

THE INFLUENCE OF THE AVAILABILITY PRODUCTION FACILITIES AND FARMING SUBSYSTEM FOR LONG BEANS (*Vigna Sinensis L.*) ON PRODUCTIVITY IN SUBAK DAUH UMA TEBEN, BATUAN VILLAGE, SUKAWATI DISTRICT, GIANYAR REGENCY

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ABSTRACT

*Long beans (*Vigna Sinensis L.*) have good prospects for development; because it has good economic and market value. This research was conducted in Subak Dauh Uma Teben, Batuan Village, Sukawati District, Gianyar Regency with purposive location selection. The population is 15 farmers. The research sample was 15 people taken using the census method. Data was analyzed descriptively qualitatively and quantitatively.*

The objectives of this research are (1) to analyze the provision of long bean production facilities in Subak Dauh Uma Teben, Batuan Village, Sukawati District, Gianyar Regency; (2) analyze the long bean farming subsystem in Subak Dauh Uma Teben, Batuan Village, Sukawati District, Gianyar Regency; and (3) analyzing the productivity of long bean farming in Subak Dauh Uma Teben, Batuan Village, Sukawati District, Gianyar Regency.

The research results show that (1) the supply subsystem for long bean production which consists of the availability of long bean seeds, the availability of plant stakes, the availability of nitrogen fertilizer, single fertilizer/NPK, pesticides, cultivators and hantsprayers is included in the moderate category with an achievement score of 3 .20 (64.00%); (2) the long bean farming subsystem which consists of land processing, cleaning, making beds, planting holes, spacing, liming, base fertilizing, fertilizing, installing stakes, pruning, weeding and controlling plant pest organisms is included in the medium category with a score of 2 .96 (59.37%); (3) the productivity of long bean farming produces an average yield of 6,622 kg/ha in the medium category.

Keywords: production facilities, long beans, productivity

1. INTRODUCTION

Food crops such as rice, paddy and corn have always received top priority in terms of development. This aims to avoid an increase in the price of food commodities which has implications for inflation of other goods. even though if we look at it from the aspect of market opportunities, consumer needs, productivity, revenue and income for farmers, horticultural commodities have promising opportunities and are able to compete with other food commodities such as long bean agribusiness.

Agribusiness is an agricultural business that has a profit orientation or a business consisting of subsystems. Farmers are required to develop innovations in agricultural technology. Long beans. This long bean commodity has a high content of vitamins, minerals and fiber. Apart from that, long beans are also in great

demand among Balinese consumers and are used as a complement to lawar dough.

Research purposes

1. Analyze the provision of long bean production facilities in Subak Dauh Uma Teben, Batuan Village, Sukawati District, Gianyar Regency.
2. Analyze the long bean farming subsystem in Subak Dauh Uma Teben, Batuan Village, Sukawati District, Gianyar Regency.
3. Analyzing the productivity of long bean farming results in Subak Dauh Uma Teben, Batuan Village, Sukawati District, Gianyar Regency.

2. RESEARCH METHODOLOGY

The location where the research was carried out was Subak Dauh Uma Teben, Batuan Village, Sukawati District, Tabanan Regency, Bali Province. The location selection was carried out purposively with the consideration that Subak Dauh Uma Teben has the potential to develop long bean horticulture every year, and from a market aspect it has good prospects. The population in this study was 15 farmers. The sample taken by census was 15 farmers who planted long beans during the period from July to December 2023. The data sources used were primary data and secondary data. Next, the data was analyzed qualitatively and quantitatively, then analyzed descriptively statistically. All indicators of the research variables are measured using an ordinal scale with a value range of 1 to 5 (very high, high, medium, low and very low) and using the *interval formula class*.

3. LITERATUR REVIEW

The subsystem of procurement and distribution of production facilities is also often referred to as up-stream agribusiness; is defined as activities that innovate, produce and distribute agricultural production facilities, including industrial agricultural machinery, fertilizer, seeds and pest and disease control drugs (Saragih, 1999). The procurement and distribution of production facilities subsystem functions to produce and provide the best agricultural production facilities to be able to produce quality farming products, provide quality services to farming businesses, provide technical production guidance, provide management guidance and agribusiness system relations, facilitate the learning or training process for farmers, filter and synthesize practical agribusiness information for farmers, develop business collaborations that can provide benefits for the parties involved (Suparta, 2005).

The production and farming subsystem can also be called the primary agricultural subsystem (*on-farm agribusiness*), namely cultivation activities that produce primary agricultural commodities which include food crop farming, horticultural farming, medicinal plant farming (*biopharmaceuticals*), plantation farming, livestock farming, fisheries farming, and forestry farming (Saragih, 1998). The cultivation subsystem is the subsystem that converts inputs into primary products; In the cultivation subsystem, what farmers need is business location (agroclimate), availability of labor, superior commodities, mastery of technology, business area, individual, group business, management, and equipment (Department Pertanian 2007, dalam Lolowang *et al.*, 2015).

4. RESULTS AND DISCUSSION

Providing agricultural production facilities for the long bean commodity (*Vigna Sinensis L*), the availability of long bean seeds received an achievement score of 3.20 (64.00%) in the medium category. The availability of stakes to support plants

is classified as easy to obtain (medium) with a value of 3.33 (66.67%). The availability of Nitrogen fertilizer is difficult to obtain (low) with a value of 2.33 (46.67). It is difficult to obtain nitrogen fertilizer because farmers still depend on subsidized fertilizer from the government, even though the long bean commodity does not receive subsidized fertilizer. Farmers' lack of readiness in providing nitrogen fertilizer as one of the production inputs for the production supply subsystem will affect product productivity (Adnyana, *et.al.* 2017). Besides that, the application of single nitrogen fertilizer will be able to increase plant growth in the form of leaf area and crop yields (Syahda and Barunawati, 2022). NPK compound fertilizer and pesticides are very easy to obtain with achievement scores of 4.00 (80.00%) and 3.73 (74.67%) respectively in the high category. The availability and application of NPK fertilizer is very important for long beans because it can affect long bean plant height, total leaf area, length of planted pods and yield of fresh pods (Purwanto, *et al.* 2019). Land cultivation tools in the form of cultivators are very difficult to obtain at the farmer level with an achievement score of 2.53 (50.67%). On average every farmer has a spray tool to eradicate pests and diseases such as a hansprayer in the medium category with an achievement score of 3.26 (65.33%). The average achievement of providing long bean agricultural production facilities obtained a score of 3.20 (64.00%) in the medium category. The availability of this production provision subsystem will influence the strengthening of subak institutions. The better the availability of the production facilities provision subsystem, the stronger the farmer group institutions will be (Adnyana, *et.al.* 2020). The results of providing long bean agricultural production facilities can be presented in Table 1.

Table 1. Achievements from the Provision of Agricultural Production Facilities Long Beans (*Vigna Sinensis L.*)

No.	Provision of Saprotan	Amount	Achievement score	Score achievement		Category
				(Number)	(%)	
1	Long bean seeds	48	3.20	64.00		Currently
2		50	3.33	66.67		
3	Sharpen the plants	35	2.33	4	6.67	Currently
4	Nitrogen fertilizer	60	4.00		80.00	Low
5	Single fertilizer (TSP, Kcl) /NPK	56	3.73		74.67	Tall
6		38	2.53		50.67	Tall
7	Pesticide	49	3.26		65.33	Low
	Cultivator					Currently
	Hansprayer					ly
Average		48	3.20	64.00		Currently

Long bean farming indicators of land processing, cleaning of plant residues, making beds with a width of 120-150 cm have been carried out in the field with a score of 3.33 (66.67%) respectively; 2.73 (54.67%) and 3.27 (65.33%) in the moderate category. Indicators of farming activities that are included in the high category are making single planting holes when planting 3-5 cm deep, always

installing stakes using bamboo, and when attacked by pests and diseases, plants are always eradicated using synthetic pesticides, each of which has an achievement value. respective scores 3.47(69.33%); 3.60 (72.00%) and 3.53 (70.67%). Farming activities that are rarely carried out by farmers, namely not liming before planting, not providing basic organic fertilization, pruning and weeding at the age of plants 3 and 5 weeks after planting, have a score of 1.73 (34.67%) respectively.) with a very low category; 2.53 (50.67%); 2.60 (52.00%); and 2.53 (50.67%) in the low category. The average yield of long bean farming is in the moderate category with an achievement score of 2.96 (59.37%). Farming results will be able to run more optimally if they are supported by farmers' behavior in preparing agricultural production facilities and carrying out farming activities, because the knowledge, attitudes and skills implemented by farmers will have a good effect on increasing product productivity (Adnyana, 2022). The overall results of long bean farming can be seen in Table 2.

Table 2. Achievements of Long Bean (*Vigna Sinensis*) Farming

No.	Farming	Amount score	Score achievement		C ategory
			Number	(%)	
1	Land processing	50	3.3	6	Curr ently
2	Cleaning of plant residues	41	3	6.67	
3	Making beds 120-150 cm wide	49	2.7	5	Curr ently
4	Single planting hole 3-5 cm deep	52	3	4.67	
5	Distance between holes 70X30 cm	48	3.2	6	Curr ently
6	Liming 1-1.5 tons/ha	26	7	9.33	
7	Basic organic fertilization 10-15 tons/ha	38	3.2	6	Tall
8	Basic TSP fertilization 75-100 kg/ha	39	0	4.00	
9	Basic fertilization Kcl 75-100 kg/ha	45	1.7	3	Very low
0	Urea basic fertilization 25-30 kg/ha	40	3	4.67	
1	Urea follow-up fertilizer 3 WAP dose of 25-30 kg/ha	50	2.5	5	Curr ently
1	TSP 3 WAP follow-up fertilizer dose of 100-125kg/ha	51	3	0.67	
2	Kcl 3 MST follow-up fertilizer dose of 100-125kg/ha	51	2.6	5	Curr ently
1	Installation of stakes	44	0	2.00	
2	Pruning	54	3.0	6	Curr ently
3	Weeding at 3 and 5 WAP	44	0	0.00	
4		3	2.6	5	Curr ently
1		54	7	3.33	
3		39	3.3	6	Curr ently
1		38	3	6.67	
4		53	3.4	6	Curr ently
1		53	0	8.00	
5		1			Curr ently
1		1	2.9	5	

6	OPT spraying	3	8.67	
1				Tall
7		3.6	7	Low
		0	2.00	Low
		2.6	5	Tall
		0	2.00	
		2.5	5	
		3	0.67	
		3.5	7	
		3	0.67	
Average		44.52	2.96	Currentl y
			59.37	

Productivity is the result of long bean farming activities obtained during one planting season. The productivity interval of 4,500 – 5,240 kg/ha was achieved by 2 people (13.33%) of respondents in the very low category. The low category was achieved by 1 respondent (06.66%) in the yield productivity interval > 5,240 – 5,980kg/ha. Productivity yield interval >5,980 – 6,720 (kg/ha) with the category being obtained by 5 farmers (33.33%). Furthermore, the high category was obtained by 4 farmers (26.66%) with a yield interval of > 6,720 – 7,460 (kg/ha). In the interval long bean yield productivity, the highest (> 7,460 – 8,200 kg/ha) was found in 3 farmers (20.00%). The average productivity of ushatani long beans (*Vigna Sinensis*) in one planting season is included in the moderate category with an average productivity value of 6,622 (kg/ha). Apart from the productivity results achieved by farmers, this needs to be supported by good marketing to further increase income through higher sales price margins (Adnyana, 2021; Arvianti and Mubaidi, 2012). Achievements of long bean productivity results can be presented in Table 3.

Table 3. Productivity Achievements of Long Bean (*Vigna Sinensis*) Farming

No	Productivity Interval (kg)/Ha	Number of Respondents	Percentage of Respondents (%)	Category
1	4,500 – 5,240	2	13.33	Very low
2	> 5,240 – 5,980	1	06.66	Low
3	>5,980 – 6,720	5	33.33	Currently
4	> 6,720 – 7,460	4	26.66	Tall
5	> 7,460 – 8,200	3	20.00	Very high
Average 6,622		5		Currently

5. CONCLUSION

Conclusion based on the research results, it can be concluded as follows.

1. The long bean production supply subsystem which consists of the availability of long bean seeds, the availability of plant stakes, the availability of nitrogen fertilizer, NPK fertilizer, pesticides, cultivators and sprayers is included in the medium category with an achievement score of 3.20 (64.00%).

2. The long bean farming subsystem which consists of land processing, cleaning, making beds, planting holes, spacing, liming, basic fertilization, fertilizing, installing stakes, pruning, weeding and controlling plant pest organisms is included in the medium category with a value of 2.96 (59.37%).
3. The average productivity of long bean farming results is 6,622 kg/ha in the medium category.

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