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Rice Demfarm Financing Model in Trial Of Excelent Variety on New OperatingLand Cooperation Between Stakeholders and Partners

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Abstract: Rice productivity can be increased by expanding the number of inputs or through the application of new technologies. Demonstration Farm (Demfarm) is one of the methods used for the adoption of agricultural technology according to the developed potential commodities. This study intended to determine the financing model for lowland rice located in Sungai Dua Village, Rambutan District, Banyuasin Regency based on the variety used in relation to rice field construction. The method used was a trial or experiment. This research was conducted on an outdoor laboratory area of the University of South Sumatra in collaboration with partners (IPB University, PT ATS Inti Sampoerna, PT PUSRI, BPTP). There are 3 superior varieties used consisting of IPB3S, Inpari 32 and Ciherang covering an area of 6 hectares in 2021. The population of this study are all farmers who participate in the new rice field printing program that will be formed into the Rice Estate Community (KEP), as many as 15 people who own land and farm laborers by using the census method considered that the entire population as the sample. The analysis used was qualitative and quantitative analysis. Quantitative research method used by calculating the total cost of farming, revenue, income and calculate the feasibility of the R/C and Net B/C ratio. The results showed that the income earned by the University of South Sumatera in the first period was IDR(7,3977,235)/0.5 Ha/MT for the IPB3S variety, IDR(6,638,485)/0.5 Ha/MT for the IPB3S variety. Inpari 32 and p(5,949,235) /0,5 Ha/MT for Ciherang variety. Constraints faced were soil pH <4, pH of water between 2-3 and still contains pyrite, shallow swamp land type endanger to flooding, inappropriate irrigation and land conditions that still had a lot of tree trunks left. The feasibility analyses used were the B/C ratio and R/C ratio, the results of which showed that based on superior varieties the B/C ratio for the IPB3S variety was (0.80), the Inpari 32 variety was (0.79) and Ciherang variety was (0.74). While the R/C ratio in the IPB3S variety was 0.20, the Inpari 32 variety was 0.21 and the Ciherang variety was 0.24. The B/C ratio and the R/C ratio value < 1 indicated that the activities of this model of financing of new rice farming for the first planting period were not feasible due to natural hazard, technical and inappropriate facilities. This research showed that the better resistance and adaptation were shown by the Ciherang variety.
Keyworsd: demfarm, financing model, rice varieties

1. Introduction

An agrarian country had a leading sector owned by several supporting sectors, one of which was the agricultural sector in the field of food crops [1]. Explained that an important sector in development in Indonesia was food crops where the main target was to strengthen food supply and diversify food consumption in Indonesia's development period 2014 to 2019 to increase the availability of food sourced from the country for staple crop commodities including rice, corn and soybeans [2]. The important role of rice commodities in the economy was as the main issue to achieve rice self-sufficiency. Central rice production areas were pursued by the government to meet the need for food and maintain food availability through increased production [3]. Production and income had an effect on the impact of land area construction [4]. This was inline with the results of research [5] stated that rice production had a significant effect on the farmers' land area, as the factors had a major contribution to rice production aas to increase farmers' income [6].

The Indonesian people's main food crop was rice (Oryza sativa.L). The average consumption of rice in 2021 reached 1,451 kg per capita per week. It meant the figures that rice consumption was higher than other commodities such as corn which was only 0.007 kg per capita per week, cassava 0.099 kg per capita per week, and sweet potato 0.047 kg per capita per week [7]. The government's efforts to

increase production was important to meet consumption needs.

The increasing in productivity should be accompanied by an increase in lowland rice production to cause an impact on increasing the income of farmers. In fact, farmers faced problems which included the limitations of utilizing and all production factors such as capital, land, seeds, fertilizers and appropriate labor. The productivity of the rice sector coud be raised by increasing the number of inputs or applying new technology. They followed by additional of capital got from own capital or borrowed one (credit). This context of economic development needed capital [8].

One method used to accelerate the adoption of agricultural technology produced by users according to the potential of the commodity was demfarm. Demonstration farming was one method of conveying research results and users to other users through demonstrations to accelerate technology adoption [9]. One of the extension methods that directly came into contact with farmers as the main actors or business actors was demonstration. The technology applied to the demfarm rice field plays an important role in increasing rice yields, namely superior varieties. High-yielding variety was one of the production components contributed 56% because the main fulcrum was in increasing through the assembly and improvement of new high-yielding varieties [10].

Superior rice varieties played an important role in increasing production, controlling plant pests and diseases, and suppressing the adverse effects of growing environmental conditions. Compared to other production technologies, superior varieties were accepted by farmers more quickly because they were easier to apply and relatively inexpensive [11]. Production through the existence of lowland rice farming carried out on shallow land, it coud increase production. Production in micro conditions for South Sumatra Province contributed to national rice production. Currently, it had not been supported by facilities for rice farmers through access to financing. Business activity capital for farmers relied more on non-formal funds than banks [12].

The rice production centers in South Sumatra Province relied on sub-optimal land in the form of swamp land which was productive, one of them was Banyuasin Regency [13]. The leading sector in Banyuasin Regency was the agricultural sector, because this sector contributed greatly to the economy and was also ranked as the 4th largest grain producer nationally. The rice produced by Banyuasin Regency were field rice, swamp rice and tidal rice. The land divided into two types, dry land and wet land. Almost 80 percent of the Banyuasin Regency area were wetlands such as lowland swampland, lowland peatland, and lowland tidal swamp. While the remaining 20 percent was dry land used for yards and settlements and other uses [14].

The construction of new rice fields in terms of making demfarm carried out by the University of South Sumatra in collaboration with IPB University and other parties such as the Agricultural Technology Study Center (BPTP) and PT Pupuk Sriwidjaja (PUSRI) in the use of unused land into rice fields. Demfarm was one of the methods applied through the adoption of agricultural technology produced in accordance to the potential commodities developed by agricultural business actors. One of the villages where the Farming Demonstration was held (Demfarm) located in Rambutan District, namely Sungai Dua Village, Rambutan District, Banyuasin Regency, covering an area of 6 hectares by applying three superior varieties including IPB3S, Inpari 32 and Ciherang. An important role in increasing production and technology was considered easy for farmers to adopt, namely superior varieties [15].

The demonstration activity expected to enable the University of South Sumatra to increase capacity in the application of this technology to the developed agricultural business system. This activity aimed to apply technology to clearly demonstrate the financing model through testing of superior varieties by looking at the differences in production yields with the recommended and commonly applied technology. So it could affect technology users confidence in making policies on the reliability of agricultural technology packages and accelerate technology adoption by users in developing their farming systems. Technology transfer and faster adoption of technology was inportant for user farmers or other farming actors. A demonstration was carried out for the development of superior varieties trials on new constructed rice field.

2. Material and Methods

2.1. Material

This research was conducted in an outdoor laboratory owned by the University of South Sumatera, located in Sungai Dua Village, Rambutan District, Banyuasin Regency. The object used was

lowland rice farming with a land area of 6 hectares with a financing model for high-yielding varieties. Data collected for an average of 114.3 days (from planting to harvesting) could be seen from the productivity of rice plants. The location selection was purposive by conducting a seed trial method or an experiment carried out on a lowland rice farm which was a case study of a lowland rice farm owned by the University of South Sumatra in collaboration with IPB University and partners (PT PUSRI, BPTP). When the field research done for one year 2021. The land for the demonstration farm covered an area of 6 hectares with the trial of seeds of superior varieties in newly opened rice fields.

2.2. Methods

2.2.1. Sample Collection and Preparation

The study used primary data and secondary data. Primary data were collected directly from the field by means of interviews and questionnaires. Direct interviews with IPB University, PT PUSRI, BPTP, farmers and the University of South Sumatra foundation as well as the results of the Focus Group Discussion (FGD). The approach used in the implementation of lowland rice demonstration activities on new cleared land was a user-oriented participatory approach. This method carried out by stakeholders, partners (IPB University), farmers, and discussion researchers in determining the composition of inputs used in farming. It was expected that this approach would lead to the formation of the Rice Estate Community (KEP). KEP as a forum for a number of farmers to do business together in one management unit. One of the technologies expected to be adopted was the new superior variety IPB3S [16] against other superior varieties.

Secondary data was also used to complete the information in the lowland rice demand financing model, including data sourced from village data, BPS (Central Statistics Agency), journals, magazines, books, which are relevant and in accordance with the needs of this research. The sample used in this study were all farmers who were involved in the manufacture of new printed rice fields that would be the greatest in the Rice Estate Community (KEP) as many as 15 people, both those who own land and workers on the land using the census method, the entire population were sampled.

2.2.2. Experimental Variables and Analytical Produceres

The data from the field were first grouped and then processed in tabulation and then analyzed using qualitative methods, describing the results obtained in the form of a systematic description so as to obtain complete and detailed results. For answering the first objective to describe the financing model for demfarm based on rice varieties. This study described several models of demfarm financing based on superior varieties where all costs incurred were the same, only the types of varieties were different. For answering the second objective, analyzing the amount for the demfarm seen from the existing model based on the analysis of investment criteria consisting of Net R/C ratio, Net B/C ratio where the Net R/C ratio and Net B/C ratio are greater than one, the goal to see which one is more feasible to run.

This researceh focused on the productivity that would be developed from a financing model based on superior varieties.

2.2.3. Data Analysis

Data analysis in this study used the experimental method. Experimental research methods are used to determine the causal effect between the independent and dependent variables

The data used include production costs, revenues, income and profits of farmers in lowland rice farming. This data calculated using the following formula:

a) Total Farming Costs

$$TC = FC + VC$$

Information :
TC = Total Cost (IDR)
BT = Fixed Cost (IDR)
BV = Variable Cost (IDR)

b) Revenue

$$TR = Y. Py$$

Information :
TR = Farming Revenue (IDR)
Y = Output obtained during production (Kg)
Py = Price of production (IDR)

c) Income

$$Pd = TR - TC$$

Information :
Pd = Income (IDR)
TR = Revenue (IDR)
TC = Total cost (IDR)

d) R/C

R/C = TR/TC

Information :

R/C = *Return Cost Ratio*

TR = Revenue (IDR)

TC = Total Cost (IDR)

Criteria :

R/C > 1, farming is feasible

R/C < 1, farming is not feasible

R/C = 1, the farm is at break even point

e) Net B/C ratio

Net B/C ratio = I/TC

Information :

B/C = *Benefit Cost Ratio*

I = Income (IDR)

TC = Total Cost (IDR)

Criteria :

B/C > 1, farming is feasible

B/C < 1, farming is not feasible

B/C = 1, the farm is at the break even point [17]. For more details see figure 1.

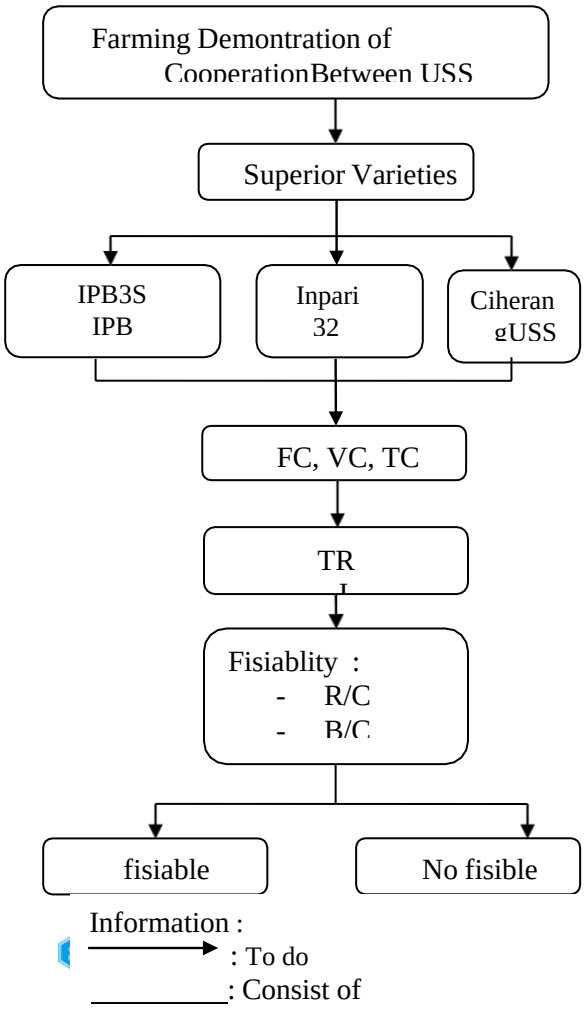


Figure 1. Flow Diagram

3. Results And Discussion

3.1. Overview Of Rice Field Demfarm

Sungai Dua village had 3 types of swampy land, namely deep, middle and shallow, where the tides were influenced by river water. Planting could be done with IP 100 and 200 growing season. The total area of rice fields was 898.51 hectares and the topography generally includes lowlands because this area was prone to flooding with an area of 2,091.93 hectares while flood-free land is 1,714.07 hectares. The average altitude was 200 meters above sea level, the average daily temperature is 290C and the humidity was 75 while the rainfall reaches 2500 meters per year. The lowland rice demonstration farm was managed with an area of 6 hectares by applying three superior varieties (IPB3S, Inpari 32, Ciherang). The position of the land next to oil palm plantations, the soil pH was 4.1 and the water pH was 2 -3. The increase in pH was carried out by adding 1.5 tons of dolomite per hectare. According to [18] stated that the new land opening was marginal so it coud cause many problems such as water demand, low soil productivity, and the process of physical and chemical changes due to waterlogging that can interfere with plant growth.

The lowland rice demonstration farm was designed to cover an area of 5,000 m2 per plot. It was hoped that the cultivation of lowland rice would be better. The planting system using Atabela turned out to be unsuitable because the new openings were uneven. In addition, the problems include 1) local farmers coud not use it because they did not know it yet, 2) the ground surface was uneven, 3) high rainfall so that there was a puddle of water that could cause the seeds to be washed away by water. At the end they still used transplanting and nursery.

3.2. Demfarm Rice Field Financing Model

Lowland rice farming through demfarm land with trials of superior varieties which include IPB 3S, Inpari 32 and Ciherang varieties which were assumed to be ± IDR 20,000,000 per hectare issued during the initial investment period and only occurs once during the investment. This demfarm financing model was obtained from its own capital where the land for the demfarm belonged to the University of South Sumatra (USS) foundation in collaboration with Universities, Government and Industry partners such as IPB University, BPTP and PT PUSRI. IPB

University helped the farmers with science and technology through development innovation directed to the Rice Estate Community (KEP) aiming to form an institution where the owner woud be the manager where the smallholders in the farm would become a member. IPB University provided assistance so that cultivators and land owners outside the demfarm could apply these innovations so that their income could be increased. IPB also provided provibio fertilizer and IPB3S seeds and invites industrial partners PT ATS Inti Sampoerna to join in applying their products to demfarm such as Starter Plus 8-32-5, Essential Plus 1-0-1, K-Builer 7-2-21 , Humapro SG Acid Fertilizer The Andersons K Mate SG. In addition to IPB, the Agricultural Technology Study Center (BPTP) provides Inpari 32 seeds while PT PUSRI also applies fertilizers such as organic and inorganic fertilizers. All costs incurred for labor and pesticides during the production process were arranged by USS as the land owner for more details could be seen in Table 1.

Table 1. Funds disbursed from USS and Partners' Capital in making Demfarm by trialling three high yielding varieties on a land of 0.5 per Ha/MT, 2021

Fund	Capital	
	Amount (IDR)	Percentage (%)
USS	19.582.750	67,35
IPB University	1.318.500	4,53
PT ATS Inti Sampoerna)*	3.669.000	12,62
BPTP	109.250	0,38
PT PUSRI	4.395.000	15,12
Jumlah	**29.074.500**	**100**

)* Recommendation from IPB
Source : Primary data after processing, 2021

Table 1 shows that USS has prepared from the beginning the funds to conduct a demonstration by trialling 3 superior varieties and has sufficient capital capacity to make a lowland rice demonstration of 67.35% plus 4.53% from IPB University and PT ATS Inti Sampoerna which has apply 12.62% product plus 0.38% BPTP plus PT. PUSRI 15.12%.

3.1.2 Paddy Demfarm Financing Model for IPB3S Varieties

The financing model with the IPB3S variety was the financing for the IPB3S variety where 100 percent of this variety provided by IPB University.

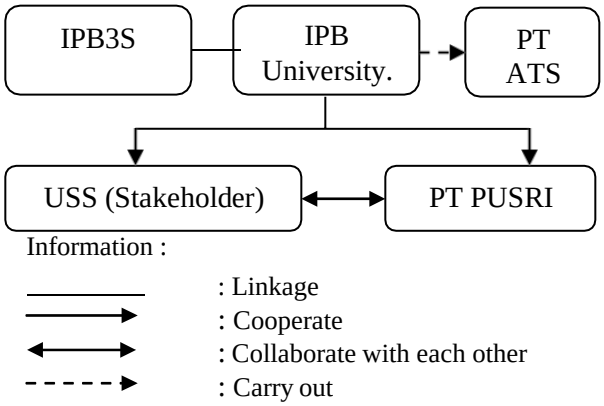
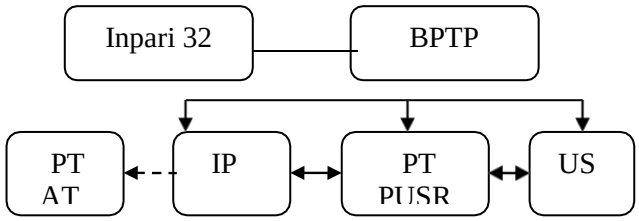


Figure 2. IPB3S varietas variety financing scheme

Figure 2 shows that the IPB3S variety (seed) provided directly by IPB University for 0.5 Ha of land was 43.5 kg with a price per kg of IDR 21,000 and was applied to paddy rice fields. Apart from that, IPB also provides fertilizer and technology assistance that is applied in the rice field Demfarm. IPB University brought partners, namely PT ATS Inti Sampoerna. IPB University is also working with USS and PT PUSRI where PT PUSRI has provided fertilizer while USS is the coordinator of the farm and provider of labor and medicines. PT PUSRI and USS work together.

3.2.2 Demfarm Paddy Financing Model for Inpari 32 Variety

The financing model with the Inpari 32 variety was the financing for the Inpari 32 variety where 100 percent of this variety provided by BPTP (Research Institution for Agricultural Technology).



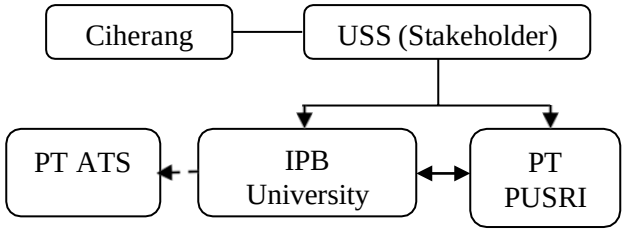
Information :
: Linkage
: Cooperate
: Collaborete with each other
: Carry out

Figure 3. Inpari 32 Variety Financing Scheme

Figure 3 shows that the Inpari 32 variety was given directly by BPTP which was then applied to the lowland rice field for 0.5 Ha of 11.5 kg of land at a price per kg of IDR 9,500. BPTP producing superior seeds also collaborated between IPB University, PT PUSRI and USS as the person in charge of the rice field demand, while PT PUSRI applied fertilizers and IPB applied fertilizers and technology where IPB collaborated with its partner PT ATS Inti Sampoerna.

3.2.1Demfarm Paddy Financing Model for Ciherang Variety

The financing model with the Ciherang variety was the financing for the Ciherang variety where 100 percent of this variety provided by the USS.



Information :
: Linkage
: Cooperate
: Collaborete with each other
: Carry out

Figure 4. Variety Financing Scheme

Figure 4 shows that the Ciherang variety was purchased directly by USS as the host for the lowland rice demonstration farm which coordinated all activities at the farm. This variety was chosen for demfarm because this seed is often used by local farmers. The seeds used for 0.5 ha of land are 8.5 kg with a price per kg of IDR 11,000. USS cooperates with IPB University and PT PUSRI with each other in relation to each other in developing the lowland rice farm. In this case, IPB University also cooperates with partner PT ATS Inti Sampoerna in applying its products.

3.2.1. USS's Ability To Demfarm (Demonstration Farm)

The first stage of planting of rice plants for Ciherang 4 plots, Inpari 32 3 plots and IPB 3S 1 plots varieties due to limited seeds used for transplanting. The plot used is 5,000 m2 per hectare. The seeds used were from the remaining seeds planted using Atabela. Covering the shortage of seeds for special planting area of Inpari 32 and IPB 3S varieties. The reason for the failure of the first planting was due to high rainfall, uneven ground surface, too large a plot and low adaptability of seeds. It was expected that the next planting will have a smaller plot of around 2,500 m2. Placing the demfarm plot using 3 high yielding rice varieties (Ciherang, Inpari 32 and IPB 3S) using the jajar legowo (Jarwo) 2:1 system. The legowo 2 : 1 system meant every two rows were interspersed with an empty row with a width of twice the distance in the row the distance is 25 cm (distance between rows) x 12.5 cm (distance in rows) x 50 cm (distance in rows) [18] The demonstration of lowland rice on new openings can be done in 2 ways, namely: 1) technically, this demonstration of new openings has many obstacles, the land was close to the drainage of oil palm plantations where the downstream had a very acidic pH level.

The water from the demfarm was sampled and tested in the BPTP laboratory. The test results showed that the pH of the water ranged from 3.0 to 3.4 because the water utilization was not optimal. The lowland rice demonstration woud be applied by trialling superior varieties consisting of IPB3S, Inpari 32 and Ciherang. Each superior variety had the advantage of being resistant to pests and plant diseases and easy to apply to farmers. The area of land used as a demfarm was 2 hectares per variety. This activity started from land clearing, equipment depreciation, maintenance, and harvesting to post-harvest. 2) economically all demfarm activities cost

money where USS supported by partners to elaborate which varieties were superior in both production and input costs that can be profitable. Farmers were only casual daily laborers with a daily wage of IDR 90,000 for 8 hours. activities in maintenance starting from nursery, planting, fertilizing, weeding, spraying, irrigation, tunel maintenance. The cost of harvesting took a large expanse of land using combine only one day done by 2 HOK on the IPB3S and Inpari 32 varieties, while the Ciherang variety was done manually with sickles because the land was still waterlogged and requires 10 HOK for 5 days. The resulting product was in the form of Harvest Dry Grain (GKP). The demfarm fee paid by USS in collaboration with partners.

3.2.2. Cost Allocation

The costs incurred consist of the initial investment activities carried out at the beginning of the opening of new land for two months and then planting using the Atabela tool. Land cultivation due to new openings caused somet obstacles were encountered including: 1) the land was acidic pH < 4, 2) the soil was uneven because it leaved a lot of stems and twigs from vegetation (secondary swamp forest), soil pH could be increased by adding dolomite (soil lime).) as much as 1.5 Ton/Ha. After applying dolomite, the pH could increase between 5-6, where the price of dolomite was IDR 715/Kg. the addition of lime (dolomite) could increase rice production [19], 2) Water pH would be directed to the Menten river ranging from 4-5 because it was not polluted from oil palm plantations. The cost for land clearing was assumed to be IDR 1,500,000.00 per 0.5 Ha/MT. Production costs in doing farming consisted of depreciation of tools, seeds, fertilizers, labor and pesticides.

The cost of seeds for high-yielding varieties included IPB3S seeds applied to demfarm land as much as 43.5 Kg per 0.5 Ha at a price of IDR 21,000.00/Kg waw actually too much but due to the high tide of rain, the seeds were planted twice, 40 Kg of Inpari 32 seeds with a price of IDR 9.500/Kg per 0.5 Ha/MT. IPB3S and Inpari 32 seeds were not included in the analysis because these seeds were provided by partners IPB University and BPTP. Ciherang seeds as much as 8.5 Kg with a price of IDR 11,000.00/Kg/MT per 0.5 Ha/MT which was a seed that is often used by farmers in Sungai Dua Village.

The operational cost of demfarm in one growing season for 3 high yielding varieties managed by USS consisted of equipment depreciation which was assumed to be IDR 530,955 per 0.5 Ha/MT. The cost of fertilization used in demfarm was adjusted to the fertilization schedule. PT PUSRI's fertilizers applied at the demfarm included 450 Kg of NPK, 300 Kg of non-subsidized urea fertilizer, 9 liters of bioripah, and 7.5 Kg of Nutrimag with a total of IDR 4,395,000 per 0.5 Ha/MT, recommended fertilizer from IPB University 9 Liters of Provibio of IDR 405,000 per 0.5 Ha/MT while IPB University's partner, PT ATS Inti Sampoerna consisted of 4 Kg Starter Plus, 4 Liters Essential Plus, 4 Kg K-Builder, and 4 Liters of Andersons Huma Pro fertilizer with a total of IDR 3,669,000 per 0.5 Ha/MT.

This newly opened land was susceptible to pests and plant diseases such as rats, walang sangit, and sundep as well as weeds, so it needed the spraying of chemicals in the form of gramaxone, furadan and regent with a total of IDR891,000.00 per 0.5 Ha/MT. The use of chemical pesticides had to be right in type, target, dose, according to the label, when and how to apply it. The labor costs were entirely handed over to labor farmers who would be formed into a Rice Estate Community (KEP) starting from land processing, nursery, planting using the Atabel tool with the Jajar Legowo 2 x 1 system, fertilization consists of 3 times namely basic fertilization, follow-up fertilization 1 and 2, weeding using tools, spraying, irrigation, maintenance of channels.

3.2.3. Production And Price

The production of USS demfarm rice was carried out by testing three high yielding varieties consisting of IPB3S, Inpari 32 and Ciherang varieties for the production of one planting season starting in December 2020. Rice plants began to produce for IPB3S < 112 days, Inpari 32 HDB ± 120 days while Ciherang 116 – 125 days. Rice production was in the form of Harvest Dry Grain (GKP) in new openings. Initial production was still declining due to many obstacles ranging from land acidity, acid water, uneven land, high rainfall. Production and price (GKP) in the first planting season of rice demand for more details coud be seen in Table 2.

Tabel 2. Production and price of three high yielding varieties of rice in the farm, 2021

No	Rice Varieties	Planting Season I	
		Production (Kg/ 0,5 Ha/MT)	Price (Kg/0,5 Ha/MT)
1	IPB3S	517	3.500
2	Inpari 32	504	3.500
3	Ciherang	585	3.500
Total		**1.606**	**10.500**
Average		**535,33**	**3.500**

Source : Demfarm production and price, 2021

Table 2 showed that production and prices during the first planting season reached an average value of 535.33 Kg/0.5 Ha/MT while the price was IDR 3.500.00/Kg/MT

3.3. Feasibility Analysis of Lowland Rice Farming With The Application of Three Superior Varieties

The feasibility analysis used to determine rice farming on demfarm with the application of 3 superior varieties by using the ratio between revenue and income to total costs incurred during one production season (R/C ratio and B/C ratio) can be seen in Table 3.

Tabel 3. Analysis of Price Demfarm Income by Applying Superior Varieties Coveing an Area of 0,5 Ha/MT, 202

No.	Activity Description	Varietas					
		Volume	IPB 3S (IDR/Ha/MT)	Volume	Inpari 32 (IDR/Ha/MT)	Volume	Ciherang (IDR/Ha/MT)
1	**Revenue**		**1.809.500**		**1.764.000**		**2.047.500**
	a. Selling price		3.500		3.500		3.500
	b. Production		517		504		585
2	**Fixed Cost**						
	Cost *land clearing*		1.500.000		1.500.000		1.500.000
	Tool depreciation cost		176.985		176.985		176.985
	Rental *Combine Harvester*		750.000		750.000		
	Total Biaya Tetap		**2.426.985**		**2.426.985**		**1.676.985**
3	**Variable Costs**						
	a. Seed (Kg)	43,5	913.500	11,5	109.250	8,5	93.500
	b. Drugs						
	- Gramaxone (Liter)	1,25	75.000	1,25	75.000	1,25	75.000
	- Furadan (Liter)	5	200.000	5	200.000	5	200.000
	- Regent (Liter)	0,5	22.000	0,5	22.000	0,5	22.000
	c. Fertilizer						
	- Dolomit (Kg)	750	536.250	750	536.250	750	536.250
	- Urea (Kg)	100	480.000	100	480.000	100	480.000
	- NPK 15-15-15 (Kg)	150	750.000	150	750.000	150	750.000
	- Nutrimag (Kg)	2,5	145.000	2,5	145.000	2,5	145.000
	- Bioripah (Liter)	3	90.000	3	90.000	3	90.000
	- Provibio – IPB (Liter)	3	135.000	3	135.000	3	135.000
	- Essential Plus (Liter)	1,33	370.000	1,33	370.000	1,33	370.000
	- Andersons Huma Pro (Liter)	1,33	100.000	1,33	100.000	1,33	100.000
	- Stater Plus (Kg)	1,33	412.000	1,33	412.000	1,33	412.000
	- K- builder (Kg)	1,33	341.000	1,33	341.000	1,33	341.000
	d. Labor						
	- Land processing (HOK)		500.000		500.000		500.000
	- Nursery (HOK)	1	90.000	1	90.000	1	90.000
	- Planting (HOK)	5	450.000	5	450.000	5	450.000
	- Basic Fertilization (HOK)	1,5	135.000	1,5	135.000	1,5	135.000
	- Follow up fertilization 1 (HOK)	1,5	135.000	1,5	135.000	1,5	135.000
	- Follow up fertilization 2 (HOK)	1,5	135.000	1,5	135.000	1,5	135.000
	- Weeding (HOK)	1,5	135.000	1,5	135.000	1,5	135.000
	- Spraying (HOK)	2	180.000	2	180.000	2	180.000
	- Irrigation (HOK)	3	270.000	3	270.000	3	270.000
	- Line maintenance (HOK)	1	90.000	1	90.000	1	90.000
	- Harvest (using *Combine Harvester)* (HOK)	1	90.000	1	90.000	-	-
	- Manual Harvest (Ngarit) (HOK)	-	-	-	-	5	450.000
	Total Variable Cost		**6.779.750**		**5.975.500**		**6.319.750**
	Total Production Cost (TC/0,5 Ha)		**9.206.735**		**8.402.485**		**7.996.735**
	Average Income (Pd/ 0,5 Ha)		**(7.397.235)**		**(6.638.485)**		**(5.949.235)**
	R/C		**0,20**		**0,21**		**0,26**
	B/C		**(0,80)**		**(0,79)**		**(0,74)**

Source : Primary Data (2021)

Table 3 shows that the land management for demfarm is carried out by sharecroppers (farm labour). The costs incurred before planting include the cost of land clearing (*land clearing)*, making primary and secondary irrigation as well as soil conservation, depreciation of equipment so that the costs incurred are assumed to be IDR 6,530,955 per 0.5 Ha/MT. Purchase of seeds, dolomite (lime), fertilizers, medicines in pest and disease control, labor costs with a total of IDR 19,075,000 per 0.5 Ha/MT.

The rice harvest in the demfarm uses a *Combine Harvester* and manually by sifting is assumed to be IDR 840,000 per 0.5 Ha/MT with IDR 450,000 per 0.5 Ha/MT. Revenue is obtained from the Dry Harvest (GKP) multiplied by the price, namely for the IPB3S variety of IDR 1,809,500 per 0.5 Ha/MT, Inpari 32 IDR 1.764,000 per 0.5 Ha/MT, Ciherang IDR 2,047,500 per 0.5 Ha/MT while the profit is derived from the difference between revenue and total costs (fixed costs added to variable costs). The value of profit (income) with the rice demand financing model with USS and Partners capital at harvest time ranges from 100 to 120 days for high-yielding varieties consisting of IPB3S of IDR(7,397,235) per 0.5 Ha/MT, Inpari 32 of IDR (6,638,485) per 0,5 Ha/MT and Ciherang for IDR (5,949,235) per 0,5 Ha/MT. Demfarm paddy rice which is located in Sungai Village, Rambutan District, Banyuasin Regency, in the first planting season did not provide benefits, it actually suffered losses due to the large number of expenses due to this new land opening, so all facilities in the manufacture or printing of these rice fields must all be provided, so there is a lot of development, for example irrigation, whether primary, secondary and tertiary, purchasing inputs that will be used in lowland rice cultivation activities by testing three superior varieties. Farmer's income is very low, judging from the calculation, if the land is added, it indicates that the farmer is not able to manage it optimally, such as the new paddy field printing program [20].

Demfarm for rice is a new open area that has many obstacles, such as demfarm close to oil palm plantations with a pH < 4 while the pH of the water ranges from 2 – 3 and contains pyrite as well as obstacles caused by nature such as flood type demfarm in shallow lebak swamp land which is influenced by tides. the river if it rains high it can reach 80-100 cm causing the land to be flooded so that the IPB3S variety plot experiences replanting due to flooding because many seeds are carried by water currents and the rest of the tree trunks are not lifted during land clearing so that land processing is hampered, as well as Plant Pest Organisms (OPT) such as sundep pests, ganjur, walang sangit, rats and monkeys, weeds, limited number of workers. The land is not suitable for planting rice paddy due to inadequate irrigation channels [21].

Feasibility of demfarm on newly opened land which still costs a lot where the value of B/C Ratio for 3 superior varieties with a land area of 0.5 Ha/MT includes IPB3S variety (0.80), Inpari 32 variety (0.79) and the Ciherang variety (0.74) is not feasible due to the B/C ratio < 1 while the R/C ratio of the 3 superior varieties consisting of the IPB3S variety is 0.20, the Inpari 32 variety is 0.21 and the Ciherang variety is 0.21 0.26 where the R/C ratio < 1 has not reached number 1. The B/C ratio and R/C ratio values indicate that it is not feasible to operate because this land has many obstacles in terms of its management process, from land processing to harvesting. The unused land is used to print rice fields where technical constraints such as soil conditions and irrigation are not adequate. Judging from the value of a strong seed to adapt, namely the Ciherang variety where this variety is indeed cultivated by local farmers. The Ciherang variety has more tillers in each tiller and is resistant to pests and easy to adapt [21].

4. Conclusion

Based on the results of the analysis carried out, it can be concluded several things related to the study of the financing model for the rice farming sector owned by the University of South Sumatra with their own capital, namely:

1. Based on the model of rice farming demfarm financing with capital that was managed directly by the University of South Sumatra in collaboration with partners (IPB University, PT ATS Inti Sampoerna, BPTP and PT PUSRI) where the partners apply their products to the demfarm land, demfarm was a new opening land with trials of three superior varieties and applying fertilizer products and innovative technologies that have been carried out by IPB University.
2. The value of profit (income) of the rice farming

model financing with USS and Partners capital at harvest time ranged from 100 to 120 days for high-yielding varieties consisting of IPB3S of IDR(7,397,235) per 0.5 Ha/MT, Inpari 32 of IDR(6,638,485) per 0.5 Ha/MT and Ciherang of IDR(5,949,235) per 0.5 Ha/MT in the first planting season the value was still negative indicating a loss because the management of this farm faced many obstacles – obstacles in construction new paddy fields from unused land which are difficult to cultivate.

3. The magnitude of the feasibility analysis ability by looking at the value of the B/C ratio and the R/C ratio on the first 0.5 Ha/MT land based on three superior varieties for the B/C ratio including the IPB 3S variety (0.80), the Inpari 32 variety of (0.79), and the Ciherang variety (0.74) while the R/C ratio consists of the IPB3S variety of 0.20, the Inpari 32 variety of 0.21 and the Ciherang variety of 0.26 seen from the value of B/ C ratio and R/C ratio < 1 indicated that the total cost of production is greater than revenue, so it showed that this rice business was not feasible to cultivate because the land new constructed.

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