# Growth and productivity of new superior rice varieties and respondents' preference in Majalengka Regency

*Yanto* Surdianto*, *Bambang* Sunandar, Kurnia, and *Nana* Sutrisna

Assessment Institute of Agricultural Technology of West Java, Lembang 40391, Indonesia

**Abstract.** In developing new superior rice varieties, farmers' preferences are important things to study and high yield potential. The study aimed to obtain new superior varieties of adaptive rice based on plant growth and productivity performance and determine respondents' preferences for the varieties studied. The study was conducted in rainfed rice fields, Majalengka Regency, West Java Province, from April to August 2020. The study used a randomized block with 6 treatments: Inpari 32 varieties, Inpari 39, Inpari 42, Inpari 43, Pajajaran, and Siliwangi, and repeated 5 times. The observed parameters consisted of: growth, yield components, and yields were analyzed by ANOVA followed by Duncan's Multiple Range Test at a 5% level. The respondent's preference test for grain and rice and organoleptic characters used a Likert scale and analyzed non-parametrically (Friedman test). The results showed that the Inpari 43 variety gave the highest yield. Still, farmers preferred the Inpari 32 variety to be developed because it has characters favored by farmers (respondents), namely short plant height, a large number of tillers, thin grain shape, white rice color, and fluffier rice taste.

## 1 Introduction

The population of Indonesia is a population with relatively high consumption of rice. During the 2002 - 2018 period, the average rice consumption was 1.95 kg/capita/week or equivalent to 101,65 kg/capita/year with an average reduction rate of 0,67% per year [1]. Indonesia is one of the largest per capita consumptions of rice in the world. Only Myanmar, Vietnam and Bangladesh have higher per capita rice consumption than Indonesia. [2] Indonesia's rice production in 2019 decreased compared to 2018. In 2019, rice production only touched 31,31 million tons, 2,63 million tons lower or equivalent to 7,75 percent from 2018, around 3,94 million tons [2]. The decline influenced the decline in rice production in rice production. Therefore, efforts to increase rice production to meet the food needs of an ever-increasing population have always received top priority in agricultural development in Indonesia.

The strategy taken in increasing production is increasing rice productivity, expanding the paddy field area, and managing land. Increasing productivity can be done, among others, by using seeds from superior varieties. New superior varieties (NSV) are technological

* Corresponding author: y.surdianto@yahoo.com

innovations that have contributed significantly to increasing rice production [3]. Superior varieties are the main technology component that contributes 56% in increasing national rice production [4]. The contribution of the interaction of irrigation water, NSV, and fertilization to the rate of increase in rice production to reach 75% [5]. Rice varieties are also the easiest technology to be adopted by farmers because this technology is cheap and its use is very practical [6]. the interaction contribution of irrigation water, NSV, and fertilization to the rate of increase in rice production reached 75%.

Indonesian Agency for Agricultural Research and Development (IAARD) has released many new superior varieties of rice. In addition to high yield, most of these new varieties resistant to bacterial leaf blight, Tungro, blast and planthoppers. Some of the NSV are resistant to environmental stresses, such as immersion or poisoning in Fe and Al. However, the high yield does not guarantee that NSV is easy for farmers to adopt. The Inpari 12 variety, which has high productivity and early maturity, is less favored by farmers because of its spicy taste [7]. Therefore, in introducing NSV to farmers, it is necessary to test their preferences for the introduced NSV. Adaptive varieties, high yield potential and yield quality according to farmer and consumer preferences will usually be adopted [8].

The purpose of the study was to obtain adaptive new superior varieties of rice-based on plant growth performance and productivity and determine respondents' preferences for the varieties studied.

# 2 Methodology

## 2.1 Time and location

During the first dry season (April to August 2020), the research was conducted in Rainfed Rice Fields, Kedungcana Village, Ligung District, Majalengka Regency, West Java Province, at an altitude of 25 m above sea level.

## 2.2 Research design

The study used a randomized block design (RBD) with one single factor, namely, new high-yielding lowland rice varieties consisting of 6 varieties namely: Inpari 32 (farmer's existing variety), Inpari 39, Inpari 42, Inpari 43, Pajajaran, and Siliwangi. Each treatment level was repeated 5 times to obtain 30 experimental units. The area of each experimental plot based on natural plots ranged from 300-1000 m2.

Rice cultivation is carried out through the Integrated crop management (ICM) approach by applying several technological components: (1) how to plant legowo 2: 1 with a spacing of 40 x 25 x 15 cm, (2) fertilization based on the recommendation of Integrated Katam SI (250 Urea kg/ha + 175 kg NPK/ha), (3) age of seedlings planted 17 HSS (days after the seedlings) by transplanting 2 stems per planting hole, (4) weeding done manually and using tools (sloping) twice, namely, at the age of 20 days after planting and 40 days after planting, and (5) pest control using biological pesticides [9].

## 2.3 Parameters observed

The parameters observed included: (1) the characteristics of the research location were analyzed descriptively, (2) growth (plant height and number of tillers), yield components (panicle length, number of filled and empty grains per panicle), grain weight of 1.000 grains, and rice yield. t/ha (GKP) was analyzed by ANOVA (Analysis of variance) followed by the DMRT (Duncan Multiple Range Test) at the 5% level [10]; (3) The test of farmers'

preferences for the physical characteristics of grain and rice and organoleptic used a survey method with a questionnaire tool. Social science data were generated in sample surveys [11]. Respondents involved in the preference evaluation consisted of 6 extension workers, 15 farmers, and 4 village officials of Kedungkencana. Farmers' preference for plant growth, grain and rice physical characteristics, as well as organoleptic using a Likert scale (1 = very dislike, 2 = dislike, 3 = normal/usual, 4 = like and 5 = very like), then analyzed using non-parametric analysis (Freidman Test) and descriptive analysis to describe the composition of respondents [12].

# 3 Results and discussion

## 3.1 General condition of research site

Ligung District, Majalengka Regency has an area of 6,885 hectares, consisting of land area of 1,980 hectares (28,76 %) and rice fields of 4,905 hectares (71,24%) consisting of technical irrigation land (1,393 ha), technical irrigation land (1,282 ha), simple irrigation (1,147 ha), and rainfed (1,181 ha) most of which are only planted with rice twice a year with an average productivity of 6,72 t/ha [13]. Based on sub-district potential data, most of the population in Ligung sub-district, as many as 31,643 people (82,95%) make a living in the agricultural sector. Geographically, it is located at an altitude of 25 m above sea level. It has rainfall between 1735 mm - 2756 mm with an average rainy day of 165 days. The soil in the Ligung District area consists of 5 soil types, namely: Latosol, Gramosol, Red Yellow Podsolic, and Gray Alluvial with moderate fertility levels.

Rice fields in the research location are only planted with rice 2 times a year, with a rice - rice - fallow cropping pattern. This cropping pattern is related to the availability of water which only relies on rainwater. The need for irrigation water for the 2nd planting season is met by pumping river water whose water surface is below the surface of the rice fields (farmer interview). The most widely planted rice in the research location is the Inpari 32 variety, which is a new superior rice variety produced by IAARD which has a fluffier rice taste with a long grain shape. Although there are many new high yielding varieties that have similar characteristics to Inpari 32, most of the farmers do not know about it.

## 3.2 Plant height and number of tillers

All the six new superior varieties evaluated were vegetatively grown well. No significant difference in their plant height or number of tillers at the age of 30 days after planting (DAP) (Table 1). However, the average plant height and number of tillers showed significant differences between varieties at 60 and 90 DAP.

**Tabel 1.** Average Plant Height and Number of Tillers of Several New Superior Varieties of Rice in Majalengka Regency, 1st Dry Season in 2020.

| Varieties | Plant Height (cm) | | | Number of Tillers (tillers) | | |
|---|---|---|---|---|---|---|
| | 30 DAP | 60 DAP | 90 DAP | 30 DAP | 60 DAP | 90 DAP |
| Pajajaran | 55,40 a | 82,50 a | 94,80 a | 22,00 a | 28,40 ab | 22,20 a |
| Inpari 39 | 60,60 a | 86,90 ab | 105,00 b | 26,00 a | 29,70 bc | 24,00 ab |
| Inpari 32 | 55,40 a | 89,70 b | 104,20 b | 25,40 a | 31,20 c | 25,90 c |
| Siliwangi | 60,50 a | 85,90 ab | 99,20 ab | 22,80 a | 25,90 a | 22,00 a |
| Inpari 43 | 60,30 a | 92,00 b | 99,00 ab | 24,40 a | 29,60 bc | 24,70 ab |
| Inpari 42 | 55,00 a | 87,00 ab | 94,90 a | 24,20 a | 27,30 ab | 24,10 ab |

Note: The numbers followed by the same letter in the same column are not significantly different in the DMRT test at 5% level. DAP (Day After Planting).

The higher Inpari 32 and Inpari 39 varieties compared to other varieties, it is suspected that these varieties, especially Inpari 32, could adapt better to the local environment. Inpari 32 variety is the variety most widely grown and preferred by farmers in the research location for the last 5 years. The growth of rice plants results from the interaction between genetic factors and the environment [14]. Genetic factors are related to the inheritance of the nature/behavior of the plant itself, while environmental factors are related to the environmental conditions in which the plant grows.

Rice plant height was divided into three groups, namely short plant height (less than 115 cm), medium (115-125 cm), and tall plant height (more than 125 cm) [15]. These groupings showed that all varieties studied included varieties with short plant height, which is less than 115 cm. This study also indicated that the NSV of the Inpari rice gave a higher plant height than the plant height described (Figure 1).

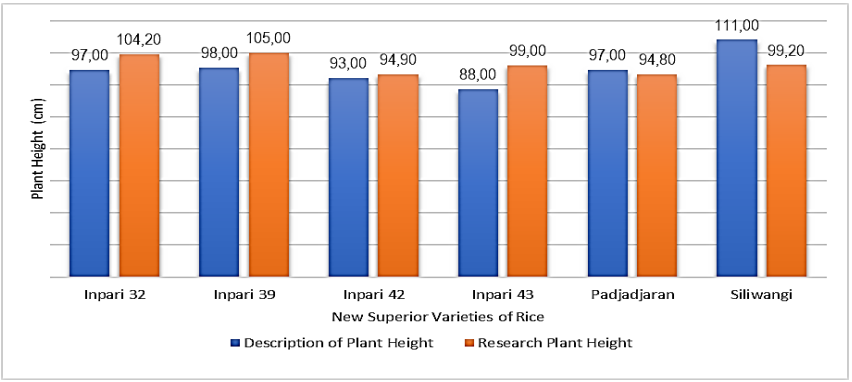


**Fig 1.** Comparison of the plant height of the research results with the plant height of the description of each variety in Majalengka Regency, 1st Dry Season in 2020.

The maximum number of tillers per hilltop (60 DAP) is given by Inpari 32, as many as 31,20 significantly different from the Padjadajar, Siliwangi and Inpari 42 varieties not significantly different from the Inpari 43 and Inpari 39 varieties (Table 2). he maximum number of tillers will affect the formation of the number of productive tillers, namely, the greater the maximum number of tillers, the greater the number of productive tillers [16]. The highest number of productive tillers (90 days) was given by Inpari 32 variety as many as 25,90 tillers per clump which were significantly different from other varieties (Table 2). Meanwhile, the varieties that showed the least number of productive tillers were the Padjadjaran and the Siliwangi variety, respectively, with 22,20 tillers and 22,00 tillers.

Productive tillers can be grouped into three types, namely fewer tillers (less than 12 stems per clump), medium tillers (13-20 stems per clump), and many tillers (more than 20 stems per clump) [17]. These groupings indicate that all NSV studied belong to the group by the number of productive tillers.

### 3.3 Yield components

The analysis showed that there were significant differences between the varieties studied on yield and yield components (Table 3). The highest panicle length was given by Inpari 32 and Inpari 43 varieties, namely 27,30 cm and 28,10 cm, respectively, significantly different from the Padjadjaran and Siliwangi varieties with panicle lengths 26,33 cm and 25,70 cm, respectively.

Panicle length is determined by the hereditary traits of the variety and environmental conditions [18]. Inpari 32 variety could better adapt to the local environment because it has been planted for a long time and is widely planted by farmers in the research location. From the research results, all the varieties studied were included in the long panicle length group. Panicle length is grouped into three groups, namely short (≤ 20 cm), medium (20-30 cm), and long (> 30 cm) [19].

The panicle length is an important variable in determining production. The longer the panicle is, the greater the chances of forming the number of grain per panicle [20]. Reported that the number of grains per panicle had a positive and significant correlation with the percentage of filled grain and panicle length [21]. The large number of grain per panicle will result in a large percentage of filled grain.

**Table 3.** Yield components of several new superior varieties of rice in Majalengka Regency, Dry Season, 2020.

| Varieties | Panicle length (cm) | Number of fill grain per panicle (grain) | Number of empty grains per panicle (grain) | Weight of 1000 grains (g) |
|---|---|---|---|---|
| Pajajaran | 26,33 a | 100,30 a | 56,95 ab | 27,15 abc |
| Inpari 39 | 26,80 ab | 104,60 a | 64,90 b | 2821 c |
| Inpari 32 | 27,30 b | 118,35 bc | 42,20 a | 28,3 c |
| Siliwangi | 25,70 a | 100,25 a | 66,70 b | 27,74 bc |
| Inpari 43 | 28,10 b | 123,20 c | 53,10 ab | 26,54 ab |
| Inpari 42 | 26,65 ab | 111,73 ab | 40,75 a | 26,10 a |

Note: The numbers followed by the same letter in the same column are not significantly different in the DMRT test at 5% level.

Table 3, it can be seen that the Inpari 43 and Inpari 32 varieties gave the highest number of filled grains per panicle of 123.20 and 118.35 grains per panicle, respectively, which were significantly different from the varieties Padjadjaran, Inpari 39 and Siliwangi. From these data, it can be seen that the number of filled grains per panicle produced by plants is related to the length of the panicles, where the longer the panicles, the more grain they produce. The highest number of empty grains was given by the Siliwangi and Inpari 30 varieties, namely, 66,70 grains and 64,90 grains respectively, which were significantly different from the Inpari 42 and Inpari 39 varieties which gave the lowest number of empty unhulled grains, namely 40,75 grains per panicles and 42,20 grains per panicle.

The differences in the number of filled and empty grains per panicle between the varieties studied were influenced by genetic and environmental factors. The genetic nature of each and the environment in which the varieties grew would affect the grain density of each panicle [22].

### 3.4 Rice yields

The ability of rice varieties to adapt to the growing environment is shown in the results of the harvest. The analysis showed that 6 VUB gave significantly different results (Table 5). The highest yields were given by Inpari 32 and Inpari 43 varieties with 7,40 and 7,25 t/ha GKP, respectively. Meanwhile, the lowest yields were given by the Padjadjaran and Siliwang varieties, with 5,18 t / ha and 5,25 t/ha (GKP), respectively.

**Table 5.** Yield of several new superior varieties of rice in Majalengka Regency, Dry Season, 2020.

| Varieties | Actual Yield t/ha (GKP) | Average Yield t/ha (Description) | Yield potential t/ha (Description) |
|---|---|---|---|
| Pajajaran | 5,18 a | 7,80 | 11,00 |
| Inpari 39 | 6,55 b | 5,89 | 8,45 |
| Inpari 32 | 7,25 bc | 6,30 | 8,42 |
| Siliwangi | 5,25 a | 7,40 | 10,07 |
| Inpari 43 | 7,40 c | 6,96 | 9,02 |
| Inpari 42 | 6,90 bc | 7,11 | 10,58 |

Note: The numbers followed by the same letter in the same column are not significantly different in the DMRT test at 5% level.

A significant positive correlation between grain yield and the total number of tillers and the number of productive tillers per hill [23]. Rice yields are related to the number of productive tillers produced, the more productive tillers are produced, the higher the yield. Panicle length and filled grain are one of the yield components that determine the yield. In this study Inpari 32 and Inpari 43 had the longest panicle length and the most filled grains compared to other varieties [24]. The influence of plant genetics can cause the effect of significant differences between varieties on yield. that differences in the amount of production can be caused by differences in genetic composition of each variety of rice [25].

Rice yields are also strongly influenced by genotype, environmental factors, and genotype x environmental interactions. In relation to the influence of genotype x environment interaction, maximum yield potential of rice varieties will be obtained when grown in environments that fit the needs of the genetic optimal [14]. In general, good genetic growth can optimize good adaptability to environmental factors so that the number of tillers formed, panicle length and grain yield are close to yield potential [26]. The high yields given by the Inpari 32 and Inpari 43 varieties indicated that these varieties were able to adapt to their environment.

The results of this study also reported that the average yields of the Pajajaran, Siliwangi and Inpari 42 varieties were still below the average yield according to the description, which were respectively 7,80 t/ha, 7,40 t/ha and 7,11 t/ha. The causative factor is possible because the various growth factors required by the variety have not been optimally fulfilled in order to express their genetic ability in the form of grain yield.

## 3.5 Respondents' preferences for new superior varieties of rice

### *3.5.1 Characteristics of respondents*

There were 24 respondents who participated in this preference test, consisting of 60% farmers and 40% extension workers and village officials. Most of the respondents have an elementary education (40%) and the least is an undergraduate degree (8%), while the rest are high school (20%) and junior high school (26%). The dominant age of the respondents was in the range of 51 - 60 years (Table 6).

The proportion expected from respondents is 50% farmers: 50% extension workers and village officials so that information from farmers compared to extension agents is balanced. However, the proportion of 60% farmers: 40% of extension workers and village officials in this study still meet the balanced criteria. Data obtained from respondents with the distribution of professions and age distribution in this study are expected to be able to provide information that represents consumers in the field.

**Table 6.** The proportion of respondents by profession, education, and age range in Majalengka Regency, 1st Dry Season in 2020.

| Respondents | Percentage (%) | Last Education | Percentage (%) | Age (years) | Percentage (%) |
|---|---|---|---|---|---|
| Farmer | 60 | SD | 40 | 19-30 | 6 |
| Extension workers and Village officials | 40 | SMP | 26 | 31-40 | 12 |
| | | SMA | 20 | 41-50 | 24 |
| | | D3 | 8 | 51-60 | 50 |
| | | S1 | 6 | 61-70 | 8 |

There are five stages in the process of decision-making by consumers, namely recognition of needs, search for information, evaluation of alternatives, purchases and results [27]. Consumers will focus their attention on the product characteristics or attributes that they expect [28]. So that with the NSV display and preference test, it considered farmers to choose the NSV to be developed for rotating varieties to be planted.

### *3.5.2 Respondents' preference for plant performance*

The results of the analysis, showed that the variety of Inpari 32 was the most preferred by the respondents. From the results of the interviews, it was revealed that most respondents chose the Inpari 32 variety based on the characteristics of the plant's height and number of tillers. Inpari 32 has the best performance so that it is liked by many respondents. Farmers like this variety because it has a short plant height, which is less than 115 cm), sturdy and strong stems and a large number of tillers, namely 25,90 tillers per clump. However, this variety must be rotated by other new superior varieties in the following season because Inpari 32 is somewhat susceptible to brown planthopper pests, biotypes 1, 2, and 3 [29]. On the other hand, Inpari 32 has considerable potential to replace old varieties such as Ciherang and IR 64.

**Tabel 7.** Respondents' preference for rice VUB is based on plant performance in Majalengka Regency, Dry Season, 2020.

| VUB | Plant height | Panicle length | Number of tillers |
|---|---|---|---|
| | Mean Rank | | |
| Inpari 32 | 4,23 | 4,21 | 4,81 |
| Inpari 39 | 3,58 | 3,33 | 3,40 |
| Inpari 42 | 3,13 | 3,13 | 3,04 |
| Inpari 43 | 3,06 | 3,19 | 2,73 |
| Padjadjaran | 3,65 | 3,52 | 3,58 |
| Siliwangi | 3,35 | 3,63 | 3,44 |
| Asymp.Sig. | 0,009 | 0,219 | 0,000 |

Note: Asymp. Sig. < 0.05 it means that the respondent's assessment of several varieties was significantly different

Most of the respondents like the plant variety of Inpari 32 because the plant performance and potency of Inpari 32 are almost similar to Ciherang. The results of the study by [30] show that the net real production for Inpari 32 variety reaches 7 tons/ha for land that normally produces 5-6 tons/ha yields. Inpari 32 grain is easy to shed and has a plant age that is almost the same as Ciherang, which is 120 days after sowing.

### *3.5.3 Respondents' Preferences on Grain Character*

The non-parametric analysis showed different assessments of the respondents for each variety tested on all-grain characters. Respondents' preferences for the complete character of paddy rice are presented in Table 8.

**Tabel 8.** Respondents' Preferences on Grain Character in Majalengka Regency, Dry Season, 2020.

| New Superior Varieties | Grain Forms | Grain Size | Grain Color |
|---|---|---|---|
| | Mean Rank | | |
| Inpari 32 | 4,06 | 4,17 | 4,52 |
| Inpari 39 | 4,19 | 4,21 | 4,19 |
| Inpari 42 | 2,29 | 2,46 | 3,10 |
| Inpari 43 | 2,42 | 3,19 | 2,23 |
| Padjadjaran | 4,42 | 4,06 | 3,90 |
| Siliwangi | 3,63 | 2,92 | 306 |
| Asymp.Sig. | ,000 | ,000 | ,000 |

Note: Asymp. Sig. < 0.05 it means that the respondent's assessment of several varieties was significantly different.

The Padjadjaran variety is the most preferred for grain shape characters, while for the grain size the most preferred is the Inpari 39 variety. The most preferred grain color is Inpari 32. It is assumed that the cleanliness level of Inpari 32 is better than other varieties. The clean yellow color of grain usually provides added value which makes the selling value of grain high. Based on the variety description [29], the grain forms tested were medium (Inpari 32 and Inpari 39), slender (Inpari 42, Inpari 43, and Padjadjaran), slender length (siliwangi) and clean yellow grain color (Inpari 32). and Inpari 39) yellow straw (Inpari 42, Inpari 43, Siliwangi, and Padjadjaran).

In plain view, there are differences in the level of clearness of the grain color but in this study it cannot be measured due to limited tools. Grain size is seen from the weight of 1000 grains. The weights for the Inpari 32 variety = 28,39 g, Inpari 39 = 28,21 g, Inpari 42 = 26,10 g, Inpari 43 = 26,54 g, Padjadjaran = 27.15 g and Siliwangi = 27.74 g. Grain of introduced varieties is in the low category (light grains) because the weight of 1000 grains is less than 30 g. The light grade category usually indicates the lean grain and the lean grain preferred by consumers [30].

### *3.5.4. Respondents' preference for rice character*

Based on the non-parametric analysis, it was reported that the characters that received significantly different ratings among the varieties from the respondents were the characters of rice size (Table 9). The variety that the respondents liked the most was the rice size of the Padjadjaran variety. The size of rice from the Padjadjaran variety is classified as the most ideal, the size is not too fat and not too slender so that it does not break easily and is suitable for the liter measurement for traders and is liked by consumers.

From the results of the interview, it was reported that the respondents preferred the slender form of rice because it was more salable in the market and the price was more expensive than the round shape of rice. The slender shape of rice is preferred over the round one [31]. This is because there is an assumption that lean rice tends to have a fluffier taste than round rice. Inpari 39 and Siliwangi are varieties that meet the criteria for rice. In addition to the quality of the grain, the quality of the rice also makes the price of grain and rice good in the market.

**Tabel 9**. Respondents' Preference for Rice Character in Majalengka Regency, Dry Season, 2020.

| New Superior Varieties | Form of Rice | Rice Size | Rice Color |
|---|---|---|---|
| | Mean Rank | | |
| Inpari 32 | 3,81 | 3,42 | 3,69 |
| Inpari 39 | 383 | 3,98 | 3,83 |
| Inpari 42 | 3,21 | 3,33 | 4,06 |
| Inpari 43 | 2,67 | 2,81 | 2,46 |
| Padjadjaran | 3,65 | 4,02 | 3,33 |
| Siliwangi | 3,83 | 3,44 | 3,63 |
| Asymp.Sig. | ,067 | ,010 | ,090 |

Note: Asymp. Sig. < 0.05 it means that the respondent's assessment of several varieties was significantly different

### 3.5.5. Respondents' preference for cooked rice character

All new superior varieties of rice in this study were fluffier, pure white, and fragrant rice. Based on visible observations, there are differences in the level of aroma, taste, fragrance, and purity, the values of which are not measured in this study. Based on visual observations, there are differences in the level of aroma, taste, fragrance, and fluffier where the value of the difference is not measured in this study. The results showed that the Padjadjaran variety was the fluffiest variety because with the same amount of water and rice, the Siliwangi variety was very sticky both on the edges of the aluminum rice cooker and on the rice spoon when stirred. Even though there are indications of differences in quality, they do not make different judgments from each respondent on all varieties tested.

Respondents' preferences for rice quality are the same and all types of rice are preferred by respondents, both for the texture, aroma, taste and color of the rice. It is assumed that the texture of the rice is the same after the rice is slightly warm to cold. The quality of rice is determined by the protein composition, while the texture/coarseness of rice (sticky, soft, hard, and dry) is determined by the composition of amylose and amylopectin [32].

**Tabel 10**. Respondents' Preference for Cooked Rice Character in Majalengka Regency, Dry Season, 2020.

| New Superior Varieties | Rice Texture | Aroma of Rice | Taste of Rice | Rice Color |
|---|---|---|---|---|
| | Mean Rank | | | |
| Inpari 32 | 3,83 | 3,46 | 3,17 | 3,35 |
| Inpari 39 | 3,29 | 2,85 | 3,42 | 3,15 |
| Inpari 42 | 3,58 | 3,04 | 3,58 | 2,79 |
| Inpari 43 | 3,15 | 3,52 | 2,58 | 2,83 |
| Padjadjaran | 3,79 | 4,46 | 4,58 | 4,67 |
| Siliwangi | 3,35 | 3,67 | 3,67 | 4,21 |
| Asymp.Sig. | ,591 | ,010 | ,002 | ,000 |

Note: Asymp. Sig. < 0.05 it means that the respondent's assessment of several varieties was significantly different

Based on amylose content, rice is categorized into 4 groups, namely: (1) rice with high amylose content > 25%; (2) rice with a moderate amylose content of 20-24%; (3) rice with a low amylose content of 10-20%; (4) rice with very low amylose content <10%. The lower the amylose content of the rice, the fluffier the texture of the rice is cooked [33]. Therefore, the new varieties introduced to respondents are thought to have moderate to low amylose content due to their fluffier texture.

## 4 Conclusions

The Inpari 43 variety gave the highest yield, followed by Inpari 32, Inpari 42, Inpari 39, Siliwangi, and Padjadjaran. The majority of respondents liked rice varieties with short plant height, large number of tillers, thin grain shape, white rice color and fluffier rice taste. These characters are mostly owned by the Inpari 32 variety. Therefore, in the future the breeders in creating new superior rice varieties must pay attention to the preferences of the respondents in addition to the high yield potential.

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