IMPLEMENTATION OF JAVA CALCULATION IN DETERMINING GOOD DAY FOR FARMING IN DURENSAWIT VILLAGE, KAYEN VILLAGE

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Abstract

Research conducted in Durenswit Village, Kayen district, Pati Regency aims to determine whether the Javanese counting system is still used in the village. As well as its implementation in determining the good day for planting. The method used in this study is a qualitative ethnographic approach in accordance with the conditions of the region and ethnic Durenswit Village Community. The Data in this study came from interviews with village elders and the general public living in Durenswit Village. From the research conducted ,it can be seen that most of the people in Durenswit village still apply the Javanese counting system in determining a good day to grow rice, corn, and crops. For people who do not understand how to count, and the determination of the day, they will go to the village elders to ask for help to count the good days. They have the belief and assumption that choosing a good day will produce plants and good results, and vice versa. Differences in the views of some figures on the implementation of the Java system is not a significant problem for the people of Durenswit Village.

Keywords: Calculation;Java;Pati; Suitable planting

INTRODUCTION

Indonesia is known as an agricultural country where most of its economy depends on the faperta uniska agricultural sector (2022). Farmers as a buffer for the current state order are often underestimated and considered to have no other skills, so as to make the profession of a farmer as a last resort when not getting a job that suits the ability of Kisah Rasa Nusantara (2024). For some people, this farmer profession is an option because it is considered to provide peace. However, there are also some people who become farmers from birth because they grew up in agricultural areas. Farming activities are usually influenced by the way of thinking of the local community, customs, norms, and beliefs in the area.

Today's agricultural system is more modern than the way of farming in the past that only used traditional tools (Corteva Agriscience, 2019). Along with the Times farmers use modern science with the aim of getting more profits. Although it has implemented a modern agricultural system, if observed more closely they not only use modern techniques and science that exist today. Farmers in the village of Durenswit still apply the system of Customs taught by the ancestors of the village. Cultural values that are still maintained until now are examples of the application of Javanese calculations in the practice of implementing land processing, determining the beginning of planting and choosing the day to harvest the plants.

Durenswit village farmers started farming activities just like farmers in other regions, they started from cultivating the land, planting seeds that have been provided, caring for (irrigating, fertilizing, controlling pests) and harvesting the plants. After processing the land, the community chooses a day to start planting the land that is ready. Determination

of planting day is calculated using the calculation of the Javanese calendar. People in this area call it pitungan Java. The calculation system is based on the results of counting operations from the number of days AD and market days (Nur Sitha Afrilia, 2019). Some people when they hear the term market day is a term that is quite foreign. What is meant by market day is the name day in Javanese, namely pahing, pon, kliwon, legi, and wage. The mention of the day for Javanese people is usually directly specific, such as Monday Pahing, Tuesday Kliwon, Wednesday legi, Thursday Pon, Friday Wage.

The discussion of the market day is usually quite long because it covers many lines of life in the community, but in this paper the author focuses only on the petung day system to start planting, the day to harvest, as well as the day that becomes taboo when it will start the planting period and the harvest period that applies in the community of Durenswit Village, Kayen District, Pati Regency.

Here are some studies that are relevant to this study. Research Mukti & Noor, 2018) with the title "local wisdom in Paddy agribusiness system, Sukanagara Village, Lakbok District, Ciamis Regency, West Java Province" shows that management techniques carried out by farmers generally still adopt the behavior and knowledge of farmers of old. The behavior and knowledge is passed down from generation to generation and has become a custom or habit of farmers in rice cultivation. Knowledge and behavior of traditional leaders or kasepuhan become very important. This is because the traditional leader is a person who knows the science and techniques in Rice Management with reference to the knowledge of ancient farmers. This knowledge can help farmers to maintain stable production and productivity of rice produced. There are adjustments from the village government and institutions related to the agricultural sector, namely by preserving and maintaining noble values that exist among the community, especially people who make a living as farmers. For example, such as the commemoration of alms of the Earth which is carried out once a year by the village government and the determination of the planting season of rice fields refers to the calendar of prey institutions set by agricultural extension agencies. Research conducted by Hidayat & Fardiansari (2016) with the title "determination of good days as a Javanese cultural system (local wisdom in culture in Genaharjo Village, Semanding, Tuban)" shows that such actions are a form of Javanese people's way of thinking in acting and doing in order to maintain harmony and harmony in the order of human life individually, socially, spiritually, and religiously. In his research, for example, the people of Genaharjo still hold firmly to the Javanese view of life, which is reflected in the system of determining auspicious days. The Good Day determination system is a form of rationalization of Javanese society in the form of numbers. It means that the conditions in the world are determined by what people do. In addition, the Good Day determination system is a means of deductive thinking, arranged in formulas (criteria), and becomes a language as a traditional logic system of Javanese society. Its function, to organize a more concrete, simple, and rational life. This knowledge is gained from the legacy of the past passed down from one generation to the next, as part of the spiritual aspect of Javanese culture. Research conducted by Muhammad Khoiru Zaki (2020) entitled "adaptation to extreme hydrological events of Javanese communities through local knowledge " shows that the role of communities in understanding the influence of local knowledge on actions and decisions taken during the crisis is important; empirical studies and scientific data can serve as lessons for achieving this goal. This study integrates local knowledge (Pranata prey) in Java, Indonesia, with scientific data on diurnal rainfall, extreme rainfall events, using the local and customary Knowledge System (LINKS). The results show that Pranata Prey has been informing aspects of agriculture including planting calendars, planting patterns, and agricultural activities, for more than 1000 years in Java. Prey institutions also improve community resilience by mitigating

the effects of extreme drought; the findings were validated using scientific data. Research conducted by CS Murthy, B. Luxman, MVR Shesha Sai (2015) with the title "Geospatial analysis of agricultural drought vulnerability using a composite index based on exposure, sensitivity and adaptive capacity" discusses the vulnerability of Agriculture to drought conditions is closely related to the challenges of sustainable agriculture and food security. Information on the status of agricultural drought vulnerability at various scales is critical for determining, developing and implementing long-term drought management measures. The study aims to develop a composite index to measure the drought vulnerability of generic crop agriculture at a fragmented level, in the region that was once the Indian state of Andhra Pradesh. By analyzing satellite-based soil, irrigation, farmland, rainfall, rainy days, cropping patterns and crop conditions data, 22 input indicators for 1,038 spatial units called "mandals" (within district administrative units) were generated and separated into exposure, sensitivity and adaptive capacity components of vulnerability. The composite index is calculated for each component by generating input weights through the variance approach. The agricultural drought vulnerability index is generated for each Mandal by combining the three component indices and the beta distribution is adjusted to generate the vulnerability class. The results showed that vulnerable groups of mandals represent 57% of agricultural areas and 67% of rainfed crop areas in the state. Patterns of geographic vulnerability can be captured well by composite indices. Dominant districts with vulnerable mandals show frequent droughts and higher crop yield variability. Vulnerability maps can play an important role in determining regional priorities for drought management interventions . Since this methodology is applied to a large geographical area with diverse weather, soil and plant conditions, its usefulness in other geographical areas is also known. Research conducted by Sarvenaz Farhangfar, Mohammad Bannayan, Hamid Reza Kazei (2015) with the title "Vulnerability assessment of wheat and maize production affected by drought and climate change" this study discusses the vulnerability of Agriculture which can be interpreted as the extent to which agricultural systems may experience losses due to a pressure. A simulation study was conducted to assess the vulnerability of wheat (irrigation and rainfed) and corn production due to drought and climate change in northeastern Iran. The UNEP aridity index (AI U) was calculated to measure the drought situation in five agricultural centres including Birjand, Bojnourd, Mashhad, Sabzevar and Torbat Heydarieh. Projected changes in climate variables were simulated by two general circulation models : HadCM3 and IPCM4 in three scenarios (A1B, A2 and B1), which were simulated by LARS-WG. Cropping System (CSM)-CERES-wheat and (CSM)-CERES-corn models are used for simulation of plant growth under projected climatic conditions. To measure the magnitude of susceptibility to various drought conditions, susceptibility is considered as a function of sensitivity, state of well-being relative to damage and exposure thresholds. Vulnerability is calculated taking into account severe droughts in specific years and estimated vulnerability taking into account the estimated frequency of droughts. The results showed that at all study sites, wheat and corn production were severely affected by severe drought during the base period and both crops were highly sensitive to drought. Crop production is also projected to be particularly vulnerable to possible droughts during the projected years, just like the base period.

The development of the times can have an impact on the existence of a tradition. Both in positive and negative form. In this regard, the authors of this study will focus on studying the petung dina and its application to the community of Durenswit Village, Kayen District, Pati Regency, with the question of how the petung Dina system and its application in the community of Durenswit Village, Kayen District, Pati Regency.

METODS

Data and methods

This study uses a qualitative entography approach to the social Humanities of certain cultural ethnic groups within a certain period of time (Creswell, 2014). This study was conducted in Durenswit Village, Kayen District, Pati regency, Central Java Province, Indonesia. The research period used for four days is from May 22, 2024-May 26, 2024. The data sources used are primary and secondary. Primary data sources were obtained from key informants, among others; village elders, and some randomly selected communities. While secondary sources are obtained from records of elders who have been owned from earlier times.

Participants

This study uses purposive sampling to obtain relevant sources and informants. The sample consisted of seven community leaders of different age ranges. The age of the participants ranged from 30 to 70 years. the figures chosen between one and the other do not live in one house.

Data collection

This study uses ethnographic methods that include observation, interview and recording. Research Data were collected using interview guidelines in May 2024 using the Java language. Interview questions contain questions about whether they understand Java calculations. The interview was then transcribed into Javanese, and Indonesian. In addition to observation data, field data is also supported by photographs of activities during interviews. To obtain valid data, researchers used the source triangulation technique (Denzin & Lincoln, 2011). Authors participate,discuss, understand the understanding of research informants during the study. Research conducted by Siriwat Boonwichai, Sangham Srestha, Mukhas S. Babhel (2019) entitled “Evaluation of climate change impacts and adaptation strategies on rainfed rice production in Songkhram River Basin, Thailand” in this study it can be noted that this study investigated rice yields and evaluated potential adaptation efforts to land management practices for rainfed rice production in climate change scenarios in the Songkhram River Basin, Thailand. Top-down and bottom-up approaches are combined to evaluate future climate conditions in the Songkhram watershed and identify adaptation strategies. A set of four bias-corrected Regional Climate Models (RCMs) using quantile mapping techniques were used to project future climate based on two climate change scenarios (RCP4.5 and RCP8.5). The dssat crop simulation Model was used to simulate rice yields and evaluate the impact of climate change on rice yields, as well as the feasibility of four adaptation options, collected from four hundred farmers through questionnaire surveys in the river basin. Strategies undertaken include (i) changes in planting dates, (ii) changes in the date of fertilizer application, (iii) changes in the dose of fertilizer application , and (iv) irrigation water supply. Based on the model results, future maximum and minimum temperatures are expected to increase by 2.8 and 3.2 ℃ respectively based on the RCP8.5 scenario in the 2080s. Although annual rainfall may not change, precipitation patterns will change earlier in the future. Evaluation of adaptation strategies showed that the provision of irrigation water in scenarios RCP4.5 and RCP8.5 is the best strategy to increase rice yield in climate change scenarios. Changes in fertilizer application dates and changes in planting dates can increase future rice yields by 12 and 8%, respectively, based on RCP4.5 Scenarios for the 2080s. However, adjusting the dose of fertilizer can reduce rice yields in the future. Although the provision of irrigation water can help the production of rainfed rice, there are other problems such as water resources. The feasibility of adaptation measures will largely depend on available resources and the mindset of farmers. Further efforts are needed to explore a combination of adaptation strategies and management plans to combat the adverse effects of climate change.

Data Analysis

Then, for the method of presenting the results of data analysis, the author uses a descriptive-qualitative method. Data analysis techniques using interactive models Milles and Huberman there are three main things. The three main things are data reduction techniques, data presentation, and inference. The method was chosen on the basis of consideration in the form of field data collection process conducted by interviews, automatically included in the category of qualitative data. The Data that has been obtained is then presented descriptively in the discussion section and the final conclusion.

Here are the steps researchers in analyzing the data with interactive model techniques Milles and Huberman as follows (interactive model in Figure 1). First, data collection is to collect data contained in the research location by conducting observations, interviews and documentation by determining the appropriate data collection strategy and to determine the focus and deepening of data in the next data collection process. Data collection in this study was conducted by observation and interviews directly to the relevant informants. Observations were made by observing the life of farmers in Durenswit Village. The interview is conducted using a list of questions prepared in advance. The questions are open questions, so the researcher will decide to ask back or not on the answers submitted informants. Observation is done first before proceeding to the interview which then ends with the documentation of the results. The data obtained through various means are then continued to the next stage to be processed until generalization. Second, data reduction refers to the selection process, focusing on simplifying and changing the data contained in field notes, interview transcripts, documents and data that have been obtained (Wandi et al., 2013). Qualitative Data that has been obtained can be changed by selection, summary or description using their own words. Based on the data, researchers look for which data, themes, and patterns are important, while data that are considered unimportant will be discarded (Rijali, 2019). Here the researchers conducted a subjective selection by using the necessary information only in order to answer the research permasdalahn. This is done considering that in the interview the answers given by the informant are much wider than the questions asked. Third, the presentation of data is a presentation as a set of structured information that gives the possibility of drawing conclusions and taking action (Milles, 2014). The presentation of data is intended to be the data from observations, interviews, and documentation that has been done with the aim of gaining understanding in the field and making decisions on research results. The presentation of the data is done precisely and clearly so that the information that the researcher wants to convey can be understood by the reader. In this article the data shown is the result of interviews with informants. Researchers present relevant interview results and reinforce the informant's statement with previous studies.

Fourth, any initial conclusions that are put forward are still provisional and will change if there is strong evidence to support at the next stage of data collection. Efforts to draw conclusions conducted researchers continuously while in the field. After collecting the data, the researcher looks for the meaning of the explanations. The conclusions were then verified during the study by rethinking and reviewing the field notes so that an affirmation was formed (Milles, 2014). The conclusion contains a generalization of the informant's answers.

DISCUSSION

Profile Of Durenswit Village

Durenswit is the name of a village in Kayen District, Pati Regency led by the village head named Didik Muryanto SH from 2020-2025. Administratively divided into 5 RW and the number of RT as many as 30 with a population of 1000 people . Durenswit village is bordered by Grobogan regency (South), Sukolilo District (West), Beketel Village (East), and Slungkep village (north).

The majority of people in Durenswit village live as farmers, due to uneven soil conditions (slopes).

Counting Java

The general view of the people of Durenswit village about Javanese calculation The discussion section in this study will present data from interviews that have been conducted by the author with several informants. The background of the selected informants varied, so that the interview data was summarized descriptively as follows.

The first informant was Karti (55) from RT.05 / RW.04, Hamlet Ciroto, Durenswit Village. According to him, at the end of this month when he will harvest his corn, his family still uses petung dina to determine the right day to harvest his corn. Mrs. Karti believes in the results of the count. According to him, the tradition that has been carried out for generations cannot be abandoned, because he has experienced an incident when he ignored the day restrictions that should not be used for harvesting but still forced to finally have an unwanted incident. One of the neighbors who helped him harvest was struck by a snake bite. Such an event is already the destiny of the creator, but he believes that there is something to do with the improper selection of the day. In contrast to Kimyari (45) farmers and traders from the same hamlet. Kimyari used the perspective of Islam when he expressed his opinion and said that, "in Islam the Election Day is all good, such calculations can be said to be shirk because they precede the power and decrees of Allah which are only based on the science of titen".

Siti (54), from Sobowengi hamlet also argued that, "violating Javanese petungan is like looking for your own misfortune. The proof was when I wanted to harvest and it turned out that day was my fateful day, my sister had warned me to postpone the harvest but I still insisted. Finally, when I wanted to cut the corn tree, I fell off the slope and even broke my wrist, from then on I preferred to obey the usual calculations applied here." From this view, it can strengthen the author's view that some people still believe that petung jawa has a significant role in the process of determining the day for planting and harvesting. Furthermore, Tiyono (57) a mosque takmir in Dukuh Ciroto explained that, "I personally take a neutral stance against this Javanese petung mbak. In fact, sometimes even do not use petung to start planting corn or crops. Anyway, if the land is ready, I don't plant it right away, but if I want to harvest, I still come to the elders who understand the calculations. I do not understand how the system, let alone calculate a good day today what day (market day) I do not know."Then, Sugiyanto (35) argues "Javanese petungan like this can be used for self-reminder. As an intelligent human being, everyone has the right to believe or not. Even if this calculation is considered to have no impact whatsoever in everyday life, please do not use it. And for those who believe this petungan no good impact yes please to preserve the existing culture. As long as it doesn't interfere with each other's lives, I think everything is fine."

Java calculation Expert View

Wasito (59), a petungan expert from Dukuh Ciroto, Durenswit Village, argues that, "most of the Durenswit community must still use petungan hari. Not only calculations to determine the day of planting, building a house, buying a vehicle, starting a business, determining the wedding day, and so forth. There are those who really believe, or only make the results of calculations as a formality to follow the village tradition. Young people today do not understand the calculations like this, there are those who consider it strange and foreign but must not forget that traditions like this must still be preserved as a culture that remains classified."

1). Mr. Wasito as a member of petungan convey that petungan used is Petung Aboge or petungan system that starts from Rebo Wage. According to him, although both are calculated, but each region has its own system and rules. "It's a place where people come from all over the world and ask

questions," said Mr. Kowalski. The purpose of this explanation is the assertion that, “the people of Durenswit village use the Aboge calculation system. If traced its history is since the days of Aji Saka."Further explanation of Javanese calculation based on Aboge can be read and studied in the book “Understanding culture: Meteodology theory and its applications” by Mudjahirin Thohir (2007)

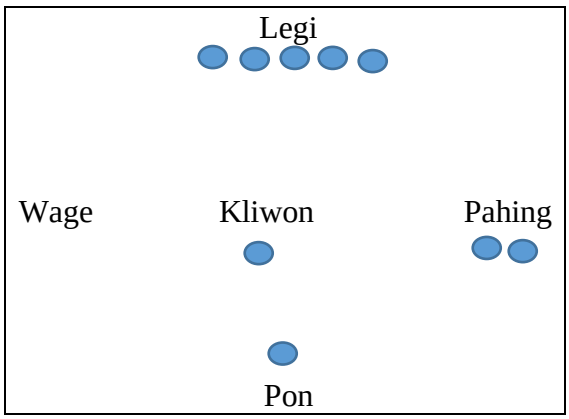
2). The number of days in a month in Java is different from the number of days in the Common Era. In the Javanese calculation system, one buan is a whole of 35 days. While in the calculation of Maehi one month there are 30, 31 even in February only amounted to 28 or 29 when entering a leap year. The explanation is in accordance with the opinion of Thohir (2007:80) which states that, “Aboge Calendar has a fixed benchmark to determine the fall of the date on each month. The determination is based on the name of the year that runs repeatedly in sewindu. And found the number of days in each year is 35 days.”

3). The stipulation of the number of days that is always consistent in the Javanese petung system makes it easy for petung experts to calculate or set important days, such as building a house, circumcision, and even determining the wedding day.

4). In addition to the consistent number of provisions, there are four types of days which are then used as indicators by petung experts in determining a suitable day to start planting or for harvesting. The four days are root, uwit, leaves, uwoh. Of the four days the most recommended Day is uwoh.

5). The existence of this calculation does not necessarily serve as the only basis to be believed. Its existence can actually be used as a reminder of themselves to be wiser in life. The people of Durenswit village still preserve this petungan culture and tradition so that life is guided by the principle of “niti setiti” or be alert and careful.

6). Use of coins. Petung dina performed by Wasito using the media coins. During the interview in the field data collection, Wasito explained the exact calculation flow to choose the day and from which direction the farming process begins. In the interview, Wasito took an example of determining what day of the election and from which direction to start. The counting process starts from choosing a name day as well as the market (eastbound legi, southbound pahing, westbound pon, northbound wage, middlebound kliwon). For example, on that day Wasito chose Monday legi. Then the counting starts like playing dakon but here the shape is Square and plus the middle, where the process of distributing coins starts from the market day, namely legi which fills the east direction then rotates to the right (pahing/South, pon/West, wage/North, and kliwon/middle) the counting stops when it is at the point of one parallel line and the coins that are rotated have run out at the point. From these calculations, the following results are obtained:



Senen Legi (senen 4 + legi 5 = 9 uang koin yang digunakan)	
Direction	Result
North	0
Center	1
South	2
East	5
West	1 (day center)

From the count can be concluded that on Monday legi if you want to start farming starts from the east to the West. Because the east direction gets the most numbers and the west direction is aimed at there is no vacancy.

CONCLUTION

This article is the result of research on the implementation of the application of Java counting which has an analogy as follows, " in a closet there are many clothes that can be used, but before deciding which clothes to wear we will definitely choose according to the activity or event to be visited. It is okay to choose any clothes as you wish and no one forbids."Likewise with the calculation of Java, which is still believed by most of the Durenswit community according to the results of interviews that have been conducted which refer to things that are in line with the author's understanding that the calculation system is still relevant to the traditions and culture of the Durenswit Village community, although not fully the community believes in its existence. The conclusion is based on the results of the interview summary which produces the following essence.

1. Some people admit that the existence of Javanese petungan as a tradition and culture makes them more determined to determine a good day and avoid unwanted negative things during planting and harvesting.
2. There are those who disagree with the Javanese petungan system because it is not in harmony with religion so that these people choose not to use petungan in accordance with their beliefs.
3. Javanese counting is not well known among young people, but as a culture and tradition it is still applied in everyday life even though the counting requires a long process.

Of the three things can be concluded that people tend to still use Java petung. Although it does not fully apply to everyday life. This is influenced by the mindset, the development of Science and technology and improving the quality of education in people who tend to think rationally and rule out the negative effects of Java calculation if abandoned. Petung Jawa is a calculation that is abstract and based on scientific knowledge that has not been able to prove the truth.

Abstract Java Petung is indeed difficult if it must be proven scientifically. But it should not be an educated society today directly prefer to leave the tradition and Culture on the grounds of irrationality. Is not it already a kelumrah in society if there is a tradition that is considered unreasonable. People who uphold diversity should appreciate and respect all forms of tradition in the area. Because, however, tradition is part of a cultured society, including Javanese Petung that occurs in Durenswit Village, Kayen District, Pati Regency.

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