICGS 76 (81.41), ICGVT (SB) ICGV02234 (80.43), and ICGV86590 (80.41).

Based on the above-mentioned parameters, nine peanut entries were already identified for inclusion in the second phase of the project (On-farm evaluation). These are: ICGVT (SB) ICGV 02227, ICGVT (SB) ICGV02234, ICGS 76, ICGV (SB) ICGV01395, ICGV86590, ICGS 37, ICGS 44, ICGV 86015 and NSIC Pn 13 (local check).

B. Mungbean

1. Days to Seedling Emergence and Flowering

Table M1. Days to seedling emergence and flowering of mungbean entries including check variety, NSIC Mg 11 during 2010 and 2011 wet season and 2011 and 2012 dry season trials; BPI-LGNCRDC, La Carlota City.

	ENTRIES	Days to Emergence			Days to First Flower			Days to Complete Flower		
		WS	DS	Mean	WS	DS	Mean	WS	DS	Mean
1	VC 6510-151	4.00	4.00	4.00	27.50	31.00	29.25	31.00	35.00	33.00
2	VC 6469-12-3-4A	5.00	4.50	4.75	28.00	32.00	30.00	30.00	35.50	32.75
3	VC 6469-12-1-1A	4.00	4.00	4.00	28.00	30.00	29.00	32.00	33.50	32.75
4	VC 6489-10-S1	4.50	4.00	4.25	28.50	31.50	30.00	32.50	36.00	34.25
5	VC 6492-59 A	5.50	5.00	5.25	28.00	32.00	30.00	32.00	35.50	33.75
6	VC 6469-12-2-6 A	5.00	4.00	4.50	28.50	31.50	30.00	32.50	36.00	34.25
7	VC 1973 A	5.00	4.50	4.75	28.00	30.00	29.00	30.00	32.50	31.25
8	VC 6495-32	6.00	6.00	6.00	28.50	32.00	30.25	30.50	35.50	33.00
9	VC 6518-5	5.00	5.50	5.25	28.00	33.00	30.50	31.34	37.00	34.17
10	VC 6506-127	5.00	4.50	4.75	28.50	30.00	29.25	32.00	33.00	32.50
11	VC 6509-125-1	5.00	5.50	5.25	28.50	33.00	30.75	32.50	37.00	34.75
12	VC 6465-8-5-2A	5.00	5.50	5.25	29.00	32.50	30.75	31.00	36.50	33.75
13	VC 6494-986-31	5.00	5.50	5.25	28.50	33.00	30.75	32.50	37.00	34.75
14	NSIC Mg 11 (ck)	6.00	6.00	6.00	30.00	33.00	31.50	32.00	36.50	34.25

NOTE: Means of two wet and two dry season evaluations, respectively.

Days to 75% seedling emergence of 14 mungbean entries was observed to range from 4.0 to 6.0 days in both wet and dry season trials. VC 6510-151 and VC 6469-12-1-1A emerged the earliest at four days after planting. On the other hand, VC 6495-32 and NSIC Mg 11(check variety) were the last to emerge at 6 days in both season trials (Table M1).

Generally, a higher mean temperature will hasten flowering, or a lower mean temperature will delay flowering, but this does not hold for all strains of mungbean (usaid.gov./pdf_docs/PNAAL). In this study, entries flowered earlier during the wet seasons, at 27.5 to 30.0 days as compared to 30.0 to 33.0 days during the two dry seasons. Moreover, it took the entries 30.0 to 32.5 days to complete flowering in the wet season and 32.5 to 37.0 in the dry season. These observations could be attributed to the changing climatic conditions wherein there is no more distinct wet or dry period that could be predicted as compared to climatic conditions a few decades ago.

2. Plant Height at Flowering and at Maturity

Tallest plants at flowering were noted in VC 6494-986-31 in both wet and dry season trials with means of 64.84 and 45.45, respectively (Table M2). The shortest plants were produced by VC 6495-32 (51.85 cm) during the wet season trials; and VC 6492-59 A (33.65 cm) in the dry season trials. As shown in Table M2, mungbean planted during the wet season trials produced taller plants than in the dry season which can be attributed to the abundant rainfall during the period (Table M1).

At maturity, it was still VC 6494-986-31 that produced the tallest plants (76.65 cm) during the wet season trials. However, it was VC 6518-5 had the tallest plants at 60.22 cm in the dry season.

Table M2 . Plant height at flowering and maturity (cm) of AVRDC mungbean entries including check variety, NSIC Mg 11 during 2010 and and 2011 wet; and 2011 and 2012 dry season trials; BPI-LGNCRDC, La Carlota City

		Plant height at flowering						Plant height at maturity					
ENTRIES		Wet Season			Dry Season			Wet Season			Dry Season		
		2010	2011	Mean	2011	2012	Mean	2010	2011	Mean	2011	2012	Mean
1	VC 6510-151	61.03 e	42.97 de	52.00	36.60 cd	38.37 bcdef	37.49	75.43 e	51.60 fgh	63.52	45.77 cd	54.50 fg	50.14
2	VC 6469-12-3-4A	74.33 b	48.70 a	61.52	42.43 ab	36.83 cdefg	39.63	87.73 bc	54.18 cde	70.96	50.63 ab	56.87 cdef	53.75
3	VC 6469-12-1-1A	67.60 d	40.13 g	53.87	35.57 d	40.90 bc	38.24	86.87 bcd	49.83 h	68.35	44.50 d	62.70 bc	53.60
4	VC 6489-10-S1	75.33 b	42.33 def	58.83	35.13 d	34.97 defg	35.05	91.60 abc	55.92 bcd	73.76	44.00 d	70.80 a	57.40
5	VC 6492-59 A	74.67 b	40.80 fg	57.74	35.23 d	32.07 gh	33.65	90.17 abc	50.87 gh	70.52	44.53 d	56.43 def	50.48
6	VC 6469-12-2-6 A	67.90 d	41.63 efg	54.77	35.77 d	33.90 fgh	34.84	84.63 cd	53.97 def	69.30	44.17 d	48.73 fg	46.45
7	VC 1973 A	72.97 bc	49.30 a	61.14	40.97 abc	42.20 ab	41.59	90.20 abc	58.65 a	74.43	49.13 abc	60.93 bcde	55.03
8	VC 6495-32	60.17 e	43.53 d	51.85	38.37 bcd	34.53 efgh	36.45	75.23 e	52.52 efg	63.88	47.23 bcd	55.27 ef	51.25
9	VC 6518-5	73.10 bc	46.47 abc	59.79	42.07 ab	42.37 ab	42.22	89.87 abc	58.03 ab	73.95	50.37 ab	70.07 a	60.22
10	VC 6506-127	68.90 cd	47.93 ab	58.42	38.63 bcd	31.87 h	35.25	85.40 cd	58.17 ab	71.79	48.87 abc	45.23 h	47.05
11	VC 6509-125-1	61.90 e	47.73 abc	54.82	38.10 bcd	39.00 bcde	38.55	79.60 de	56.57 abc	68.09	47.37 bcd	61.47 bcde	54.42
12	VC 6465-8-5-2A	62.67 e	46.33 bc	54.50	35.27 d	39.73 bcd	37.50	84.47 cd	57.43 ab	70.95	44.00 d	56.90 cdef	50.45
13	VC 6494-986-31	83.77 a	45.90 c	64.84	44.67 a	46.23 a	45.45	96.50 a	56.80 ab	76.65	52.63 a	56.63 def	54.63
14	NSIC Mg 11 (ck)	80.83 a	46.60 d	63.72	41.80 ab	42.60 ab	42.20	93.47 ab	52.37 efg	72.92	48.80 abc	64.90 ab	56.85
	CV (%)	3.88	2.47		6.98	7.76		5.14	2.61		5.12	6.11	

NOTE: In a column, means with the same letter are not significantly different at 5% level, DMRT.

3. Days to Maturity

Table M3 shows the means of mungbean entries' maturity which ranged from 55 to 59 days in the wet season; and 57 to 60 days in the dry season. VC 1973 A and VC 6506-127 were the earliest to mature in both season trials.

Table M3. Days to maturity of AVRDC mungbean entries including check variety, NSIC Mg 11 during 2010 and 2011 wet seasons; and 2011 and 2012 dry seasons; BPI LGNCRDC, La Carlota City, Negros Occidental.

ENTRIES		Wet Season			Dry Season		
		2010	2011	Mean	2011	2012	Mean
1	VC 6510-151	54.00	56.00	55.00	57.00	60.00	58.50
2	VC 6469-12-3-4A	54.00	56.00	55.00	57.00	60.00	58.50
3	VC 6469-12-1-1A	54.00	56.00	55.00	56.00	59.00	57.50
4	VC 6489-10-S1	54.00	60.00	57.00	60.00	61.00	60.50
5	VC 6492-59 A	54.00	60.00	57.00	60.00	60.00	60.00
6	VC 6469-12-2-6 A	54.00	56.00	55.00	56.00	59.00	57.50
7	VC 1973 A	54.00	56.00	55.00	56.00	58.00	57.00
8	VC 6495-32	58.00	60.00	59.00	60.00	60.00	60.00
9	VC 6518-5	54.00	56.00	55.00	56.00	59.00	57.50
10	VC 6506-127	54.00	56.00	55.00	56.00	58.00	57.00
11	VC 6509-125-1	57.00	60.00	58.50	57.00	59.00	58.00
12	VC 6465-8-5-2A	54.00	56.00	55.00	60.00	60.00	60.00
13	VC 6494-986-31	54.00	56.00	55.00	57.00	60.00	58.50
14	NSIC Mg 11 (ck)	55.00	56.00	55.00	60.00	61.00	60.50

4. Number of nodes and branches per plant

Significant differences were obtained in both the number of nodes and number of branches per plant (Table M4). Mean number of nodes per plant ranged from 5.07 to 6.54 in the wet season; and 3.67 to 6.19 in the dry season. For both wet and dry season trials, VC 6506-127 produced the most number while VC 6465-8-5-2A had the least.

As to number of branches per plant, VC 6506-127 also had the most number in both wet (8.10) and dry season trials (8.13). On the contrary, VC 6465-8-5-2A had the least number at 6.10 during the two wet seasons and 4.29 in the two dry season trials.

Table M4 . Number of nodes and branches per plant of AVRDC mungbean entries including check variety, NSIC Mg 11 during 2010 and 2011 wet; and 2011 and 2012 dry season trials; BPI-LGNCRDC, La Carlota City, Negros Occidental.

	ENTRIES	Number of nodes /plant						Number of branches /plant					
		Wet Season			Dry Season			Wet Season			Dry Season		
		2010	2011	Mean	2011	2012	Mean	2010	2011	Mean	2011	2012	Mean
1	VC 6510-151	6.40 ab	5.17 b	5.79	5.17 b	5.03 b	5.10	8.00 de	6.53 c	7.27	6.53 c	6.90 bc	6.72
2	VC 6469-12-3-4A	6.60 ab	4.87 bc	5.74	4.87 bc	4.50 bcd	4.69	7.70 e	5.90 cdef	6.8	5.90 cdef	6.03 def	5.97
3	VC 6469-12-1-1A	6.47 ab	4.20 de	5.34	4.20 de	4.50 bcd	4.35	7.97 de	5.27 fg	6.62	5.27 fg	5.70 efgh	5.49
4	VC 6489-10-S1	6.17 b	4.60 cd	5.39	4.60 cd	4.43 cd	4.52	8.70 abc	6.13 cde	7.42	6.13 cdef	6.20 de	6.17
5	VC 6492-59 A	6.43 ab	4.57 cd	5.50	4.57 cd	4.80 bc	4.69	8.57 abc	5.77 def	7.17	5.77 def	5.87 defg	5.82
6	VC 6469-12-2-6 A	6.63 a	5.23 b	5.93	5.23 b	4.27 cde	4.75	7.93 de	6.30 cd	7.12	6.30 cdef	6.3 cde	6.3
7	VC 1973 A	6.43 a	6.50 a	6.47	6.50 a	5.83 a	6.17	7.90 de	7.30 b	7.6	7.30 b	7.17 b	7.24
8	VC 6495-32	6.67 a	5.23 b	5.95	5.23 b	5.07 b	5.15	8.43 bcd	6.23 cd	7.33	6.23 cdef	6.43 cd	6.33
9	VC 6518-5	6.77 a	4.33 cde	5.55	4.33 cde	3.97 de	4.15	9.07 abc	5.40 fg	7.24	5.40 fg	5.13 hi	5.27
10	VC 6506-127	6.67 a	6.40 a	6.54	6.40 a	5.97 a	6.19	8.17 cde	8.03 a	8.1	8.03 a	8.23 a	8.13
11	VC 6509-125-1	6.57 a	3.93 ef	5.25	3.93 ef	4.83 bc	4.38	8.33 bcd	4.90 gh	6.62	4.90 gh	5.4 fghi	5.15
12	VC 6465-8-5-2A	6.57 a	3.57 f	5.07	3.57 f	3.77 e	3.67	7.90 de	4.30 h	6.10	4.30 h	4.27 j	4.29
13	VC 6494-986-31	6.43 ab	4.33 cde	5.38	4.33 cde	4.20 de	4.27	8.23 bcde	5.50 efg	6.87	5.50 efg	5.3 ghi	5.4
14	NSIC Mg 11 (ck)	6.53 ab	4.33 cde	5.43	4.33 cde	3.93 de	4.13	8.73 abc	5.23 fg	6.98	5.23 fg	4.97 i	5.10
	CV (%)	3.48	6.70		6.70	7.57		4.03	7.30		7.30	6.54	

NOTE: In a column, means with the same letter are not significantly different at 5% level, DMRT.

5. Crop Stand

Plant density affects plant growth and grain yield in mungbean (Jahan and Hamid, 2004 as cited by Singh, et al, 2011). For two wet season trials, VC 1973 A registered the highest mean crop stand of 345,483.06 plants/ha while the lowest was obtained from VC 6509-125-1 with 319,443.93 plants/hectare. In the dry season trials, VC 6506-127 had the highest at 337,496.43 plants/ha. The lowest mean crop stand of 306,249.75 plants/hectare was observed from VC 6495-32. Comparing the

means of wet and dry season trials, higher crop stands were achieved during the wet season than in the dry season (Table M5).

Table M5. Crop stand (plants/ha) of AVRDC mungbean entries including check variety, NSIC Mg 11 during 2010 and 2011 wet, and 2011 and 2012 dry season trials; BPI LGNCRDC, La Carlota City, Negros Occidental.

ENTRIES		WET SEASON					DRY SEASON				
		2010		2011		Mean	2011		2012		Mean
1	VC 6510-151	340,277.23	abc	316,665.88	bcd	328,471.56	313,888.00	def	313,193.94	d	313,540.97
2	VC 6469-12-3-4A	363,193.86	ab	322,221.71	b	342,707.79	323,611.00	bcd	313,888.39	cd	318,749.70
3	VC 6469-12-1-1A	332,638.36	c	310,416.17	cde	321,527.27	315,277.00	def	311,110.61	d	313,193.81
4	VC 6489-10-S1	333,332.80	c	305,555.07	e	319,443.94	313,194.00	def	311,110.61	d	312,152.31
5	VC 6492-59 A	343,749.45	abc	322,221.71	b	332,985.58	316,666.00	cdef	315,971.72	cd	316,318.86
6	VC 6469-12-2-6 A	343,055.00	abc	322,916.14	b	332,985.57	306,944.00	efg	323,610.59	bc	315,277.30
7	VC 1973 A	352,082.77	abc	338,883.35	a	345,483.06	316,666.00	cdef	333,332.80	ab	324,999.40
8	VC 6495-32	326,388.37	c	317,360.60	bcd	321,874.49	300,000.00	g	312,499.50	d	306,249.75
9	VC 6518-5	341,666.12	abc	309,027.28	de	325,346.70	324,305.00	bcd	309,027.28	d	316,666.14
10	VC 6506-127	346,527.22	abc	342,360.58	a	344,443.90	336,805.00	a	338,187.85	a	337,496.43
11	VC 6509-125-1	336,110.57	c	302,777.29	e	319,443.93	305,555.00	fg	311,805.06	d	308,680.03
12	VC 6465-8-5-2A	368,749.41	a	321,527.26	b	345,138.34	327,083.00	abc	315,277.27	cd	321,180.14
13	VC 6494-986-31	354,166.08	abc	320,832.82	bc	337,499.45	331,944.00	ab	318,749.49	cd	325,346.75
14	NSIC Mg 11 (ck)	328,471.70	c	318,055.05	bcd	323,263.38	317,360.00	cde	315,277.27	cd	316,318.64
	CV (%)	5.14		2.04			2.11		1.93		

NOTE: In a column, means with the same letter are not significantly different at 5% level, DMRT.

6. Seed Quality and 100-seed weight

As presented in Table M6, seed quality of different entries was better during the wet season trials than in the dry season trials. High quality seeds can be produced when mungbeans mature and harvested during a bright and rain-free period. During 2011 dry season, heavy rainfall coincided with harvesting period (last week of March). Thus, only VC 1973 A and VC 6506-127 obtained a rating of 1.0 for that season. On the other hand, eight entries were given a rating of 1.0 (uniform seed size with less than 1% shriveled, cracked or discolored) for two wet season trials.

Again, the observable effect of climate change during the conduct of the field experiment was manifested by the high quality seeds even during the supposedly wet season; on the contrary, a poor mungbean seed quality was obtained in the dry season which under normal circumstances should be otherwise.

Weight per 100 seeds of entries ranged from 7.0 to 9.0 g both in wet and dry season trials.

Only VC 6506-127 and VC 6509-125-1 were consistent to have the heaviest 100-seed weight at 9.0 g for both wet and dry season trials. On the contrary, the check variety NSIC Mg 11 had the lightest weight of 7.0 g.

Table M6 . Seed quality and 100-seed weight (g) of AVRDC mungbean entries including check variety, NSIC Mg 11 during 2010 and 2011 wet; and 2011 and 2012 dry season trials; BPI-LGNCRDC, La Carlota City, Negros Occidental.

	ENTRIES	Seed quality						100-seed weight (g)					
		Wet Season			Dry Season			Wet Season			Dry Season		
		2010	2011	Mean	2011	2012	Mean	2010	2011	Mean	2011	2012	Mean
1	VC 6510-151	1.00	1.00	1.00	1.33	1.00	1.17	8.67	9.00	8.84	9.00	9.00	9.00
2	VC 6469-12-3-4A	1.00	1.00	1.00	2.00	1.33	1.67	8.00	8.00	8.00	8.00	8.00	8.00
3	VC 6469-12-1-1A	1.00	1.00	1.00	1.33	1.33	1.33	9.00	7.00	8.00	7.00	7.00	7.00
4	VC 6489-10-S1	1.00	2.00	1.50	2.33	2.00	2.17	8.33	8.00	8.17	8.00	8.00	8.00
5	VC 6492-59 A	2.00	1.00	1.50	1.33	1.00	1.17	8.67	8.00	8.34	8.00	8.00	8.00
6	VC 6469-12-2-6 A	1.00	1.00	1.00	1.67	1.33	1.50	8.00	8.00	8.00	8.00	8.00	8.00
7	VC 1973 A	1.00	1.00	1.00	1.00	1.00	1.00	8.00	8.00	8.00	8.00	8.00	8.00
8	VC 6495-32	2.00	1.00	1.50	2.00	1.67	1.84	8.33	8.00	8.17	8.00	8.00	8.00
9	VC 6518-5	2.00	2.00	2.00	2.33	2.00	2.17	9.00	8.00	8.50	9.00	9.00	9.00
10	VC 6506-127	1.00	1.00	1.00	1.00	1.00	1.00	9.00	9.00	9.00	9.00	9.00	9.00
11	VC 6509-125-1	1.00	1.00	1.00	1.67	1.33	1.50	9.00	9.00	9.00	9.00	9.00	9.00
12	VC 6465-8-5-2A	1.00	1.00	1.00	1.33	2.00	1.67	8.00	8.00	8.00	8.00	8.00	8.00
13	VC 6494-986-31	2.00	2.00	2.00	2.00	2.00	2.00	8.33	8.00	8.17	8.00	8.00	8.00
14	NSIC Mg 11 (ck)	2.00	1.00	1.50	1.67	1.33	1.50	7.00	7.00	7.00	7.00	7.00	7.00

Seed Quality Rating;
1.0 = Seeds of uniform size and shape with less than 1% shriveled, cracked or discolored.
2.0 = One to 20% of seeds shriveled, cracked or discolored.
3.0 = 21-40% of seeds shriveled, cracked or discolored.
4.0 = 41-60% of seeds shriveled, cracked or discolored.
5.0 = More than 60% of seeds are shriveled, cracked or discolored.

7. Grain Yield

Grain yields vary significantly among entries (Table M7). For the wet season trials, VC 6510-151 produced the highest mean grain yield of 1.92 t/ha, followed by VC 6506-127 (1.91 t/ha), VC 1973 A (1.87 t/ha), VC 6469-12-2-6A (1.80 t/ha), and VC 6509-125-1 (1.69 t/ha). On the other hand, VC 6495-32 had the least at 1.35 t/ha. In the two dry season trials, highest yield of 1.52 t/ha was obtained from VC 6506-127. This can be attributed to the fact that this entry had the highest number of nodes and branches per plant, as well as highest crop stand and heaviest 100-seed weight.

Aside from the contributions of some characters on grain yield, it can be surmised that the prevailing climate during the growing period of the crop is a critical factor in its growth and yield performance. For mungbean, a warm climate is more suited for optimum yield. However, in this study, mean grain yields of all entries were higher in the wet season trials than in the dry. Though the period January to March is considered a dry season in La Granja, there was too much rainfall during the maturity and harvesting of the crop.

Table M7 . Grain yield (t/ha) of AVRDC mungbean entries including check variety, NSIC Mg 11 during 2010 and 2011 wet; and 2011 and 2012 dry season trials; BPI-LGNCRDC, La Carlota City, Negros Occidental.

ENTRIES		WET SEASON			DRY SEASON		
		2010	2011	Mean	2011	2012	Mean
1	VC 6510-151	2.25 a	1.58 a	1.92	1.12 efg	1.19 ef	1.16
2	VC 6469-12-3-4A	2.17 ab	1.16 cd	1.67	1.09 fg	1.13 fg	1.11
3	VC 6469-12-1-1A	2.13 abc	1.10 de	1.62	1.20 d	1.21 de	1.21
4	VC 6489-10-S1	1.76 de	1.00 f	1.38	1.13 defg	1.28 cd	1.21
5	VC 6492-59 A	2.15 ab	1.05 ef	1.60	1.17 de	1.08 gh	1.13
6	VC 6469-12-2-6 A	2.28 a	1.32 b	1.80	1.44 b	1.06 gh	1.25
7	VC 1973 A	2.12 abc	1.61 a	1.87	1.33 c	1.47 a	1.40
8	VC 6495-32	1.66 e	1.03 f	1.35	1.15 defg	1.09 gh	1.12
9	VC 6518-5	1.89 bcde	1.03 f	1.46	1.13 defg	1.35 bc	1.24
10	VC 6506-127	2.26 a	1.56 a	1.91	1.82 a	1.22 de	1.52
11	VC 6509-125-1	2.19 ab	1.18 c	1.69	1.08 g	1.03 h	1.06
12	VC 6465-8-5-2A	2.06 abcd	1.04 ef	1.55	1.15 defg	1.05 gh	1.10
13	VC 6494-986-31	1.83 cde	1.01 f	1.42	1.12 efg	1.12 fg	1.12
14	NSIC Mg 11 (ck)	2.25 a	1.04 ef	1.65	1.17 de	1.37 b	1.27
	CV (%)	9.13	3.33		3.55	3.95	

Note: In a column, means with same letter are not significant at 5%, DMRT..

8. Lodging and Shattering Characteristics

As to lodging characteristics, three entries showed consistency during the duration of the study. VC 6510-151, VC 6495-32 and VC 6506-127 were all given a rating of 1.0(all plants erect) for both wet and dry season trials. Moreover, all entries had the same score in all season trials.

In terms of shattering characteristics, only VC 6469-12-2-6 A and VC 6495-32 exhibited non-shattering characteristics for both wet and dry season trials.

Table M8 . Lodging and shattering characteristics of AVRDC mungbean entries including check variety, NSIC Mg 11 during 2010 and 2011 wet: and 2011 and 2012 dry season trials; BPI-LGNCRDC, La Carlota City, Negros Occidental.

	ENTRIES	Lodging Rating						Shattering Rating					
		Wet Season			Dry Season			Wet Season			Dry Season		
		2010	2011	Mean	2011	2012	Mean	2010	2011	Mean	2011	2012	Mean
1	VC 6510-151	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	1.50	1.00	2.00	1.50
2	VC 6469-12-3-4A	2.00	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.50	2.00	1.00	1.50
3	VC 6469-12-1-1A	2.00	1.00	1.50	2.00	1.00	1.50	2.00	1.00	1.50	2.00	1.00	1.50
4	VC 6489-10-S1	2.00	1.00	1.50	2.00	1.00	1.50	2.00	2.00	2.00	2.00	2.00	2.00
5	VC 6492-59 A	2.00	1.00	1.50	2.00	1.00	1.50	2.00	1.00	1.50	2.00	1.00	1.50
6	VC 6469-12-2-6 A	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
7	VC 1973 A	2.00	1.00	1.50	2.00	1.00	1.50	2.00	1.00	1.50	2.00	1.00	1.50
8	VC 6495-32	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
9	VC 6518-5	2.00	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.50	2.00	1.00	1.50
10	VC 6506-127	1.00	1.00	1.00	1.00	1.00	1.00	2.00	1.00	1.50	2.00	1.00	1.50
11	VC 6509-125-1	2.00	2.00	2.00	2.00	2.00	2.00	1.00	2.00	1.50	1.00	2.00	1.50
12	VC 6465-8-5-2A	1.00	2.00	1.50	1.00	2.00	1.50	2.00	2.00	2.00	2.00	2.00	2.00
13	VC 6494-986-31	2.00	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.5	2.00	1.00	1.50
14	NSIC Mg 11 (ck)	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.50

Lodging Scale:	Shattering Scale:
1.0 = All plants erect	1.0 = None shattering
2.0 = 10% of plants lodging or leaning	2.0 = one to 10% shattered
3.0 = 11 to 50% of plants lodging	3.0 = 11 to 25% shattered
	4.0 = 26 to 50% shattered
	5.0 = Over 50% shattered

9. Disease Ratings

Entries were observed to be moderately resistant to Cercospora leaf spot(CLS) (Table M9). According to Peerasak (2008), CLS is more severe in the rainy season and reduces yield from 20 to 50%. But in this study, there was no difference on the infection of the disease between wet and dry seasons.

VC 6469-12-1-1A and NSIC Mg 11 were infected with mosaic virus during both season trials. In addition, five entries, namely: VC 6510-151, VC 6469-12-3-4A, VC 6509-125-1, VC 6494-986-31, and NSIC Mg 11 were observed to have powdery mildew in the 2011 dry season. It is known that high relative increases incidence of foliar diseases. As shown in Appendix Table 3, relative humidity was very high at that time (March 2011). This factor might have also contributed to the low yield produced by VC 6469-12-3-4A and VC 6509-125-1 during that season trial.

Table M9. Disease ratings of mungbean entries including check variety, NSIC Mg 11 during 2010 and 2011 wet seasons; and 2011 and 2012 dry seasons; BPI-LGNCRDC, La Carlota City, Negros Occidental.

ENTRIES		Cercospora leaf spot			Mosaic			Powdery mildew		
		WS	DS	Mean	WS	DS	Mean	WS	DS	Mean
1	VC 6510-151	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.33	1.17
2	VC 6469-12-3-4A	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.33	1.17
3	VC 6469-12-1-1A	2.00	2.00	2.00	1.17	1.17	1.17	1.00	1.00	1.00
4	VC 6489-10-S1	2.17	2.17	2.17	1.00	1.00	1.00	1.00	1.00	1.00
5	VC 6492-59 A	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
6	VC 6469-12-2-6 A	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
7	VC 1973 A	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
8	VC 6495-32	2.17	2.17	2.17	1.00	1.00	1.00	1.00	1.00	1.00
9	VC 6518-5	2.17	2.17	2.17	1.00	1.00	1.00	1.00	1.00	1.00
10	VC 6506-127	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
11	VC 6509-125-1	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.33	1.17
12	VC 6465-8-5-2A	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
13	VC 6494-986-31	2.17	2.17	2.17	1.00	1.00	1.00	1.00	1.33	1.17
14	NSIC Mg 11 (ck)	2.00	2.00	2.00	1.17	1.17	1.17	1.00	1.33	1.17

Disease Rating: 1.0=Resistant
2.0 = Moderately resistant
3.0 = Moderately susceptible
4.0 = Susceptible

10. Insect Ratings

Entries were observed to be moderately damaged by a number of insects such as: aphids, beanfly, leaf roller, leaf folder pod borer and green soldier bug. As shown in Table M10, there was no difference with regards to insect damage on mungbean between wet and dry season trials.

Table M10. Insect pest ratings of mungbean entries including check variety, NSIC Mg 11 during 2010 and 2011 wet seasons; and 2011 and 2012 dry seasons; BPI-LGNCRDC, La Carlota City, Negros Occidental.

	ENTRIES	INSECT PEST RATINGS											
		Aphid		Beanfly		Leaf roller		Leaf folder		Pod borer		Green soldier bug	
		WS	DS	WS	DS	WS	DS	WS	DS	WS	DS	WS	DS
1	VC 6510-151	1.84	1.84	1.84	1.84	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
2	VC 6469-12-3-4A	1.84	1.84	2.17	2.17	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
3	VC 6469-12-1-1A	2.17	2.17	2.17	2.17	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
4	VC 6489-10-S1	2.17	2.17	2.17	2.17	2.00	2.00	2.17	2.17	2.33	2.33	2.00	2.00
5	VC 6492-59 A	1.84	1.84	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
6	VC 6469-12-2-6 A	1.84	1.84	1.84	1.84	2.00	2.00	2.00	2.00	1.67	1.67	2.00	2.00
7	VC 1973 A	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	1.67	1.67	2.00	2.00
8	VC 6495-32	2.17	2.17	2.00	2.00	2.00	2.00	2.17	2.17	2.50	2.50	2.34	2.34
9	VC 6518-5	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.17	2.17	2.00	2.00
10	VC 6506-127	1.84	1.84	1.84	1.84	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
11	VC 6509-125-1	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.17	2.17	2.00	2.00
12	VC 6465-8-5-2A	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
13	VC 6494-986-31	2.17	2.17	2.17	2.17	2.00	2.00	2.17	2.17	2.33	2.33	2.00	2.00
14	NSIC Mg 11 (ck)	2.00	2.00	2.17	2.17	2.00	2.00	2.00	2.00	2.00	2.00	2.17	2.17

Pest Rating:
1.0 = No damage
2.0 = Moderate damage
3.0 = Severe damage

11. Correlation Analysis

Yield is a resultant manifestation of many factors both within plants and outside which could be biotic and abiotic, as well (Bhattacharya, 2006). Moreover, the levels of yield depend largely on several agronomic characters (Khajudparn, 2011).

In this study, data on different parameters such as crop stand, nodes per plant, branches per plant, 100-seed weight, and plant height for both wet and dry season trials were subjected to correlation analysis to determine or estimate their contributions or relationship on grain yield. Positive correlations indicate that the particular character contributes to the potential of an entry in producing higher grain yield.

Results of correlation analysis reveal that nodes per plant had the highest positive correlation with yield (0.57), followed by crop stand (0.41), branches per plant (0.31), and 100-seed weight (0.25). Plant height at maturity had a negative (-0.19) correlation.

The result is further supported by correlation analysis showing that grain yield for this season was positively correlated with number of branches (0.71), number of nodes (0.70) and crop stand (0.68). Although positively correlated with 100-seed weight, the coefficient was quite low at 0.07. Just like in the wet season

trials, plant height had a negative correlation with yield. VC 6509-125-1 produced the least mean grain yield of 1.06 t/ha.

Summary of Two Wet and Two Dry Season Evaluation on Mungbean

Fourteen mungbean entries, with NSIC Mg 11 as check variety were included in the two-year field trial. Days to 75% seedling emergence of entries was observed to range from 4.0 to 6.0 days in both wet and dry season trials.

The top five highest grain yield for two wet seasons were produced by VC 6510-151(1.92 t/ha), VC 6506-127(1.91 t/ha), VC 1973 A (1.87 t/ha), VC 6469-12-2-6 A (1.80 t/ha) and VC 6509-125-1(1.69 t/ha). On the other hand, the lowest yield was obtained from VC 6495-32 (1.35 t/ha).

For the two dry season trials, VC 6506-127 had the highest grain yield of 1.52 t/ha. Also in the top five are: VC 1973 A (1.40 t/ha), NSIC Mg 11 (1.27 t/ha), VC 6469-12-2-6A (1.25 t/ha) and VC 6518-5 (1.24 t/ha). VC 6509-125-1 produced the least at 1.06 t/ha.

Aside from yield, it can be noted that based on the outcome of this study, mungbean entries performed better during the wet season than in the dry season in terms of seed quality, plant height, crop stand, maturity and disease resistance. Some characters have positive and significant relationship to yield. Thus, these were important contributing paramters to the potential of mungbean entries in producing high yield. Climate, as well as changes in its pattern, likewise played an important factor in this study.

CONCLUSION AND RECOMMENDATION

For peanut:

1. ICRISAT peanut entries were found adapted under local agro-climatic conditions and have potential for commercial planting. Both their fresh pod and dry pod yield performance were statistically significant. Outstanding entries with more than 4.0 t/ha fresh pod yield in both wet and dry season trials are: ICGVT (SB) ICGV01395 (6.71 and 4.66 t/ha); ICGVT (SB) ICGV02234 (5.36 and 6.5 t/ha); ICGS 76 (4.37 and 4.22 t/ha); and ICGVT (SB) ICGV02227 (5.34 and 6.0 t/ha). In addition, eight more entries had higher than 4.0 t/ha of fresh pod yield during the wet season.

2. On dry pod yield, six entries yielded more than 3.0 t/ha in the wet season trials: ICGVT (SB) ICGV01395 (4.61 t/ha); ICGVT (SB) ICGV02227 (3.52 t/ha); ICGVT (SB) ICGV01432 (3.50 t/ha); ICGVT (SB) ICGV02234 (3.37 t/ha); ICGVT (SB) ICGV01369 (3.18 t/ha); and ICGVT (SB) ICGV01447 (3.05 t/ha). However, only two entries ICGVT (SB) ICGV02234 and ICGVT (SB) ICGV02227 were found outstanding in dry pod yield in the dry season with means of 4.25 and 3.60 t/ha, respectively.

3. Based on parameters such as fresh and dry pods, shelling percentage, and percent sound mature seeds, nine ICRISAT peanut entries including check variety, NSIC Pn 13 were identified for inclusion in the second phase (on-farm trial at farmer's field) of the project.

For mungbean:

1. Growth and yield performance of the 14 mungbean entries was statistically significant. Six entries had comparable or better yield performance than check variety NSIC Mg 11 (1.65 t/ha) during the wet season, namely: VC 6510-151 (1.92 t/ha); VC 6506-127 (1.91 t/ha); VC 1973 A (1.87 t/ha); VC 6469-12-2-6 A (1.8 t/ha); VC 6509-125-1 (1.69 t/ha); VC 6469-12-3-4A (1.67 t/ha). In the dry season, only two entries: VC 6506-127 (1.52 t/ha), and VC 1973 A (1.40 t/ha) consistently outyielded the check variety, NSIC Mg 11.

2. It is recommended that all entries with outstanding yield performance should be tested at farmer's field to further validate their adaptability. This will be the basis for recommendation of their possible use in commercial production.

3. On the basis of the national mungbean production of 0.73 t/ha, it can be noted that all entries included in the evaluation were high yielders; yielding more than 1.0 t/ha. Thus, these entries could possibly be utilized for commercial production, provided however, their yield performance must first be validated at farmer's field.

4. To completely achieve the objectives of this project, outstanding entries for both peanut and mungbean will be seed increased for use in the on-farm evaluation at selected frmers' field in Negros Island.

5. These entries formed part of the germplasm collection of the center.

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