

# PREFERENCE OF SUPERIOR LOCAL CHICKEN MEAT FROM AGRICULTURAL RESEARCH AND DEVELOPMENT AGENCY KUB AND SENSI-1 AGRINAC AT SATO NADI GROUP IN JEHEM VILLAGE, BANGLI

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**Abstract.** Superior local chickens Balitbangtan (KUB) came from genetic selection result that can produce more eggs. Sensi-1 chicken (Sentul selected) Agrinac is superior local chicken from Indonesia. The purpose of this study is to compare KUB's chicken sensory acceptance and sensi-1 Agrinac. Sensory test using hedonic quality scale 1-6 of color, taste, texture, and level liking. Research data were analyzed using ANOVA correlation analysis and path analysis. The result of sensory test analysis was significant for color, taste and likeness. Attributes of chicken meat taste quality correlate very real with the level of preference and have strongest direct influence. The best preference on ranking test is found in female KUB's chicken. Physical quality of female KUB's chicken 73.65% water content, 13.52% water holding capacity, 34,60% cooking losses and 5.50 pH.

## 1. INTRODUCTION

Meat is source of protein that the body need, so it must be available in daily. Meet can be met from poultry. Poultry consist of boilers and laying eggs. However, rejects laying hens can also be used as meat producer. The main consumption of meat from livestock in Indonesia 90% come from boilers poultry. Beside that poultry meat is preferred by consumers because it is easily digested can be accepted by community and has relatively cheap price [2].

In 2009 Indonesian Agency for Agricultural Research and Development launch KUB chicken breed (Balitbangtan's native chicken). KUB chicken flute is the result of research on selection female chicken flute by reducing the incubation and has advantage of higher egg production compared to ordinary native chicken. Sensi-1 chicken (sentul selected) agrinac is the result of a research by Indonesian Agency for Agricultural Research and Development, which is pure line of superior local boilers and has been designated as a local strain of native Indonesian chicken from Ciamis Regency. The superiority of sensi-1 chicken agrinac as the highest producer of weight [4].

Daily protein consumption from poultry, generally obtained from boiler chicken. Beside the need of meat from poultry can also be obtained from local chick, both local chicken or superior local chicken. Local chicken meat has a distinctive taste that is widely used as a culinary ingredient. The obstacle in the development of local chicken is relatively low egg and meat production. To improve the utilization and development of local chicken, genetic selection is needed to produce strains by highlighting the advantages of egg production and increasing body weight, such as KUB chicken and sensi-1 agrinac from the Indonesia Agency for Agricultural Research and Development [4].

Meat quality are influence by the color, impression of meat juice (juiciness), texture, tenderness and taste which greatly determines consumer acceptability of meat to be consumed [5]. To determine

the delicacy and acceptability of superior chicken meat KUB and sensi-1 agrinac, it is necessary to do a sensory test. The aim of this study is to look at sensory differences in superior chicken meat from KUB and sensi-1.

## 2. MATERIAL AND METHODS

### 2.1 Material

The main materials are superior local chicken meat from Agricultural Research and Development, type KUB and Sensi-1 Agrinac. Equipment used for physical quality analysis consist of measuring cup, beaker glass, pH meters, water bath, ovens, analytical scale, thermometers, gas stove, pan, cutting boards and knife.

KUB chicken and sensi-1 agrinac maintenance in Sato Nadi group, Jehem Village, Tembuku, Bangli. Rearing chicken using postal cage (in one large cage there have male and female chicken) to get eggs. The main component that use in this study is KUB chicken meat and sensi-1 arginac maintained by farmer.

### 2.2. Methods

There are 100 KUB chicken and Sensi-1 arginac kept in different cages, with total 50 chickens in each cage. The feed provider consists of 40% corn, 25% concentrate and 35% bran. Improvement of animal health is done by giving herbal medicine before laying eggs ( $\pm$  22 weeks) at a dose 5 cc/ liter of water and given continuously for  $\pm$  4 months.

At the end of maintenance (reject phase), 1-year old chicken is cut to get meat. Chicken sample are taken randomly on male KUB chicken (KJT), female KUB (KBT), male Sensi-1 arginac (SAJ) and female Sensi-1 arginac (SAB). Each sample is carried out 3 times, so the total number of chicken slaughtered is 12. Chicken meat use in the sensory test is boiled without addition salt and seasoning.

Sensory test [14] use a scoring method by 14 untrained panelists. The hedonic quality scale uses a score of 1 – 5, on color, texture, taste and level liking (acceptability). The color attribute score consists of 1 = dark; 2= rather dark; 3 = pale; 4 = a little bright and 5 = light. The texture attribute consists of 1 = clay; 2 = a little clay; 3= neutral/ordinary; 4= slightly soft; and 5= very soft. Taste attribute consist of 1= bitter; 2=not very tasty; 3= not tasty; 4=slightly savory; and 5=savory. Favorability attribute consist of 1=very dislike; 2=don't like it; 3=rather like; 4=like; and 5=really like it. The ranking test is conducted to find out the sample that panelist like the most.

The result of sensory test [14] most favored by panelist are carry out quality analyzes of water content [1], water holding capacity [8], cooking losses [15] and pH. The data obtained are analyzes statistically use analysis of variance (ANOVA) to see treatment effect. While the ranking test data, transforms into the Fischer and Yates Table (1942), which use to determine the numerical value of the score of each sample. In addition, correlation analysis and path analysis are also conducted.

## 3. RESULT AND DISCUSSION

The result of the analysis KUB chicken meat variance and Sensi-1 agrinac are significantly different ( $P < 0.05$ ) on the sensory test of color, taste, level of preference, and ranking test (Table 1 and Figure 1). KUB chicken meat based on the color of the meat get a score of 4,71 (slightly bright to bright) which is the highest score compared to the meat taste. Likewise, based on taste and liking, meat highest score is 4,29 (slightly savory) and panelists like it base on the taste level test.

KUB-1 chicken is a laying egg type, but in the reject phase it often uses as a broiler. While Sensi-1 arginac chicken is a result of cross between local chicken and superior boilers to get boilers type [4].

Table 1. Sensory test of KUB chicken and Sensi in Sato Nadi group, Jehem Village, Bangli

Treatment	Color	Texture	Taste	Level of Pleasure
KJT	3,00 $\pm$ 0,961 b	3,36 $\pm$ 1,151 a	3,64 $\pm$ 0,842 ab	3,64 $\pm$ 0,929 ab
KBT	4,71 $\pm$ 0,726 c	3,71 $\pm$ 1,383 a	4,29 $\pm$ 0,994 b	4,29 $\pm$ 0,994 b
SAJ	1,86 $\pm$ 1,027 a	2,93 $\pm$ 1,385 a	3,14 $\pm$ 1,027 a	2,79 $\pm$ 0,892 a
SAB	3,36 $\pm$ 0,929 b	3,93 $\pm$ 0,829 a	4,14 $\pm$ 0,535 b	3,71 $\pm$ 0,825 b

Notes : The number follow by the same letter in the same column shown no significant difference ( $p < 0.05$ ) in the Tukey test of 5%

KJT = KUB male; KBT= KUB Female; SAJ= Male Sensi Argrinac; SAB= Female Sensi Agrinac

Color attributes: 1=dark; 2=rather dark; 3=pale; 4=slightly savory; 5=savory.

Texture attributes: 1=clay; 2=a little clay; 3=neutral/ordinary; 4=slightly soft; 5=very soft

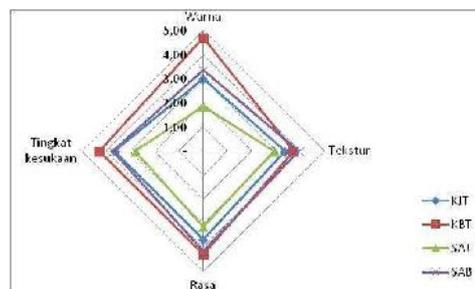
Favorability attribute: 1=very dislike; 2=don't like it; 3=rather like; 4=like; 5=really like it.

Consumer decision in choose meat for consumption is more concerned with eating quality and physical properties of meat compare to knowing the number of microbes and chemical content of meat. This is because eating quality prioritizes the senses of human sensitivity base on sight, smell, taste and touch of five sense. Eating quality can be carry out by organoleptic testing (sensory testing) [7].

Female KUB chicken get highest score, at 4,71 bases on the color attribute. According to Resnawati [12], bright color on meat is preferred by consumers. Because color is one of the panelist considerations in evaluating foodstuff [10]. Hidayah's research result mention the color of KUB chicken is pale compare to male chicken, broiler chicken and local chicken [3]. While Prayitno's research mention the color of broiler chicken meat between slightly yellow to white [10]. The result is comparable to color of female KUB chicken (KBT) which has a slightly bright to bright flesh color. Another thing that can affect color is water content and pH value of meat [11].

Taste attribute is also use as one of the considerations in assessing/choosing foodstuff. Panelist prefer female KUB chicken with a score of 4,29 (slightly savory to savory). This may be influence by fat content, type of chicken, age, type of feed and cooking process [12]. In general broiler meat has more bland taste, high fat content, sharp odor and thicker skin. While local chicken has more savory taste. This statement is in accordance with the result of the study, because KUB chicken is a type of laying egg, different from sensi-1 agrinac.

Hidayah research result, stated KUB chicken meat has softer texture amount 6,7 mm/10 seconds compares to male chicken meat, broiler chicken and local chicken [3]. While the texture of chicken meat base on sensory test did not differ between KUB chicken and sensi-1 agrinac. Sensitively the texture of meat of both type of chicken score 2,93–3,93 (slightly clay to slightly tender), as in Table 1. The result of the variance analysis on the level of chicken meat preference are sensory significantly different between treatment (Figure 1). Panelist prefer female KUB chicken (KBT) compare to sensi-1 agrinac chicken meat. This can be related to the result of ranking test conduct by panelist (Figure 2). Female KUB chicken meat (KBT) ranks first from the panelist assessment, this is because chicken meat has a lighter color and tastier taste, so that preferred by panelist.



**Figure 1.** Result of descriptive analysis of KUB and Sensi-1 Agrinac chicken meat in Sato Nadi Group, Jehem Village, Bangli



**Figure 2.** KUB chicken and Sensi-1 Agrinak rank test in Sato Nadi Group, Jehem Village, Bangli

Notes : KJT= Male KUB; KBT= Female KUB; SAJ= Male Sensi Agrinac; SAB=Female Sensi Agrinac

The result of correlation analysis between taste attribute with a degree of preference show positive relationship (Table 2). This result indicates an interaction between taste attribute in influence the level of liking. The result of the follow up analysis use path analysis to determine the direct and indirect effect of the taste attribute on the level of liking (Table 3).

Table 2. Correlation value color, texture, taste and level of preference

	Color	Texture	Taste	Level of Preference
Color	-	0,37	0,12	-0,09
Texture		-	0,51	0,29
Taste			-	0,92**
Level of Preference				-

Notes : \*\* Real in 1%

The result of highest correlation analysis to the level of preference (Table 2) are found in the taste attribute of 0,92. Based on the result of the trajectory analysis, it can be seen the order of magnitude of direct influence on the preference level attribute (Table 3). The highest direct effect found on the taste attribute, amount 1,073; texture attribute ranks second, equal to 0,022. It can be concluded that KUB chicken meat preference is influence by taste attribute, based on panelist preference, the score of highest flavor score is first.

Table 3. Direct and indirect effect of color, texture and taste attribute on the level of preference

	Indirect	Direct	Total Influence
Color	-0,008	0,022	0,013
Texture	-0,099	0,035	-0,064
Taste	-0,099	1,073**	0,074

Notes : Real in 1%

The result in analysis variety of KUB chicken meat and Sensi-1 agrinac are not significant ( $p > 0.05$ ) on water content (%), water holding capacity (%), cooking loss (%) and pH, as present in Table 4. The best treatment of female KUB (KBT) base on the analysis of sensory test and ranking test has water content 73.65%, water holding capacity 13.52%, cooking loss 34,60% and pH value 5.50. Best quality of meat can be seen base on the value of cooking losses. Meet with low cooking losses will have better quality [12].

Table 4. Quality testing of KUB chicken and Sensi-1 Aginac chicken in the Sato Nadi group, Jehem Village, Bangli

Treatment	Water Content (%)	Water Holding Capacity (%)	Cooking Losses (%)	pH
KJT	73,23 ± 0,936	20,32 ± 6,276	36,57 ± 1,224	5,77 ± 0,252
KBT	73,65 ± 0,952	13,52 ± 2,765	34,60 ± 3,775	5,50 ± 0,000
SAJ	74,42 ± 0,913	16,68 ± 2,631	34,60 ± 4,167	5,63 ± 0,231
SAB	81,38 ± 12,038	15,91 ± 1,698	36,13 ± 4,542	5,67 ± 0,289

Notes : KJT= Male KUB; KBT= Female KUB; SAJ= Male Agrinac Sensi; SAB= Female Arginac Sensi.

#### 4. CONCLUSION

The result of sensory test analysis is significant for color, taste and likeness. Attribute of chicken meat taste correlate with level of preference and have strongest direct influence. The best preference base on ranking test found in female KUB chicken (KBT). The physical quality of female KUB chicken (KBT) has water content 7,65%, water holding capacity 13,52%, cooking losses 34,60% and pH 5.50.

#### AUTHOR'S CONTRIBUTIONS

The chicken research design method was carried out by Wayan Trisnawati and Nyoman Suyasa. The design of chicken farming was carried out by Nyoman Suyasa and Anastasia Sischa Jati U. Data analysis was carried out by Wayan Trisnawati. Paper writing is done by Wayan Trisnawati. Paper editing was done by Wayan Trisnawati and Anastasia Sischa Jati U. This paper has been approved by all author.

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