

BIBLIOGRAPHY

DOQUEZA, MERCY B. APRIL 2012, Growth and Yield Performance of Bush Snap Bean as Affected by Different Organic Fertilizers. Benguet State University, La Trinidad, Benguet.

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ABSTRACT

This study was conducted at the Horticulture laboratory field area of Benguet State University, La Trinidad, Benguet from December 2011 to March 2012; to determine the effect of various organic fertilizers on the growth and yield of different Bush snap bean varieties, to determine the best organic fertilizers appropriate for fresh bush snap bean pods production, and to determine the economics of using different organic fertilizers on bush snap bean production.

Results showed significant differences between variety and organic fertilizers with regards to the percentage of plant survival, weight of marketable pods, yield per plot, computed yield per hectare, average length of pods, occurrence of insect pests (cut worm), and the number of laterals per plant. As to the number of days to complete seedling emergence, weight of non-marketable pods, days from planting to harvesting, occurrence of insect pests (pod borer), plant height, result showed no significant differences. However, highest return of investment of 27.79 % was obtained by



growing Cv. Bokod applied with siglat fertilizer at the rate of 2 kg per 5 sq.m plot. All the three (3) varieties such as Cv. Sablan, Cv. Contender and Cv. Bokod and applied with BSU compost or alnus fertilizer are the best suited under La Trinidad, Benguet condition for good performance, yield and marketability of bush snap bean.



RESULTS AND DISCUSSION

Soil Analysis

Table 1 shows the soil analysis before and after the study. The soil pH decreased

slightly from 6.44 to 6.25. On the other hand, the organic matter content decreased from 7.0 to

1.5%, phosphorous, increased from 54 to 120 ppm and the potassium increased from 690

to 1,260 ppm. The soil contains high amount of potassium, medium amount of phosphorous

and it had a sufficient amount of nitrogen.

Table 1. Soil analysis initial and final

	pH	OM	P, ppm	K, ppm
INITIAL	6.44	7.0	54	690
FINAL	6.25	1.5	120	1,260

Number of Days to Complete Seedling Emergence

Effect of variety. There were no significant statistical differences observed on the number of days to complete seedling emergence as affected by the varieties of bush bean used. However, numerical data in Table 2 showed that seedling of Cv. Sablan were the earliest to complete the seedling emergence with an average mean of 8.22 days followed by the Cv. Bokod with an average mean of 8.29 days. While the Cv. Contender took longer to attain complete seedling emergence with an average mean of 8.50 days.

Effect of the kinds of organic fertilizers. Results showed that there were no significant differences on the number of days to complete seedling emergence as



influenced by the kinds of organic fertilizers used. But numerically, Siglat fertilizers and alnus compost seem to have enhance earlier seedling emergence, with a mean of 8.11 days. While delayed Table 2. Number of days to complete seedling emergence was observed on plants applied with

BSU compost having a mean of 8.67 days.

Interaction effect. There were no significant Interaction effects noted between the different varieties of bush beans and kinds of organic fertilizers used on the number of days to complete seedling emergence.

Table 2. Number of days to complete seedling emergence

TREATMENT (Days)	MEAN
<u>Variety of Bush Bean</u>	
Sablan beans	0.22 ^a
Contender	8.50 ^a
Bokod beans	8.28 ^a
<u>Kind of Organic Fertilizers</u>	
Farmers practice	8.56 ^a
BSU compost	88.67 ^a
NBEM	8.22 ^a
Siglat	8.11 ^a
Alnus compost	8.11 ^a
Chicken dung	8.33 ^a

Means with the same letter are not significantly different at 5% level by DMRT



Percentage of Plant Survival

Effect of variety. There were no significant differences observed on the effects of the bush bean varieties on the percentage of plant survival (Table 3). Means of the varieties grown ranged from 72.58 to 78.29 percent (%) of plant survival.

Effect of the kinds of organic fertilizers. There were highly significant differences observed on the percentage of plant survival as affected by different organic fertilizers applied. Table 3 showed that plants applied with BSU compost had the highest percentage of plant survival with an average mean of 83.56 % but are statistically comparable to the plants applied with alnus compost, having a mean of 81.39 % and further comparable to the plant applied with siglat and NBEM fertilizers. The plants applied with chicken manure obtained the lowest percentage of plant survival having a mean of 60.66 %.

Interaction effect. There were no significant interaction effects observed between the different varieties of bush bean and the kinds of organic fertilizers with regards to percentage of plant survival.





Figure 3. Complete seedling emergence

Table 3. Percentage of plant survival

TREATMENT	MEAN (%)
<u>Variety of Bush Bean</u>	
Sablan beans	75.52 ^a
Contender	78.29 ^a
Bokod beans	72.58 ^a
<u>Kind of Organic Fertilizers</u>	
Farmers practice	68.07 ^{bc}
BSU compost	83.56 ^a
NBEM	78.88 ^{ab}
Siglat	80.23 ^{ab}
Alnus compost	81.39 ^a
Chicken dung	60.66 ^c

Means with the same letter are not significantly different at 5% level by DMRT

Weight of marketable pods (kg)

Effect of variety. Table 4 shows that there were no significant differences on the weight of marketable pods as affected by the varieties of bush beans grown. However, numerical data showed that plants of Cv.Bokod produced higher weight of marketable pods with an average mean of 2.34 kg per 1x3m plot, while lower yield was observed on the Contender having a mean of only 2.13 kg per plot.

Effect of the kinds of organic fertilizer. There were significant differences noted on the effects of organic fertilizers on the weight of marketable pods as shown in Table 4. Results show that, plants applied with BSU compost and alnus compost produced the highest weight of marketable pods with an average mean of (2.50 kg). However, it was statistically comparable to the plants applied with siglat (2.48 kg) and NBEM fertilizers (2.29 Kg), while plants applied with chicken manure had the lowest weight of marketable pods with a mean of only 1.75 kg.

Interaction effect. There were no significant interaction effects noted between the different bush bean varieties and different organic fertilizers with regards to the weight of marketable pods per 1x3m plot.



Table 4. Weight of marketable pods per 1x3m

TREATMENT	MEAN (Kg)
<u>Variety of Bush Bean</u>	
Sablan beans	2.23 ^a
Contender	2.13 ^a
Bokod beans	2.34 ^a
<u>Kind of Organic Fertilizers</u>	
Farmer practice	1.87 ^b
BSU compost	2.50 ^a
NBEM	2.29 ^a
Siglat	2.48 ^a
Alnus compost	2.50 ^a
Chicken dung	1.75 ^b

Means with the same letter are not significantly different at 5% level by DMRT

Weight of Non-marketable Pods (kg)

Effects of variety. Table 5 reveals that there were no significant differences on the weight of non-marketable pods as affected by different bush bean varieties used in the study. However, results showed that Cv. Contender and Cv. Bokod attained slightly higher weight of non-marketable pods over the sablan variety.

Effect of the kinds of organic fertilizer. There were no statistical differences on the effect of organic fertilizers on the weight of non-marketable pods. However, results showed that plants applied with BSU compost, siglat and chicken manure had highest weight of non-marketable pods as compared to the other fertilizers treatments.

Interaction effect. There were no significant interaction effect, noted between the different varieties and kinds of organic fertilizers application.



Table 5. Weight of non- marketable pods per 1x3m plot

TREATMENT	MEAN (kg)
<u>Variety of Bush Bean</u>	
Sablan beans	0.363 ^a
Contender	0.380 ^a
Bokod beans	0.380 ^a
<u>Kind of Organic Fertilizers</u>	
Farmer practice	0.361 ^a
BSU compost	0.383 ^a
NBEM	0.361 ^a
Siglat	0.383 ^a
Alnus compost	0.377 ^a
Chicken dung	0.383 ^a

Means with the same letter are not significantly different at 5% level by DMRT

Days from Planting to Harvesting

Effect of variety. Table 6 shows that there were no significant differences between the two factors: variety and different organic fertilizers. Means ranged from 67 to 69.67 days to harvesting of pods.

Effect of the kinds of organic fertilizers. As presented table 6, results showed that there were no significant differences on the number of days from planting to harvesting. However, plants applied with the BSU compost and NBEM fertilizers promote earlier harvesting of pods with a mean of 67.56 and 67.67 days; respectively.

Interaction effect. There were no significant interaction effect between the varieties and different organic fertilizers with regards to the durations from planting to harvesting stage.



Table 6. Days from planting to harvesting

TREATMENT	MEAN (Days)
<u>Variety of Bush Bean</u>	
Sablan beans	68.06 ^a
Contender	68 ^a
Bokod beans	68.22 ^a
<u>Kind of Organic Fertilizers</u>	
Farmer practice	68.67 ^a
BSU compost	67.56 ^a
NBEM	67.67 ^a
Siglat	68a
Alnus compost	67.22 ^a
Chicken dung	69.44 ^a

Means with the same letter are not significantly different at 5% level by DMRT

Yield Per Plot (kg)

Effect of variety. Table 7 shows that there were no significant differences, noted on the effects of the different bush bean varieties with regards to the yield per plot. However, Cv.Sablan had the highest harvested pods with a mean of 2.59 kg, followed by Cv. Contender (2.51 kg).

Effect of the kinds of organic fertilizers. Highly Significant differences were observed on the total yield of pods per plot (kg) from March to April (Table 7). Plants applied with BSU compost and alnus compost had the heaviest weight of pods both having an average mean of 2.88 kg but was comparable to the plants applied with Siglat and NBEM fertilizers.

However, plants applied with fertilizers using the farmer's practice and chicken manure had the lowest yield producing means of 2.22 kg and 2.13 kg; respectively.



Interaction effect. There were no significant interaction effect between the varieties and different kinds organic fertilizers with regards to the total yield produced per plot.

Table 7. Yield per plot

TREATMENT	MEAN (kg)
<u>Variety of Bush Bean</u>	
Sablan beans	2.59 ^a
Contender	2.51 ^a
Bokod beans	2.72 ^a
<u>Kind of Organic Fertilizers</u>	
Farmer practice	2.22 ^b
BSU compost	2.88 ^a
NBEM	2.65 ^a
Siglat	2.87 ^a
Alnus compost	2.88 ^a
Chicken dung	2.13 ^b

Means with the same letter are not significantly different at 5% level by DMRT

Computed Yield (tons/ha)

Effect of variety. As presented in table 8, results showed that there were no significant differences observed on the computed yield per hectare as affected by the different varieties of bush beans used in the study. However, the Cv. Bokod had the heaviest computed yield per hectare with a mean of 5.44 tons while Cv. Contender had the lowest computed yield per hectare with a mean of 5.01 tons. Ideally, bush bean showed yield 5.44 tons/ ha.

Effect of the kinds of organic fertilizers. Results showed that there were highly significant differences on the computed yield (tons/ha) as affected by the



different organic fertilizers. Plants applied with BSU compost obtained the heaviest yield per hectare with an average mean of 5.77 tons but was statistically comparable to the plants applied with alnus compost, siglat fertilizers and NBEM fertilizers having means of 5.76, 5.73 and 5.30, respectively. The lowest total computed yield (tons/ha) was obtained from plants applied with chicken manure and plants fertilized using the farmer's practice.

Interaction effect. There were no significant interaction effect between the two factors: bush bean variety and organic fertilizers on the computed yield (tons/ha) of bush bean yield range from 6.13 to 3.63 tons/ha.

Table 8. Computed yield per hectare of Bush snap bean

TREATMENTS	MEAN (tons/ ha)
<u>Variety of Bush Bean</u>	
Sablan beans	5.18 ^a
Contender	5.01 ^a
Bokod beans	5.44 ^a
<u>Kind of Organic Fertilizer</u>	
Farmer practice	4.44 ^b
BSU compost	5.77 ^a
NBEM	5.30 ^a
Siglat	5.73 ^a
Alnus compost	5.76 ^a
Chicken dung	4.27 ^b

Means with the same letter are not significantly different at 5% level by DMRT
Average Length of Pods (cm)

Effect of variety. Highly significant differences were observed on the average length of pods as affected by different varieties of bush beans. Results showed Table 9 that Cv. Contender had longer pods with an average mean of (15.58 cm) as compared to Cv. Sablan (14.43 cm) and CV. Bokod (14.97 cm). It was further observed



that the pods of Cv. Sablan and Cv. Bokod produced slender and shiny pods compared to Contender.

Effect of the kinds of organic fertilizers. Results showed that there were no significant statistical differences observed on the average length of pods of bush bean as affected by different organic fertilizers. Plants applied with BSU compost produced longer pods with an average mean of 15.31cm while the rest treatments mean range from 14.89 to 14.96 cm but not with the other treatments.

Interaction effect. There were no significant interaction effects observed between the different varieties of bush bean and different organic fertilizers with regards to the average length of pods.

Table 9. Average length of pods

TREATMENT	MEAN (cm)
<u>Variety of Bush Bean</u>	
Sablan beans	14.43 ^c
Contender	15.58 ^a
Bokod beans	14.97 ^b
<u>Kind of Organic Fertilizers</u>	
Farmer practice	14.93 ^a
BSU compost	15.31 ^a
NBEM	14.93 ^a
Siglat	14.96 ^a
Alnus compost	14.89 ^a
Chicken dung	14.94 ^a

Means with the same letter are not significantly different at 5% level by DMRT



Occurrence of Insect Pests (Cutworm)

Effect of variety. There were no significant differences noted on the different varieties with regards to the occurrence of insect pests particularly cut worm. Based on the results, all the varieties studied exhibited mild resistance to cut worm.

Effect of the kinds of organic fertilizers. Table 10 shows that there were significant differences noted on the occurrence of insects as affected by different organic fertilizers applied. Application of alnus compost, BSU compost, NBEM and siglat fertilizers on bush bean showed less infestation where 1-25 % of the total population were affected by the cut worm cut worm in which it is mild of resistant. While the plants applied with chicken dung fertilizers had more cutworm infestation where 26 -50% of the total plants are affected indicating moderate resistance.

Interaction effect. There was no significant interaction effects between the two factors: Bush bean varieties and different kinds of organic fertilizers applied with regards to the occurrence

Occurrence of Insect Pests (Pod Borer).

Effect of variety. Results in table 10 b Showed that there were no significant differences on the occurrence of insect pest (pod borer) on the different varieties of bush beans. Based on the results, the three varieties grown exhibited mild resistance to pod borer. of insect pests (cutworm) during the study.

Effect of the kinds of organic fertilizers. Based on the statistical analysis, there were no significant differences noted on the different varieties with regards to the occurrence of insect pests particularly pod borer.



Interaction effect. There was no significant analysis interaction effect between the two factors: varieties and organic fertilizers with regards to the occurrence of insect pest (pod_borrer) during the study

Table 10 a. Occurrence of insect pest (cut worm)

TREATMENT	MEAN (Rating Index)
<u>Variety of Bush Bean</u>	
Sablan beans	2.44a
Contender	2.28 ^a
Bukod beans	2.39 ^a
<u>Kind of Organic Fertilizers</u>	
Farmer practice	2.78 ^{ab}
BSU compost	2.11 ^c
NBEM	2.11 ^c
Siglat	2.22 ^{bc}
Alnus compost	2c
Chicken dung	3 ^a

Means with the same letter are not significantly different at 5% level by DMRT (Menes 2010).

<u>Scale</u>	<u>Description</u>	<u>Remarks</u>
1	No infection	Highly resistance
2	1-25 % of the total plant infected	Mild resistance
3	26-50 % of the total plant infected	Moderate resistance
4	51-75 % of the total plant infected	Susceptible
5	76-100 % of the total plant infected	Very susceptible

Table 10 b. Occurrence of insect pest (pod borer)

TREATMENT	MEAN (Rating Index)
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Varieties of Bush Bean

Sablan beans	2.39 ^a
Contender	2.56 ^a
Bokod beans	2.56 ^a

Kind of Organic Fertilizers

Farmer practice	2.44 ^a
BSU compost	2.56 ^a
NBEM	2.33 ^a
Siglat	2.67 ^a
Alnus compost	2.56 ^a
Chicken dung	2.44 ^a

Means with the same letter are not significantly different at 5% level by DMRT (Menes 2010).

<u>Scale</u>	<u>Description</u>	<u>Remarks</u>
1	No infection	Highly resistance
2	1-25 % of the total plant infected	Mild resistance
3	26-50 % of the total plant infected	Moderate resistance
4	51-75 % of the total plant infected	Susceptible
5	76-100 % of the total plant infected	Very susceptible

Plant Height at First Harvesting of Pods (cm)

Effect of variety. There were no significant differences on plant height at first harvesting of pods as affected by the different varieties, however Cv.Bokod beans produced the tallest plants with a mean of 37.57 cm, but were not significantly different with the other fertilized treatments.

Effect of the kinds of organic fertilizers. As presented in table 11, results showed that there were no significant differences on plant height a first harvesting of pods as affected by different organic fertilizers. However, plants applied with fertilizers using the farmer's practice produced the tallest plants with an average mean of 37.53 cm, as



compared to the other treatments but were statistically comparable to the fertilized treatments.

Interaction effect. Statistical analysis showed that there were no significant effects of the two factors; bush bean variety and kinds of organic fertilizers on plant height at first harvesting of pods.

Table 11. Plant height at first harvesting of pods

TREATMENT	MEAN (cm)
<u>Variety of Bush Bean</u>	
Sablan beans	36 ^a
Contender	36.27 ^a
Bokod beans	37.57 ^a
<u>Kind of Organic Fertilizers</u>	
Farmer practice	37.53 ^a
BSU compost	36.97 ^a
NBEM	36.42 ^a
Siglat	36.01 ^a
Alnus compost	36.12 ^a
Chicken dung	36.63 ^a

Means with the same letter are not significantly different at 5% level by DMRT

Number of Laterals Per Plant at First Harvesting of Pods

Effect of variety. The number of laterals at first harvesting of pods is presented in table 12. Results showed that Cv.Contender produced the highest number of laterals at first harvesting of pods with a mean of 5.30 but was not significantly different with the other varieties grown. The results may imply that the three varieties of bush beans have the same number of laterals produced at first harvesting of pods.



Effect of the kinds of organic fertilizers. Results showed that there were highly significant differences observed on the number of laterals at first harvesting of pods as affected by different organic fertilizers. Plants applied with BSU compost produced the highest number of laterals per plant at first harvesting with a mean of 5.77 but are statistically comparable to the plants applied with siglat, NBEM and alnus compost all having a mean of 5.31, 5.27 and 5.22 respectively. While the plants applied with chicken dung produced the lowest laterals per plants at first harvesting of pods with a mean of 4.62.

Interaction effect. There were no significant interaction effects between the different bush bean varieties and the different kinds of organic fertilizers on the number of laterals counted at first harvesting of pods

Table 12. Number of laterals per plant at first harvesting of pods.

TREATMENT	MEAN
<u>Variety of Bush Bean</u>	
Sablan beans	5.27 ^a
Contender	5.30 ^a
Bokod beans	5.12 ^a
<u>Kind of Organic Fertilizers</u>	
Farmer practice □	5.20 ^b
BSU compost	5.76 ^a
NBEM	5.27 ^a
Siglat	5.31 ^a
Alnus compost	5.22 ^a
Chicken dung	4.62 ^b

Means with the same letter are not significantly different at 5% level by DMRT



Cost and Return Analysis

Table 13 shows that Cv.Bokod applied with siglat fertilizer had the highest return of investment (ROI) of 27.79 %, followed by Cv. Sablan applied with Siglat fertilizers with 20.41%. A negative ROI was obtained in Cv. Contender applied with the different organic fertilizers, Cv. Bokod and Cv. Sablan applied with the farmer's practice and chicken, manure fertilizers (Table 13).

Table 13. Cost and return analysis.

Variety	Cv. Sablan						Cv. Contender		
	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₁	T ₂	T ₃
Marketable yield (Kg/ 1xm plot)	5.75	7.5	6.8	8.15	7.6	5.25	6.45	7.25	7.75
Sales (PhP)	143.7	187.5	170	203.75	190	131.25	129	145	155
Farm inputs									
Cv. Sablan	38	38	38	38	38	38	-	-	-
Cv. Contender	-	-	-	-	-	-	35	35	35
Cv. Bokod	-	-	-	-	-	-	-	-	-
Chicken dung	20	-	-	-	-	52	20	-	-
BSU compost	-	59	-	-	-	-	-	59	-
NBEM	-	-	48.67	-	-	-	-	-	48.67
Siglat	-	-	-	48.67	-	-	-	-	-
Alnus	-	-	-	-	44	-	-	-	-
T- 14-14-14	28.50	15.75	15.75	15.75	15.75	15.75	28.50	15.75	15.75
Urea	6.30	6.30	6.30	6.30	6.30	6.30	6.30	6.30	6.30
Insecticides	16.50	16.50	16.50	16.50	16.50	16.50	16.50	16.50	16.50



Fungicides	141	14	14	14	14	14	14	14	14
Others	30	30	30	30	30	30	30	30	30
Total expenses	153	179.55	169.22	169.22	164.55	172.55	150.3	176.22	166.22
Net income	-9.25	7.95	.78	34.53	25.45	-41.3	-21.3	-31.55	-11.2
ROI (%)	-6.05	4.43	.46	20.41	15.47	-23.93	-14.7	-17.87	-6.75
RANK	12	8	9	2	3	18	14	15	13

Table 13. Continued...

Cv. Bokod								
T ₄	T ₅	T ₆	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆
6.5	7.9	6.85	6.6	7.75	7.55	8.65	7	6.65
130	158	137	165	193.75	188.75	216.25	175	166.25
-	-	-	-	-	-	-	-	-
35	35	35	-	-	-	-	-	-
-	-	-	38	38	38	38	38	38
-	-	52	20	-	-	-	-	52
-	-	-	-	59	-	-	-	-
48.57	-	-	-	-	48.57	-	-	-
-	-	-	-	-	-	48.67	-	-
-	44	-	-	-	-	-	44	-
15.75	15.75	15.75	15.75	15.75	15.75	15.75	15.75	15.75
6.30	6.30	6.30	6.30	6.30	6.30	6.30	6.30	6.30
16.50	16.50	16.50	16.50	16.50	16.50	16.50	16.50	16.50
14	14	14	14	14	14	14	14	14
30	30	30	30	30	30	30	30	30



166.22	161.55	169.55	153.30	174.55	169.22	169.22	164.55	172.55
-36.22	-3.55	-32.55	-11.7	19.2	19.53	47.33	10.45	-6.3
-21.79	-2.19	-19.19	7.63	11	11.54	27.79	6.53	-3.65
17	10	16	6	5	4	1	7	11

Note. Selling price Cv. Sablan and Cv. Bokod was Php 25.00/ kg, Cv. Contender
Php 20.00 kg



SUMMARY, CONCLUSIONS AND RECOMMENDATION

Summary

The study was conducted to determine the effect of various organic fertilizers on the growth and yield of different bush bean varieties, determine the best organic fertilizer appropriate for fresh pod bean production and determine the economics of using organic fertilizers in bush bean production under La Trinidad, Benguet condition. The study was conducted at the Horticulture laboratory area at BSU LaTrinidad, Benguet from December 2011 to March 2012.

Results showed highly significant differences between the two factors: variety and organic fertilizers. Cv. Contender applied with BSU compost had the highest percentage of plant survival as compared to the other variety applied with different organic fertilizers but are statistically comparable to plants applied with siglat fertilizers. For the days from planting to harvesting, results showed that all varieties had similar days to attain harvesting stage while plants applied with chicken manure took longer days to form flowers and attain harvesting stage while bush beans applied with alnus leaves were the earliest to attain flowering and harvesting stage but are comparable to the rest of the treatments used.

Cultivar Contender applied with BSU compost produced the longest pods at harvesting stage but are statistically the same with the other treatments while Cv. sablan applied with chicken manure had the shortest pods at harvesting stage. As to the average number of lateral branches at harvesting stage, result showed significant differences wherein Cv. Contender of bush beans applied with chicken manure had the most number of lateral branches produced. Base on the results, Cv. Contender applied with BSU compost had longer days to complete seedling emergence, and those applied with alnus compost



showed mild resistance to insect pest particularly cutworm, while Cv. Sablan applied with chicken dung had the more number of plants affected but in all indications, all the plants are mild resistant to cutworm while in pod borer results showed in table 10 b. no significant differences. As noted between the two factors: varieties and kinds of organic fertilizers used in the study showed that all plants exhibited mild resistant to pod borer. Cv. Bokod applied with siglat fertilizers produced tallest plant at first harvesting of pods compared to the other treatments.

With regards to the weight of marketable pods, Cv. Bokod applied with BSU and alnus compost had a significantly higher weight of marketable pods as compared to other varieties applied with different organic fertilizers. As to the non-marketable pods, Cv. Bokod and Cv. Contender varieties applied with chicken manure, sigalt and BSU compost had a higher weight of non-marketable pods as compared to the rest of the varieties evaluated. For the total yield per plot and total computed yield per hectare, highly significant results were observed in bokod variety applied with BSU and alnus compost fertilizers out yielding the rest of the varieties evaluated. Based on findings of the study, the application of siglat fertilizers to Cv. Bokod gave the highest return of investment of 33.88%.

Conclusions

Based on the results presented and discussed, all the bush bean varieties applied with the different organic fertilizers were adapted under La Trinidad, Benguet condition. Cultivar Contender applied with BSU compost had the highest percentage of plant survival. Cultivar Bokod applied with BSU compost and siglat fertilizers had the highest weight of marketable pods while cultivar Sablan applied with NBEM fertilizers had the least weight



of non-marketable pods. Cultivar . Contender applied with alnus compost and BSU compost were the earliest to attain the harvesting stage. Cv. Bokod applied with BSU and alnus compost produced the highest yield per plot and also had the highest computed yield per hectare (tons). Cv. Contender applied with BSU compost produced the longest pods harvested. It was also observed that Cv. Bokod applied with chicken dung was not resistant to cut worm insects. Cv. Bokod applied with chicken manure + T-14 produced the tallest plants. Cv. Contender applied with BSU compost had the highest number of lateral branches. Better growth and yield of bush beans could be obtained with the application of siglat fertilizers in the soil having a pH of 6.44 to 6.25, 7.0 to 1.5% organic matter, 54 to 120 ppm phosphorus, and 690 to 1,260 ppm of potassium.

Recommendation

Based on the findings of this study, it is therefore recommended all the three (3) variety applied with BSU compost or alnus fertilizer are the best suited under La Trinidad, Benguet condition for good performance, yield and marketability of bush bean . It was further found that Cv. sablan and Cv. Bokod beans are appropriate for fresh pod bean production while the Cv. Contender is good for seeds production.



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