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Assistance for Rice Farmers through *Salibu* Cultivation Technology to Establish Post-Pandemic Food Self-Reliance in Cijeler Village, Sumedang

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Abstract: *The increasing population in West Java has a major effect on the narrowing of land, this is natural because the land has turned into residential land. The narrowing of agricultural land cannot be resisted, but we must find alternative solutions so that agricultural productivity can be maintained. One of the productivity of agricultural products that must be maintained is rice because as the main source of rice, it becomes the staple food of the people of West Java. One of the steps to increase rice productivity is to use the SALIBU cultivation technology. The results of previous research regarding the SALIBU cultivation technology showed that rice productivity increased because of one planting and harvesting many times. The application of the SALIBU cultivation technology is not easy, therefore it is necessary to carry out the assistance socialization steps regarding the cultivation of the cruciferous, the aim is to get a response from the farmers so that it can be used as a reference to the next stage of research. The method used is the literature review, socialization, and interviews. The results of the socialization stated that 44% of farmers wanted to learn the cruciferous cultivation technology, 40% of farmers answered that they were still unsure, and 16% said they did not know.*

Keywords: *Agricultural Productivity, SALIBU, The Cultivation Technology, The Assistance Socialization.*

Introduction

At the end of 2021, West Java is the province that has the most titles regarding population in Indonesia, namely 48.22 million people[1], the increasing population in West Java has had an impact on fulfilling residences, so this has resulted in the conversion of

[1] Viva Budy Kusnandar, "Jumlah Penduduk Indonesia Capai 273 Juta Jiwa Pada Akhir 2021," *Databoks, 2022*.

productive land into residential areas. This change in land use has resulted in a decrease in agricultural production because food productivity has always decreased, farmers have lost the opportunity to maintain their jobs, resulting in the loss of farmers' livelihoods. Land conversion also has an impact on non-optimal government investment in the irrigation sector, because the irrigation facilities that have been built cannot be utilized optimally, they even tend to be left damaged over time, and with the irrigation facilities not functioning, the ecosystem gradually decreases so that the good biotic components and abiotic are lost[2].

With the reduction in paddy field land, what the people of West Java can directly feel is the decline in agricultural production, especially rice because it is the mainstay commodity of farmers in West Java. Rice is a staple food source for people in the province of West Java, therefore it must still be available to maintain food stability, especially in West Java. In addition to land conversion, uncertain climate change due to global warming results in: first, the types of pests that attack rice plants, second, the availability of irrigation water because the rainy season is unpredictable or the dry season is longer, and these two things make farmers become more productive lethargic in cultivating the fields.

If conditions like this are allowed to continue, then food security in West Java will be very disturbed because it can affect food security (1). Adequate food availability (availability) because if productivity is not good, the availability of food reserves will also decrease, (2). Ease of access to food (access), because if the availability is sufficient, then obtaining it will be very easy, (3). Appropriate use of food (utilization), because food utilization is determined by the suitability of needs and timeliness for consumers, (4). Stability of food stocks and prices (stability), because with sufficient food availability, regional stability will be under control and prices will also be controlled[3]. A strategic step to maintain food availability is to increase food production, and based on data from the agricultural research and development agency, the ministry of agriculture states that we need to strive to increase rice productivity based on local wisdom, not relying on seeds, and land processing costs, maintaining superior varieties, but can produce maximum rice productivity.

In order to achieve national food security, the Indonesian Food Security Agency for 2020-2024 has made plans, among others: 1). Increased productivity of diverse food, 2). Increase and strengthen the status of national food reserves, 3). To provide safe national food, 4). Developing a national food logistics system, 5). Increase the growth of

[2] T. Wulandari, "4 Dampak Alih Fungsi Lahan Pertanian Menjadi Permukiman," *Detik.Com*, last modified 2021, https://www.detik.com/edu/detikpedia/d-5728895/4-dampak-alih-fungsi-lahan-pertanian-menjadi-permukiman.

[3] United Nations, "Policy Brief: The Impact of COVID-19 on South-East Asia" (Bangkok: United Nations Economic and Social Commission for Asia and the Pacific, 2020), https://www.unescap.org/sites/default/d8files/2020-07/SG-Policy-brief-COVID-19-and-South-East-Asia-30-July-2020.pdf.

food self-sufficiency in society, 6). Increasing the fulfillment of community nutritional needs, 7). Strengthening the public food and nutrition survey system, 8). Strengthening public food and nutrition institutions. The eight plans are the Millennium Development Goals (MDGs), namely the eradication of poverty and extreme hunger, but if land conversion increases, the population increases, lack of water availability, damage to agricultural infrastructure, and low quality of agricultural commodities which have an impact on productivity, reduced workforce productivity in the agricultural sector and the way farmers prefer to farm in the traditional way[4], then the planned MDGs will fail.

In an effort to accelerate food self-sufficiency, such as rice, it is necessary to make efforts to increase rice production, several steps have been taken to increase rice productivity at the national level, and several strategies have been carried out, including: first, expansion of the planting area by opening new land to become rice fields, second, to increase land productivity by developing various rice cultivation technologies, third, expanding the harvested area by increasing the cropping index. For the first strategy, it will be difficult to realize because opening new land has a very high risk because it can cause negative impacts such as economic losses, because usually when clearing new land for agriculture, people prefer to burn and cut down forests, and this is economically detrimental to the state because the wood that is cut down or burned is not yet of a suitable age for harvesting, so the economic losses are obvious. Another loss caused is ecological loss, because according to G. Tyler Miller (1975), there is a reciprocal relationship between organisms (living things) and their environment, so if the environment is damaged due to land clearing it will certainly result in ecological instability as evidenced by the destruction of several types of flora and fauna. In addition to the two losses above, other losses caused by opening new land for agriculture are health problems, this is normal because when clearing land and burning forests, it will seriously affect the health of people living around the forest because the smoke can interfere with breathing. Based on this explanation, of course, clearing land is not the best alternative solution for accelerating food self-sufficiency.

The second and third strategies can be used as alternative solutions to deal with land shortages, namely by increasing land productivity to increase the cropping index. In an effort to increase land productivity in general, several things need to be considered including environmental conditions, cultivation techniques, and types of cultivated varieties. The environmental conditions referred to in this case are the existence of the environment which is the main support for farming, such as the presence of water and the type of soil, because conventional land management requires a large amount of water, such as for the purpose of providing seed land, followed by processing purposes until the rice is ready to be planted, and this requires a lot of time, effort and money. The next thing to note is the cultivation technique and the type of variety, if the processing is done

[4] Badan Intelijen Negara BIN, *Memperkuat Ketahanan Pangan Demi Masa Depan Indonesia 2015-2025* (Rumah Buku, 2016).

conventionally, the cultivation technique follows the cycle of rice farming procedures in general, and when it is harvested, the type of variety cultivated will change to a new type of variety that will be planted, of course, this is less able to maintain the type of early varieties that are cultivated.

Based on the explanation above, it is necessary to make efforts to increase land productivity, and one of the steps that must be taken to increase food security is by (1). make the best use of land, (2). develop rice cultivation technology using enough water, (3). Maintain superior varieties, (4). Relatively low processing costs. Based on these four ways, the suitable technology to be developed is by developing the cruciferous cultivation technology, this technology has been developed in Sumatera and is successful. SALIBU cultivation technology is a rice cultivation technology that is a copy of the parent by cutting the rice stubble to a certain height so that new tillers are produced.

The Situraja and its Agriculture

Situraja Sub-district is one of the sub-districts in Sumedang Regency and is located 14 km east of the capital city of Sumedang Regency, and geographically it is located at an altitude of 337 meters above sea level, and its topography is a hilly area with little plains, with an area of about 4,126 hectares. Administratively, it has 15 villages, namely Bangbayang Village, Kaduwulung Village, Cijati Village, Mekarmulya Village, Cikadu Village, Karangheuleut Village, Cijeler Village, Ambit Village, Sukatali Village, Situraja Village, Jatimekar Village, Situraja Utara Village, Malaka Village, and Wanakerta Village and the Village Cicarimanah[5]. Annual rainfall is 1,345 mm, and rainy days per year are 72 days. Most of the population earns a living as farmers with their main commodities, namely paddy rice, and upland rice, with the total value of productivity per hectare as shown in table 1[6].

Based on the analysis of the dynamics of food commodities based on the superiority of food cropland area in Sumedang Regency, it was obtained data that the leading commodity was lowland rice[7], and several leading commodities that could support food security in Sumedang Regency, namely lowland rice, dry land rice, corn, soybeans, peanuts, green beans, cassava, sweet potato, and of the 8 superior commodities the main superior commodity in Situraja District is paddy rice[8].

[5] A. M. Imanuddin, "Kecamatan Situraja," *Sumedangtandang.Com*, last modified 2015, https://sumedangtandang.com/direktori/detail/kecamatan-situraja.htm.

[6] Direktorat Statistik Tanaman Pangan dan Hortikultura, *Luas Panen Dan Produksi Padi Di Indonesia 2020 (Hasil Kegiatan Statistik Pendataan Pertanian Tanaman Pangan Terintegrasi Dengan Metode Kerangka Sampel Area)* (Jakarta, 2021).

[7] Utan Sahiro Ritonga, "Dinamika Komoditas Berbasis Keunggulan Luas Lahan Tanaman Pangan Kabupaten Sumedang Provinsi Jawa Barat," *Agrifo: Jurnal Agribisnis Universitas Malikussaleh* 3, no. 1 (2018): 57–68.

[8] Ahmad Thoriq and Roni Kastaman, "PEMETAAN DAN ANALISIS EFEK MULTIPLIER KOMODITAS UNGGULAN TANAMAN PANGAN DI KABUPATEN SUMEDANG JAWA BARAT," *SEPA: Jurnal Sosial Ekonomi*

Table 1. Main Commodity Types and Productivity in Situraja District

Commodity	Harvested Area (Ha)	Production (tonnes)	Productivity (Kw/Ha)
Paddy Field	83.522	538.241	64,58
Garden Paddy	11.492	40,205	34,99
Corn	11.217	73,313	65,35
Soya bean	5.220	8,724	14,77
Peanuts	3.340	4,473	15,23
Mung beans	50	84	12,79
Cassava	7.305	127,321	174,29
Sweet potato	731	11,452	156,67
Taro	195	2,884	147,9
Gondolo	134	268	20,02

Source: Department of Agriculture and Food Crops, Sumedang Regency, 2018

Based on the number of villages in Situraja District, researchers chose Cijeler Village as a research and community service location. The specific cultivation technology of crucian carp is not yet known in detail in Cijler village, this is because socialization has not been carried out regarding this cultivation, and farmers in the village prefer the cultivation technology using the transplanting method (TAPIN). This is what prompted the researchers to conduct research and community service regarding the technology of crusading rice, the aim of which is to provide new knowledge to farmers in the village of Cijeller about the procedures for cultivating the SALIBU technology and the benefits that can be obtained from the SALIBU technology. As for the expected benefits, there is an interest from farmers to try to develop crusading technology, so that farmers can prove the various benefits derived from this cultivation technology and can directly experience other benefits.

Method

Referring to the statement in the introduction, that the development of crusading technology has not yet been developed in Cijeler Village, Situraja District, the method used by researchers is a qualitative research method. This method is used because the author wants to know the phenomena that occur among farmers in the Situraja Sub-District regarding the method of crusading rice cultivation technology to find out this phenomenon, the author collects detailed and complete data which is then analyzed. The results of the analysis are then described in accordance with the phenomena that have

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been studied[9].

Data collection was carried out in several ways, namely ***first,*** coordinating and discussing with the Cijeler Village government regarding agricultural counseling or assistance that had been carried out in the village. ***second,*** survey the location of paddy cultivation land, both paddy fields, and dry fields, and look directly at the types and sources of irrigation water, ***third,*** record direct data on rice cultivation methods carried out by farmers, ***fourth,*** record the types of varieties cultivated by farmers, fifth, conduct interviews with farmers Cijeler Village.

Data collection

The results of data collection through direct surveys obtained data showing that Cijeler Village is a village located in the Bangbayang plantation area, the water source is not experiencing problems, and there are several farmers who have paddy fields around the banks of the Cicapar river, and farmers can cultivate crops even in the drought season. The results of coordination with the Cijler Village Government obtained data that agricultural counseling or assistance was often carried out and even agricultural practices had been carried out by several educational institutions such as universities and related agencies. Other data from the survey also shows the method of processing rice fields using the conventional TAPIN (transplanting planting) technique, which in the process is carried out through the seed sowing stage, then plowing the fields, then planting rice by moving the seeds from the sowing location to the paddy fields.

Figure 1. Paddy Field Processing (A and B). The Process Of Cleaning And Rearranging Paddy Fields (Galengan); (C). Rice Field Plowing Process Using Buffalo; (D). Percent of

[9] John W Creswell, *Educational Research: Planning, Conducting, and Evaluating Quantitative*, vol. 7 (Prentice Hall Upper Saddle River, NJ, 2002).

Rice Planting Using the TAPIN Method; (E). Rice Conditions Already Embedded In Paddy Fields

For the area of paddy fields based on the type of irrigation, it was obtained data that in Situraja District the type of irrigation was non-technical, with the area of paddy fields for each village as shown in table 2 below

Table 2. Area of Paddy Field (Non-Technical Irrigation)

Village	Paddy Field Area (Ha)		
	Technical	Non-Technical	Total
Bangbayang	-	73	73
Kaduwulung	-	102	102
Cijati	-	108	108
Mekarmulya	-	115	115
Cikadu	-	109	109
Karangheuleut	-	74	74
Cijeler	-	145	145
Ambit	-	125	125
Sukatali	-	130	130
Situraja	-	86	86
Jatimekar	-	140	140
Situraja Utara	-	117	117
Malaka	-	74	74
Pamulihan	-	60	60
Cicarimanah	-	54	54
Sub-district	0	1.512	1.512

Sumber Potensi Desa 2015

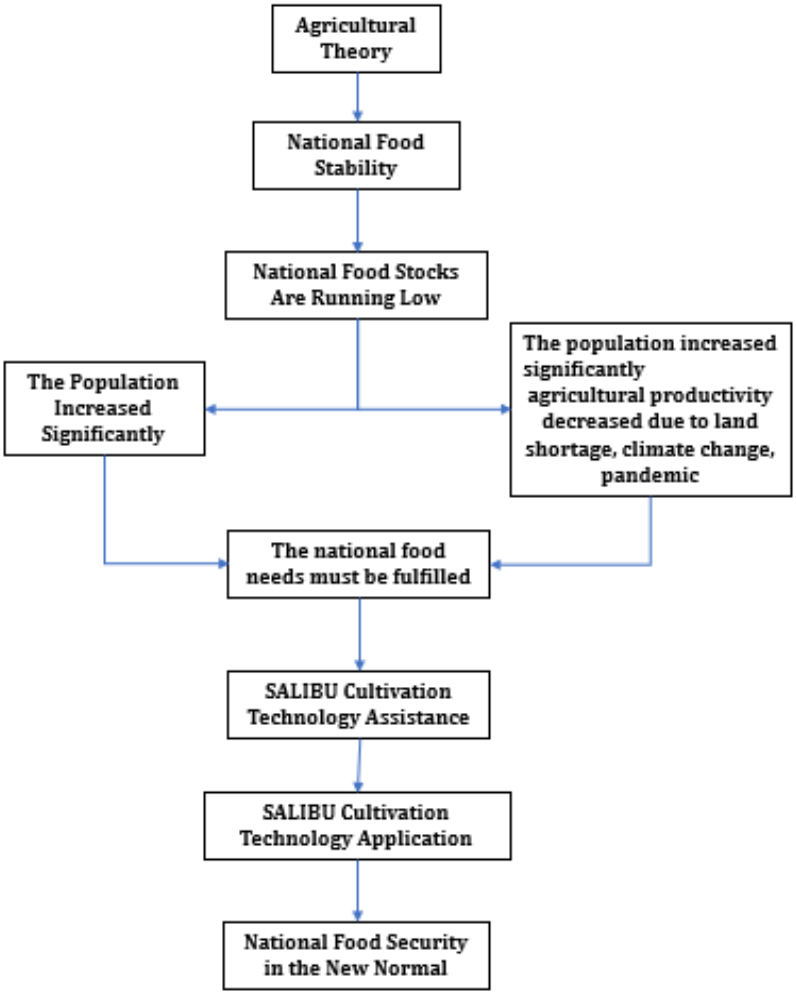
For data collection on the types of rice varieties cultivated in Cijeler village, data were obtained that there were three types of varieties that were mostly cultivated by farmers, namely IR 64, Ciherang, and Inpari.

The next data collection was by conducting interviews with randomly selected farmers to 25 farmers. Before conducting the interviews, the researchers recorded the age of the farmers and their length of work as farmers, their education level of the farmers, and after the data was obtained the next step was conducting interviews. As interview material, the researcher prepared 10 questions, including 1). What types of planting methods have been used? 2). How long has this type of method been used by farmers in rice processing? 3). What types of varieties do farmers choose? 4). What are the types and conditions of irrigation in Cijeler village agricultural land? 5). How much does it cost to process rice in the transplanting method? 6). What type of fertilizer is used? 7). In what range is the yield of rice per hectare? 8). Do farmers have other cultivation

methods? 9). Have you ever been introduced to the farmers about the SALIBU cultivation technology method? 10). If you already know the advantages of SALIBU cultivation technology, are farmers interested in trying it?

As additional material to obtain data and information about SALIBU cultivation technology, a literature review needs to be carried out. This literature review is based on the results of previous studies[10]. The combined results of interviews and literature reviews can enrich the authors in providing research analysis which is then summarized and a new analysis is made qualitatively[11] so that the results of the analysis can become recommendations for action that SALIBU cultivation technology is very suitable to be applied in Cijeler village.

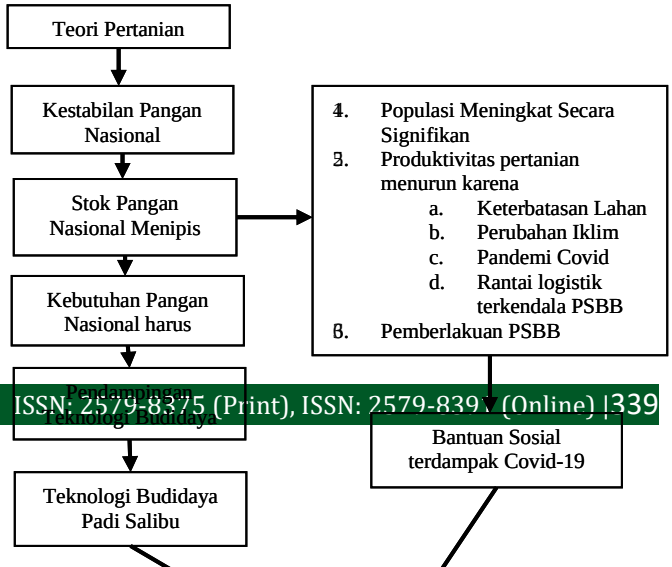
Framework of Thinking



[10] M Melfianora, "Penulisan Karya Tulis Ilmiah Dengan Studi Literatur," *Open Science Framework* 12, no. 1 (2019): 14–26.

[11] Robert C. Bogdan and Biklen Kopp Sari, *Qualitative Research for Education: An Introduction to Theory and Methods* (Boston London: Allyn and Bacon, Inc, 1982).

Figure 2. The framework of the Thinking Diagram



Results

Support Materials

For the material for socializing the assistance of SALIBU cultivation technology, researchers provide two things to farmers, namely firstly an explanation and understanding of the crusading technology, secondly, the presentation of data from previous studies on SALIBU cultivation technology.

Definition of SALIBU Cultivation Technology

SALIBU cultivation technology in general can be interpreted as rice cultivation technology by relying on grain produced from rice stubble after harvest. There are two cultivation methods to produce grain with an emphasis on rice stubble, namely the RATUN method and the SALIBU method.

RATUN Cultivation Technology

The response of the Cijeler village farmers regarding the crusading technology is less enthusiastic because they are still unsure that the grain produced is not necessarily good and a lot. These responses and answers are not wrong, only what is wrong is the intent of the answer, because the answer in question is the RATUN method. The thing that distinguishes SALIBU cultivation technology from RATUN cultivation technology is the origin of the tillers, if SALIBU cultivation technology comes from roots that develop and grow vegetatively the number of tillers will increase a lot, while RATUN cultivation technology is new stems produced from rice stalks when harvesting process, so that it cannot increase the number of tillers because it is sourced from rice stalks. Usually, these new rice stalks bear fruit quickly and the amount of grain is small, and the quality is far from the initial yield because they are not treated properly such as weeding, fertilizing, and other efforts that are usually done in rice cultivation technology. An example of RATUN rice can be seen in Figure 3 below.

Figure 3. RATUN rice which is common for every pruning at harvest; (A). RATUN Overlay After Several Weeks of Harvest; (b). RATUN in close proximity

SALIBU Cultivation Technology

In contrast to RATUN cultivation, SALIBU Cultivation Technology is a rice cultivation technology that prioritizes tillers from rice stubble. Rice plants have the ability to produce tillers after harvest, provided that the initial stem conditions of the rice are fresh, not withered, and not dead. To make it easier for the stubble to produce new tillers after being harvested, what needs to be done after the first harvest process, where the rice is cut at random heights and then left for 7 to 10 days with moist soil conditions. The goal is to keep the lower stem of the rice fresh, then do a second cut with a cutting height of about 3-5 cm from the ground. After the second cutting, it is necessary to ensure that the stump is fresh and the soil is moist. These two things are very important because they affect the emergence of seedlings from the bottom of the stump. An example of a tiller growing after the second cutting can be seen in Figure 4 below.

Figure 4. SALIBU Cultivation Technology Prospective Saplings; (A). Rice Stumps Cut 3 cm and Produce Saplings; (b). SALIBU saplings have roots like the original plants.

The important thing about SALIBU cultivation technology is that there will be many good tillers because it will determine the amount of grain produced to get a good many tillers, it is necessary to take several steps[12], including ***First,*** the varieties of the main rice, to obtain a large number of good tillers, the first thing to note is the type of superior varieties planted. Because the superiority of this variety greatly determines the yield, it is in accordance with the strategies and methods for increasing rice production. By applying the Integrated Crop Management (PTT) or Integrated Corp Management (ICM) model. ***Second,*** the second cutting time. According to previous studies, a good second-cutting time is 7-10 days after harvest (first cutting). The aim is to ensure that the main stem of the rice stump is still in good condition. ***Third,*** the pruning height on the second cutting. According to previous research, a good cutting height for SALIBU cultivation technology is 3-5 cm. ***Fourth,*** fertilization time. The fertilization process is carried out

[12] S Abdulrachman et al., "Panduan Teknologi Budidaya Padi Salibu," *Diakses pada* 21 (2015).

twice, namely when the tillers start to grow with a dose of 40% fertilizer, then the second dose is given when the number of tillers will increase with a dose of 60%. ***Fifth,*** weeding aims to get rid of weeds and other disturbing plants around the cultivated stump. ***Sixth,*** embroidery is a technique of transferring saplings from stumps that have more saplings to stumps that fail due to rot. ***Seventh,*** treatment until harvest time, this treatment aims to protect SALIBU rice from pests, insects, fungi, rats, and other pests.

SALIBU Cultivation Technology Techniques

Technically, SALIBU cultivation technology can be explained as follows:
First, the harvesting process is as is done in general, where rice is cut at random heights as shown in Figure 5, this harvesting process is the first cutting process.

Figure 5. Harvesting (A). Harvesting Process Carried Out in the Upstream of Cijeler Village; (b). Harvesting Process Carried Out Downstream in Cijeler Village

Second, the second cutting, this cutting is carried out on the 7th - 10th day after the first cutting, with a height of between 3 - 5 cm from the ground, the cutting process can be done manually in the same way as in Figure 6.

Figure 6. (A). The second cutting process is 3-5 cm above the ground; (b). The Condition of the Field After the Second Cutting.

During the second cutting, make sure the soil is moist because it is wet with water, after the second cutting, make sure the water conditions in the plot are available and wait for the stump to produce tillers, as shown in figure 7.

Figure 7. Rice stump after the second cutting that produces tillers

Third, when the number of tillers has appeared evenly, it is necessary to apply the first fertilization with a dose of 40%, the goal is to stimulate the stubble to increase the number of tillers.

Fourth, do weeding because when the tillers that come out of the waiting area grow evenly, the weeds also grow evenly, therefore it is necessary to clean weeds/disturbing plants from cruciferous rice. The types of weeds around SALIBU rice can be seen in the following figure 8.

Figure 8. (A). Types of Weeds Growing Around SALIBU Rice at Point 1; (b). Types of Weeds Growing Around SALIBU Rice at Point 2.

Fifth, the implementation of embroidery on stumps that do not produce tillers perfectly, the aim of this embroidery is for future growth to run perfectly so that the cultivation of cruciferous rice grows evenly. The embroidery process can be done as shown in figure 9.

Figure 9. (A). SALIBU Cultivation Technology Embroidery Process at Point 1; (b). SALIBU Cultivation Technology Embroidery Process at Point 2.

Sixth, the implementation of the second dose of fertilization is 60%, this fertilization is carried out after weeding and replanting, the purpose of this second fertilization is to help the growth of tillers so that it can inhibit the rice from getting pregnant more quickly. The fertilization process can be seen in Figure 10.

Figure 10. Fertilization Process

Seventh, the process of caring for and monitoring the cruciferous rice from insects, rats, fungi, and when it starts to grow, it is necessary to pay attention to disturbances from birds.

Implementation of the Socialization of the Application of SALIBU Cultivation Technology

In the implementation of mentoring Community Service activities are carried out indoors and outdoors, along with documentation of the assistance implementation.

Figure 11. Initial Socialization Process Regarding the Implementation of SALIBU Cultivation Technology in Cijeler Village, Situraja Sumedang District (A, B, C indoors), and (D, E, F outdoors)

Presentation of Previous Research

In this assistance, the author presented several research results regarding previous SALIBU cultivation technology, such as the results of Erdiman and Nieldalina's research, which stated in their research that SALIBU cultivation technology could increase productivity by 3-6 tons/ha/year, with farmer income ranging from Rp. 15-25 Million/Year[13].

Other materials that need to be conveyed to farmers in Cijeler village include the variety factor, the pruning height factor, the pruning time factor, the fertilization factor, and the irrigation factor[14]. The type of variety greatly determines the number of tillers and everyone needs to know that each variety has advantages and disadvantages in producing tillers, and based on the explanation from Nunung Nurhadi on his YouTube channel which states that the type of IR variety is a recommendation for crusader cultivation technology because it has a large number of tillers. The results of other studies also state that what contributes to the yield of grain produced from SALIBU cultivation is the type of rice variety[15].

[13] Nieldalina Erdiman and Misran, *Inovasi Teknologi Salibu Meningkatkan Produktivitas Lahan, Mendukung Swasembada Pangan Berkelanjutan (Innovation of Salibu Technology Improving Productivity OfLand Supporting Sustainable Food Self Sufficiency)* (Sumatera Barat, 2014).

[14] Resfa Fitri, Nunung Kusnadi, and Kazumi Yamaoka, "SALIBU Technology in Indonesia: An Alternative for Efficient Use of Agricultural Resources to Achieve Sustainable Food Security," *Paddy and Water Environment* 17, no. 3 (2019): 403–410.

[15] N. Sujinah, Agustiani and A. Jamil, "Pengujian Cara Tanam Dan Varietas Pada Budidaya Salibu

The time of the second cutting and the height of the second cutting also need to be considered, because based on the results of the research by Awalina et al. it was stated that the time for the second cutting and the height of the cutting greatly affected the number of tillers and rice productivity, and based on the research of Awalina et al. it recommended a suitable time for the second cutting was 7 days after the first cut[16]. The results of research regarding the effectiveness of the second cutting time after harvest for the IR variety can be seen in table 3 below.

Table 3. The effect of pruning time and the number of tillers from the research of Awalina et al

The second cutting time after harvest	The number of offspring produced	The number of grains per panicle (grain/panicle)	Productivity Estimation (tonnes/ha)
3 days	16	120	5,4
7 days	19	134	7,6
15 days	17	124	5,9

Source of Research Results Awalina et al

and for the second cutting height factor on rice stubble, it states that there have been different treatments of rice cutting height and produced different rice productivity as shown in table 4 and a good cutting height of 3-5 cm.

Table 4. The Effect of Rice Stem Cutting Height According to the Results of the Research by Awalina et al

The height of the cutting above the ground	The number of offspring produced	The number of grains per panicle (grain/panicle)	Productivity Estimation (tonnes/ha)
3-5 cm	22	132	7,7
8-10 cm	18	116	6,8
18-20 cm	23	78	2,3

Source of Research Results Awalina et al

Another factor that can affect yields from SALIBU cultivation technology is the fertilization factor. In general, the types of fertilizers used are urea and ponska, with different dosage rules, which are given when 50% of the SALIBU tillers appear, and 50% when the rice tillers carry out vegetative propagation. The dosage and process of this fertilization affect the number of tillers and the final productivity results, and based on the fertilization results carried out in the study of Awalina et al. the results are shown in table 5 below.

Planting," in *Prosiding Seminar Nasional 2017 (1st Ed., Vol. 2, Issue January)* (Balai Besar Penelitian Tanaman Padi Badan Penelitian dan Pengembangan Pertanian Kementerian Pertanian, 2018), 978–979.

[16] Rahmi Awalina, Delvi Yanti, and Fadli Irsyad, "ANALISIS FAKTOR YANG MEMPENGARUHI PRODUKSI PADI SALIBU DAERAH SUMATERA BARAT," *Jurnal Teknologi Pertanian Andalas* 25, no. 1 (2021): 90–95.

Table 5. The Effect of Giving SALIBU Fertilizer Type According to the Research Results of Awalina et al

The dose of the first fertilizer + second fertilizer	The number of offspring produced	The number of grains per panicle (grain/panicle)	Productivity Estimation (tonnes/ha)
100 kg/ha Urea + 100 kg/ha Ponska	17	124	6,6
150 kg/ha Urea + 150 kg/ha Ponska	220	137	8,3

Source of Research Results Awalina et al

Advantages of SALIBU Cultivation Technology

In the socialization of assisting farmers in Cijler village regarding SALIBU cultivation technology, the researcher explained the advantages and advantages of SALIBU cultivation technology, this explanation must be based on data from previous studies, and the advantages of SALIBU cultivation technology. 1). The need for irrigation water is not much because there is no need for land processing; 2). Costs can be minimized because there is no need to prepare the land, and plant rice seeds because SALIBU rice seeds are already available on the main stem; 4). Rice harvests faster (about 80% - 90%), 5). An increase in the rice harvest index for one year can be achieved because it can be harvested up to 4 times; 5). the scarcity of rice varieties is maintained; 6). Can cope with the limited number of skilled workers.

Interview result

Based on the results of interviews conducted with 25 farmers, the following results were obtained:

First, the question of what types of planting methods are commonly used in Cijeler village. The answers from 25 farmers were all answered using the Transplanting Planting (TAPIN) method.

Second, the question is about how long the farmers have been using the TAPIN method in farming for rice cultivation. The results of the data obtained from 25 farmers stated that on average the farmers already had sufficient experience, as evidenced by the data obtained from experience working in rice fields in carrying out transplanting rice cultivation techniques, the lowest was 13 years, and the highest was 21 years. so the average experience of farmers in cultivating rice using the TAPIN method is about 16.56 years.

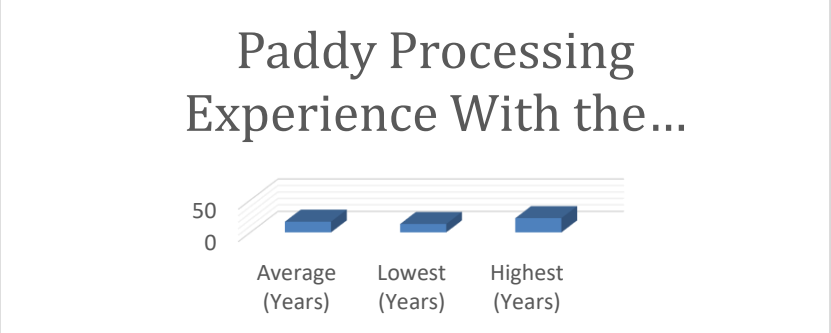


Figure 12. Graph of Rice Processing Experience with the Transplanting Method in Cijeler Village

Third, the next question is what type of variety did the Cijeler village farmers choose. The answers from the 25 farmers interviewed varied widely because they were constrained by the price of seeds, which always experienced price increases according to the superiority of the variety to be cultivated. To make this research easier, a priority scale was made of the types of varieties that farmers often choose. And of the 25 farmers interviewed, it was stated that 30% of the farmers chose the IR 64 variety and 26% were the ciherang variety and 44% were the Inpari variety.

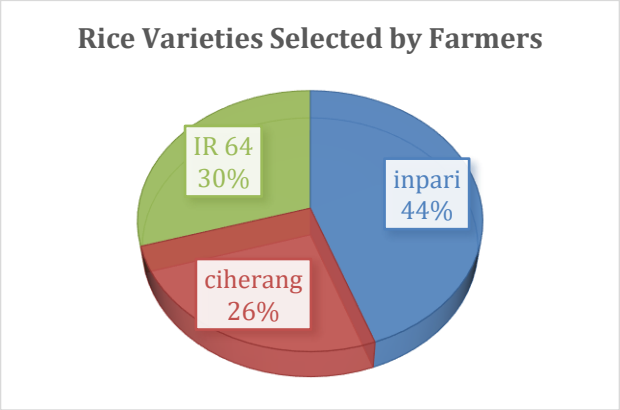


Figure 13. Types of Rice Varieties Selected by Farmers in Cijeler Village

Fourth, the type of irrigation for agricultural land in Cijeler village is village irrigation with the water source coming from the Cicapar river. Irrigation channels are not maintained because they are often damaged by floods in the rainy season.

Fifth, the important thing that needs to be considered for the sustainability of rice field management, namely the costs incurred in processing the Tanam Moved rice fields for one harvest, and the results of interviews obtained data that the costs incurred by farmers to plant rice for one harvest are at least Rp. 8,600,000, - and the biggest is Rp. 12,000,000, -, so that the average cost incurred is Rp. 9,968,000,-

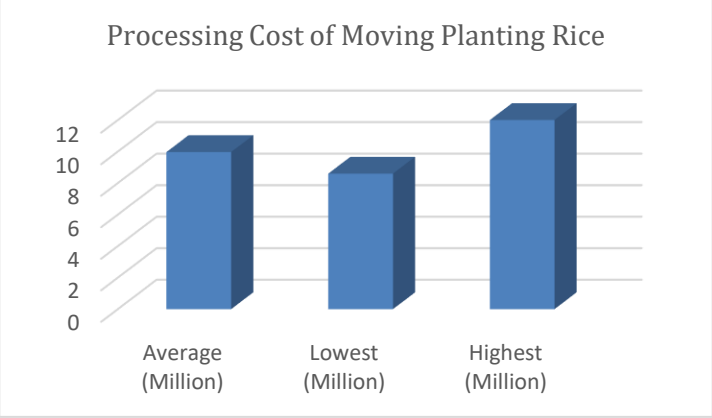


Figure 14. Graph of Rice Processing Costs for the Transplanting Method in Cijeler Village

Sixth, related to efforts to increase rice productivity, researchers need to know the type of fertilizer used by farmers during the process of moving rice cultivation. and from the interview results obtained data from 25 farmers, which stated that the fertilizer used was 1). Urea and manure as much as 16%, 2). Urea, Ponska, and Manure as much as 28%, and those using Urea and Ponska Fertilizer 56%. The use of this type of fertilizer is different because most of the farmers also have livestock such as poultry, cattle, and goats.

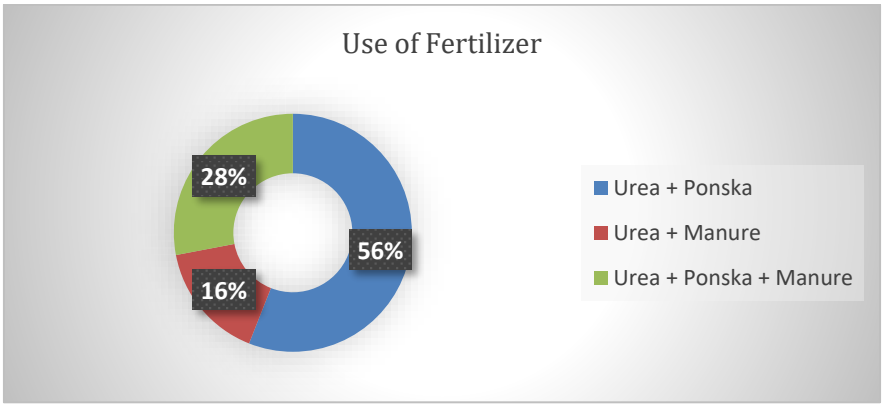


Figure 15. Use of Fertilizer Types Used by Farmers in Cijeler Village, Situraja District

Seventh, to find out whether farmers will be interested in the crusader technology, the researchers are trying to find out how the yields per hectare are if they use the Transplanting Cultivation method. The results of the interviews obtained the yield data per hectare, the average yield was Rp. 21,092,000, - with the highest yield of Rp. 25,600,000, - and the lowest yield is Rp. 17.600.000,-

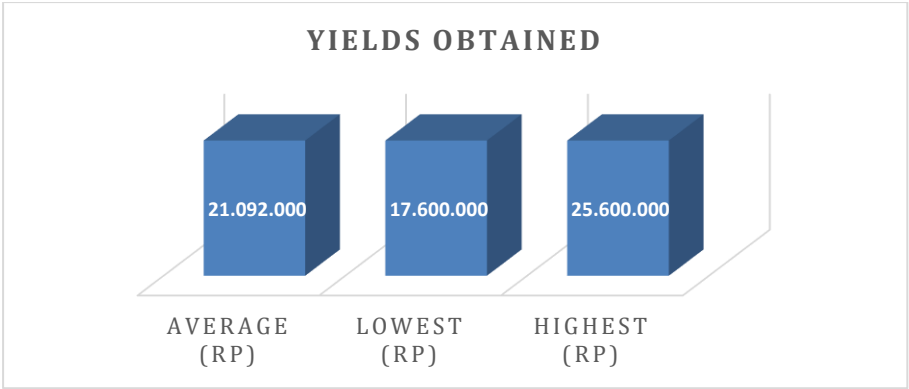


Figure 16. Range of Yields Produced by the Transplanting Method, Cijeler Village, Situraja Sub-District

Eighth, the researcher wanted to find out whether the farmers in Cijeler village had rice cultivation methods other than Transplanting, and in order for this research to be focused, researchers need to know other types of rice cultivation methods, apart from Transplanting. Based on the results of the interviews, all farmers answered that they had no other method than the conventional method of transplanting (TAPIN).

Ninth, based on the farmers' answers regarding the cultivation methods that are

commonly used by farmers, the researchers introduced the SALIBU cultivation technology method, also known as Copy Mother. When explained about SALIBU cultivation technology, the farmer replied that they were already familiar with SALIBU cultivation technology with the terms SINGGANG or MENIRAN and the technology had been taught, and the obstacles in SALIBU cultivation technology included, ***first,*** the second cutting process which had to be done manually, so it had to require more power. ***secondly,*** farmers lack strong belief that if the second cutting is done, saplings will appear. ***third,*** farmers are still not convinced that the yields from the crusading technology can exceed the yields from the first harvest.

Tenth, taking into account farmers' knowledge and farmers' fear of the products produced by crusading cultivation technology, as well as to boost agricultural product productivity and cropping index, the application of SALIBU cultivation technology is very suitable for development because until now rice is still the national staple food. Besides that, the researchers also provided an overview of the advantages of SALIBU cultivation technology, including Planting one harvest many times, 2. Maintaining superior varieties, 3. No need to cultivate the land for replanting. 4. minimize the use of irrigation water and the need for irrigation water can be controlled because it only maintains soil moisture, 5. no need to cultivate the land, so it doesn't require a lot of workers, and low costs. Based on the results of the interview above, Cijeler village has very strong potential to implement the SALIBU cultivation technology because the superior variety that is already widely used by farmers is Inpari, and this needs to be tested for this type of Inpari variety.

Based on the researcher's approach and assistance to farmers in Cijeler village regarding SALIBU cultivation technology, the results of interviews were obtained regarding the interest of Cijeler village farmers to try to develop SALIBU cultivation technology. The results of the interviews showed that 44% of the farmers wanted to learn about the SALIBU rice cultivation method. Farmers must be assisted, fostered, and assisted for easy access to SALIBU cultivation technology needs, and 40% of farmers answered that they were still unsure, farmers were still unsure whether SALIBU cultivation methods could increase farmers' income, while those who answered did not know at 16%.

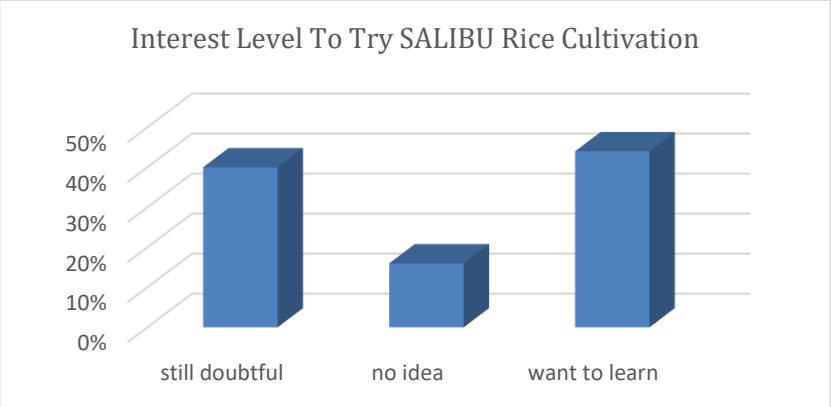


Figure 17. Level of Interest of Farmers to Try SALIBU Cultivation Technology in Cijeler Village, Situraja Sub-District

Discussion

Based on the collection of primary and secondary data, the SALIBU cultivation technology needs to be followed up, because it is necessary to prove that this type of method can benefit farmers and increase rice productivity. On a small scale, the practice of SALIBU cultivation technology has been carried out by researchers using rice stubble of IR 64 and Ciherang varieties. The results show that the IR 64 variety can produce quite a large number of tillers compared to the Ciherang variety, and it is necessary to conduct trials for the Inpari variety so that if successful, it will be easily accepted by Cijeler Village farmers.

The results of research conducted by researchers must be proven to farmers by carrying out the process of testing SALIBU cultivation technology using the superior variety Inpari. The steps and factors that influence during the cultivation process need to be considered, so that results will be obtained in accordance with the theory that has been studied. SALIBU cultivation technology is of great interest to the public because it costs little but can produce quite a lot of results, and can cut processing costs quite a lot. Therefore, with the response of as many as 44% of farmers wanting to learn the SALIBU cultivation technology method, it shows that there is a transfer of knowledge in farming, and this must be proven by practicing SALIBU cultivation technology directly.

This assistance to farmers is one of the first steps to educate farmers that in the world of agriculture there are technological methods of rice cultivation that can benefit farmers, so that when new knowledge is received by farmers, it is highly likely that the idea will be accepted, although not all of it is accepted because it needs proof. Therefore, the next step is to carry out research and direct practice regarding the SALIBU cultivation technology method.

Conclusion

Judging from the initial process of cruciferous rice cultivation to harvest, there is one thing that is an important point in SALIBU cultivation technology, namely its connection with the Covid-19 pandemic, namely reducing workers, because in the transplanting technology (TAPIN) many people have to do it to move the seeds that have been harvested. sown in ready-to-plant land. This large number of people working can cause crowds of people and is very dangerous because one of the actions that must be taken to prevent Covid-19 is to stay away from crowds, besides that the obstacle that is very difficult to realize in the field is the obligation to wear a mask, and the results of a survey conducted in the rice fields when transplanting rice, all workers did not use masks. This is reasonable, because it will be very less free to wear a mask, and this is very beneficial for the government to activate the farmer's economy through SALIBU cultivation technology, and it can be done by one person without having to wear a mask because they don't interact with many people. However, even if there are no crowds, it is still mandatory to apply health protocols, namely by wearing a mask.

To meet food needs in Sumedang district, then encourage the productivity of agricultural products for the main food commodities in Situraja sub-district, the application of crusading technology is very suitable for development, this is based on several reasons including 1). The main food commodities in Situraja District are paddy rice, 2). Sumedang Regency has superior varieties of inpari, 3). Fulfillment of food needs in the new normal era, 4). Processing costs for the cultivation of cruciferous rice are cheaper than transplanting rice cultivation because they do not process rice fields, and do not require a lot of workers. 5). In the new normal era, the health of farmers must be maintained and health protocols must still be implemented.

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